

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20503
BIBLIOGRAPHIC INPUT SHEET

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Batch 73

| | | |
|-----------------------------------|---|----------------|
| 1. SUBJECT CLASSI- FICATION | A. PRIMARY Development and economics | DC00-0000-G240 |
| | B. SECONDARY Development assistance--Tunisia | |

2. TITLE AND SUBTITLE
Staff summary report of Workshop on Systems Analysis and Operations Research

3. AUTHOR(S)
(101) Workshop on Systems Analysis and Operations Research, Tunis, 1977; National
Research Council, Board on Science and Technology for Int. Development

| | | |
|--------------------------|--------------------------------|----------------------|
| 4. DOCUMENT DATE 1977 | 5. NUMBER OF PAGES 42p. 43p | 6. ARC NUMBER ARC |
|--------------------------|--------------------------------|----------------------|

7. REFERENCE ORGANIZATION NAME AND ADDRESS
NAS

8. SUPPLEMENTARY NOTES (Sponsoring Organization, Publishers, Availability)

9. ABSTRACT

| | |
|---|-------------------------------------|
| 10. CONTROL NUMBER PN-AAF-057 | 11. PRICE OF DOCUMENT |
| 12. DESCRIPTORS Meetings Operations research Systems analysis Tunisia | 13. PROJECT NUMBER |
| | 14. CONTRACT NUMBER CSD-2584 GTS |
| | 15. TYPE OF DOCUMENT |

AS-25, 4
NAS FN-AAF-057

STAFF SUMMARY REPORT

WORKSHOP ON SYSTEMS ANALYSIS AND OPERATIONS RESEARCH

Held in Tunis, Tunisia
May 23-26, 1977

Sponsored by

Secretariat General of the Government
Office of the Prime Minister
Republic of Tunisia

and

Board on Science and Technology for International Development
Commission on International Relations
National Academy of Sciences-National Research Council
United States of America

NATIONAL ACADEMY OF SCIENCES
Washington, D.C.

This report is a staff-prepared summary of the Workshop on Systems Analysis and Operations Research, held in Tunis, Tunisia, May 23-26, 1977, under the joint sponsorship of the Secretariat General of the Government, Office of the Prime Minister, Republic of Tunisia, and the Board on Science and Technology for International Development, Commission on International Relations, National Academy of Sciences - National Research Council, USA. Participation by the NAS was made possible through funds provided by the Office of Science and Technology, Bureau for Technical Assistance, Agency for International Development under Contract AID/csd-2584, Task Order 1. Partial subsistence expenses for NAS participants in Tunisia were provided by the Tunisian sponsoring institution.

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I. SUMMARY

The Republic of Tunisia was the first country to respond to the 1976 National Academy of Sciences (NAS) report, Systems Analysis and Operations Research: A Tool for Policy and Program Planning for Developing Countries. The report, prepared by a panel of the Academy's Board on Science and Technology for International Development (BOSTID), stressed to developing-country decision makers the potential benefits of applying systems analysis and operations research (SA/OR) to the problems facing their societies.

Since its independence from France in 1956, Tunisia has made significant social and economic progress. For the 1970-1976 period, real growth has averaged 7.5 percent per annum. Per capita gross national product reached approximately \$800 in 1977. The goal of the government's new Five Year Plan (1977-1981) is for Tunisia to attain self-sustaining growth in the 1980s. However, a number of serious problems confront Tunisian policy makers, including those that result from industrialization and the processes of modernization.

Following Tunisia's expression of interest in the development and utilization of SA/OR capabilities, the AID Mission to the country invited Dr. Philip M. Morse, chairman of the panel that wrote the BOSTID study, to visit Tunisia and confer with government officials. As a result of Dr. Morse's visit in November 1976, the Office of the Tunisian Prime Minister requested AID's assistance in establishing an SA/OR program. As a first step, the NAS was requested, under its contract with the Office of Science and Technology of the Technical Assistance Bureau of AID, to select a panel of experts for a joint workshop to further explore the application of SA/OR to Tunisian problems.

Since the Tunisian government is responsible for both planning and implementation of social and economic programs, the Prime Minister's Office was most immediately interested in the utilization of SA/OR to address problems of Tunisian administrative reform. It was agreed that the workshop would be oriented towards this interest, and three problem areas were selected:

1. Organization and structure
2. Personnel management
3. Interagency coordination in efforts against pollution.

The workshop took place in Tunis from May 23 to 26, 1977. More than 50 Tunisians participated, including government officials, administrators from a number of ministries, scientists from research institutions, and university professors. The workshop served a catalytic function by bringing Tunisians of varied backgrounds and responsibilities together. To be effective, SA/OR activities relating to administrative reform would require the continuing involvement and the support of the sectors represented in the workshop.

A four-person NAS panel, chaired by Dr. Morse, participated in the workshop. A panelist was assigned to each of the three committees (called commissions) dealing with the problem areas. All of the NAS participants had been involved in SA/OR since the development of the field. Two of the panelists, besides Dr. Morse, had participated in the BOSTID SA/OR study. All four had previous experience in problems of developing countries and a working knowledge of French.

In addition to participating in the workshop, NAS panelists visited academic centers of the disciplines necessary for SA/OR undertakings. Briefing

sessions on the Tunisian administrative, economic, education, and political systems further assisted the panelists in their understanding of Tunisian capabilities and needs. The NAS panelists agreed that the problems outlined in workshop sessions by the Tunisians were appropriate targets for the use of SA/OR.

While each workshop commission had its own emphases and varieties of opinion, final recommendations from all three struck common themes. In each area, there was recognition of the need for a comprehensive approach to the problems confronted. It was agreed that SA/OR could contribute greatly to planning a comprehensive approach, but that in order to proceed it would be essential to designate appropriate institutional responsibility and mechanisms for coordination. The Prime Minister's office, which is responsible for executing government policy, was viewed as the logical base for SA/OR planning relating to Tunisian administrative reform. The importance of beginning with pilot projects that could illustrate the utility of SA/OR to top administrators was stressed.

The Prime Minister's Office would, in effect, be introducing the concept of SA/OR to the public and quasi-public sectors. It was agreed that the cooperation among administrators, researchers and university personnel that had been demonstrated by the workshop participants would be required for continuing SA/OR efforts. The NAS panel offered suggestions as to the composition, mode of operation, and responsibilities of the Tunisian SA/OR group. The assistance of a senior SA/OR American advisor to the group and mechanisms for backup support from the United States were recommended

for the first 2 years as components to be funded by AID.

The NAS panelists felt that the Tunisian capabilities and commitment to administrative reform, as demonstrated in the workshop, point positively toward the country's utilization of SA/OR. Tunisian response to the workshop was enthusiastic. The workshop activity itself underscored the importance of coordination of effort in administrative reform. The Prime Minister's Office has indicated its intention to institute an SA/OR group, and AID/Tunis has incorporated support for the activity in its science and technology project budget for the next 2 years.

II. DEVELOPMENT OF THE WORKSHOP

Background

As mentioned earlier, in 1976 the NAS SA/OR study requested by AID was published, entitled Systems Analysis and Operation Research: A Tool for Policy and Program Planning for Developing Countries. When the U.S. AID Mission Director brought the report to the attention of Tunisian authorities, the Prime Minister's office responded quickly, expressing interest in the possible utilization of SA/OR for addressing Tunisian problems. The first use would be to further administrative reform.

Since Tunisia has reached the "intermediate stage" in AID's terms of development, particular attention is given to assistance mechanisms that will help the government sustain its economic gains and achieve the self-sustaining level of development outlined in the country's new Five Year Plan (1977-81). One objective of the assistance program is to foster new links in the area of science and technology. The AID Mission responded positively to the Prime Minister's Office request to have an American SA/OR expert come to Tunis to discuss the introduction of SA/OR into government administration. Dr. Philip M. Morse, Chairman of the BOSTID panel report, accepted the invitation and visited Tunis the week of November 14-20, 1976. During the visit, coordinated by Mr. Mohamed Habib Ben Abdesslem (Deputy Inspector General, Administrative Services, Office of the Prime Minister), Dr. Morse met with Minister Bel Hadj Amor and a number of government officials. From their candid discussions of their problems and needs, a list of objectives of administrative reform evolved, including:

- Decentralization of services and administration.
- Simplification of structures and procedures in public services.
- Increased efficiency and decreased costs.
- Introduction of modern management techniques.
- Rationalization of procedures in personnel, financial, and material management.
- Automation and systemization of economies in administrative information, to improve government decision making and planning.
- Establishment of data banks in the framework of a national plan of information processing.

There was general agreement between Dr. Morse, Minister Bel Hadj Amor, and Mr. Ben Abdesslem that the development of an SA/OR capability by Tunisians could greatly aid their country's efforts to further development goals by improving administration. AID assistance for such an effort would be consonant with U.S. priorities, since the science and technology component of current assistance program emphasizes the development of links that will strengthen Tunisian planning and management capabilities.

Dr. Morse stressed during his visit (as does the WAS SA/OR study) that SA/OR is a tool that can aid the solution of problems, but that its methods are not a solution in themselves. It was recommended that a joint U.S.-Tunisian workshop be held in Tunis to assess the problems that might be addressed by an SA/OR group in Tunisia, facilitate a common understanding among Tunisian administrators of SA/OR and its potential, and provide advice as to which components of an SA/OR program might be funded by AID.

At the request of the Prime Minister's Office, AID called upon

BOSTID to select a panel to participate in a joint workshop on SA/OR to be held in Tunis the latter part of May, 1977. Dr. Morse was asked to chair the panel, whose members were:

Dr. Philip M. Morse, Chairman
Professor Emeritus, Massachusetts Institute of Technology
Member, NAS

Mr. Bernard R. Bell, Vice President
International Bank for Reconstruction and Development (retired)

Dr. Arthur A. Brown, Consultant
(formerly with Arthur D. Little, Inc.)

Dr. David B. Hertz
McKinsey and Company

Mr. John Everett
Arthur D. Little, Inc.

Messrs. Morse, Bell, Brown, and Hertz served on the panel that outlined the BOSTID SA/OR report. Mr. Everett was a founding member of the Operations Research Society of America and directed the early NATO program for developing SA/OR in Western European countries.

To facilitate planning for the workshop, panel members Arthur Brown and BOSTID staff officer Augustus Nasnith, Jr. visited Tunis from April 11 to 16. During a series of discussions with Mr. Ben Abdesslem of the Prime Minister's Office the focus and format for the May workshop were agreed upon. Identification of problem areas was viewed as a fruitful approach to such general governmental aims as a) rationalizing the administrative structures; b) making the administration more responsive to national policies; and c) decentralizing so that administration will come closer to serving the needs of the people. The three problem areas selected for workshop focus were:

1. Organization and structure
2. Personnel management
3. Interagency coordination in efforts against pollution.

It was agreed that the workshop would include Tunisian administrators and scientists with varied backgrounds and that the NAS panelists would be prepared to address the following issues for the Tunisian participants: where and how SA/OR is useful; how the SA/OR activity relates to the user; what kinds of problems can be addressed by SA/OR; and the conditions for its application. Through exposition of Tunisian problems in the three topic areas and interaction in the working groups the workshop could determine whether SA/OR would be useful in tackling problems of Tunisian administrative reform and, if so, whether conditions in Tunisia are amenable to the utilization of an SA/OR capability. For overall briefing of the NAS panelists, lectures and discussions on the Tunisian political and economic situation and administrative system were planned. The lectures, and visits to various educational institutions, would take place before the beginning of the workshop sessions.

On April 22, 1977, the NAS panel assembled in Washington to discuss the workshop program and to assign tasks. The meeting included an orientation and briefing on Tunisia and the U.S. foreign assistance program there by AID officials. Panelists were provided background documents on the Tunisian social and economic situation. Mr. Ben Abdesslem provided a number of papers bearing on Tunisia administration and the subtopics of the workshop. A list of those papers is found in Appendix A.

Workshop Experience

The NAS panelists began the program of meetings and visits in Tunis on Friday, May 20. Mr. Bell was unable to make the trip, owing to serious illness in his family. Accommodations were in the Tunis Hilton and the working sessions themselves were held at the hotel. The full schedule of workshop and related activities is found in Appendix B.

Although both Friday and Saturday are half working days in Tunisia, preliminary activities for briefing the NAS panel on those days included a protocol visit to the foreign ministry, a preliminary meeting with Mr. Ben Abdesslem, lectures on the Tunisian political and administrative systems, and individual visits by panelists to institutions of higher education for business, management, computer sciences, engineering, and administration.

The workshop opened formally the morning of May 23 with a welcome address by Mr. Mohamed Mzali, Minister of Education. In the afternoon, Dr. Morse presented a general view on the methods and applications of systems analysis, and after some discussion and remarks by other BOSTID panelists, the workshop divided into three workshop commissions. The list of Tunisian participants is found in Appendix C.

An NAS panelist served as a resource person for each commission. A list of the NAS panelists' commission discussion papers and the Tunisian presentations is found under Appendix D. Commission deliberations continued for two afternoons (May 24 and 25). (The responsibilities of many Tunisian participants did not allow them to absent themselves from their offices for full working days.) By the closing session, each commission had formulated a set of recommendations reflecting the sense of the two previous

days' discussions. In addition, the NAS participants prepared recommendations to the Office of the Prime Minister and to AID on the most effective procedures for instituting an SAVOR capability.

III. OBSERVATIONS AND RECOMMENDATIONS

At the conclusion of the workshop, the recommendations of each commission were presented to Minister Bel Hadj Amor, along with a separate report by the BOSTID panel. Each commission expressed the conviction that SA/OR would be helpful in addressing the problem of Tunisian administrative reform. There was agreement that Tunisia needed more scientific and comprehensive approaches to solving many of the complex problems confronting the society. It was recommended that SA/OR be introduced in public and quasi-public sectors through cooperative efforts of administrators and scientists from research institutions and the universities.

It was also recommended that pilot programs be carefully selected so that the effort would be clearly understood by the responsible administrators. The Prime Minister's Office was cited as the most logical place for an initial SA/OR group. It was agreed that Tunisian capabilities in the SA/OR fields should be developed through training programs and by strengthening or creating relevant courses at the university and research centers.

The French text of the individual commission observations and recommendations is in Appendix E.

Commission I (organization and structure) emphasized the need to introduce modern management techniques in administration and to use SA/OR capabilities to further the administrative decentralization already in progress. Commission II (personnel management) indicated that while a more comprehensive study would be needed to determine priority areas for SA/OR in personnel management, a number of problems stood out: allocation of human and material resources and defining the criteria for doing so; manpower fore-

casts; improvement of relevant data information systems; and standardization of management tools. Commission III (interagency coordination in efforts against pollution) stressed the need for a comprehensive pollution study for Tunisia; the creation of environmental bureaus in relevant ministries, with a strong coordinating mechanism; and the promulgation of environmental regulations.

The workshop aroused enthusiasm for utilizing SA/OR in all of the problem areas discussed. There was general realization, however, that limitations of resources and experience would require starting with a relatively small SA/OR group, which would conduct pilot studies under the aegis of the Prime Minister's Office. At the same time, the group would become a mechanism for continuing the type of coordination begun at the workshop, including furthering training in SA/OR disciplines at the universities and institutes.

In connection with the initial undertaking, the NAS panel offered the following recommendations to the Government of Tunisia and to the Agency for International Development.

A. To the Government of Tunisia

A governmental SA/OR group should be set up, reporting to the Office of the Prime Minister, with full-time members having the appropriate qualifications for work in SA/OR. The group should be initially formed in the fall of 1977, shortly after the arrival of the SA/OR Advisor from the United States (to be discussed later). By the end of the first year, the group should consist of at least four qualified Tunisians. The

eventual size of the group can only be determined later, but it should probably never consist of more than 15 or 20 full-time permanent members.

This group should report to the Secretary General of the Government, and the distribution and publication of the results of its work should be controlled by him. The group's program and tasks should be determined by mutual agreement between the Secretary General and the group Director. Allowance should be made, however, for a certain fraction (10 to 20 percent) of its efforts to be devoted to self-initiated research, in preparation for studies which the group believes will be needed in the future.

To temporarily augment its capacity to deal with an important problem, the group can request the loan of one or more experts from the university institutions or from some other appropriate governmental agency, or it can request a university institution, research center, or government agency to carry out the desired research under guidance of the group.

The terms of reference for the group should empower the Secretary General to assign group members, from time to time, to temporary duty with other government agencies for purposes of SA/OR when requested.

B. To USAID in Tunisia

A senior expert in SA/OR should be sent to Tunisia for 2 years, starting in the fall of 1977, to advise the Tunisian SA/OR group described above and the Secretary General of the Government. This senior advisor should spend some of his time with the departments of the university institutions that educate students in SA/OR. It would be desirable to send a junior aid as well, particularly for the first year's operation.

Some provision should be made for the travel of the senior advisor to U.S. or European SA/OR meetings or centers.

The National Academy of Sciences Panel on SA/OR should be available to provide advice requested by the Secretary General or the Tunisian SA/OR group. Funds should be available for the Panel, or some of its members or other specialists, to visit Tunis at least once a year.

In addition, fellowship funds should be made available for members or prospective members of the Tunisian SA/OR group at an appropriate university or with another SA/OR organization, public or private. The training program for these Fellows is to be agreed on between the Tunisian group and the National Academy Panel on SA/OR, and the progress of their training should be monitored by the Panel.

IV. COMMENTS

A. The Workshop

Tunisian organizers and participants and NAS panelists considered the workshop a success in a variety of ways. Although the commissions were able to focus on their topical problems for little more than two afternoons, the discussions were in-depth and yielded significant recommendations regarding the utilization of SA/OR. The Tunisian chairmen were dynamic and were adroit at stimulating discussions and building a consensus. The process often began with interesting debate, for the workshop brought together individuals who had varied previous exposure to SA/OR and whose functions in government or education provided differing points of view. In the case of Commission III, especially, there was a feeling that integration and coordination were so vital that members of the commission should continue to meet together informally after the workshop.

Minister Bel Hadj Amor's speech at the closing session of the workshop underscored Tunisian satisfaction that the workshop provided significant input towards conceptualizing the efforts needed for more effective administration. Utilization of SA/OR would commence with the administrative reform priorities, but the Secretary General foresaw broader utilization of SA/OR in Tunisian development planning in the future. The full text of Minister Bel Hadj Amor's speech is given in Appendix F.

The Prime Minister's Office shows every intention of following up on the workshop recommendations -- most immediately by instituting an

SA/OR office in the Office of the Prime Minister. An agreement with AID will provide for a senior advisor and the other cooperative components recommended by the NAS panel. The broad mix of workshop participants (individuals from nine ministries and numerous research and educational institutions) provided the beginning of a network that can facilitate the work of the SA/OR group in the Office of the Prime Minister.

B. Organization and Facilities

Mr. Ben Abdesslem organized the workshop smoothly and effectively. The selection of committee chairmen and the breadth of participation attested to the purposeful conception of the activity. Competent staff assistance was provided by the Office of the Prime Minister for the plenary and commission sessions.

Workshop sessions were held at the Tunis Hilton, which had appropriate rooms for both plenary and commission groups. Since the workshop was aimed at stimulating a relatively large number of key administrators and academics who were unable to devote a full week to the activity, the format adopted was necessary. For a smaller, more topically focused undertaking, however, it might be better to agree upon a site removed from the participants' places of work so that they could devote full attention to the workshop for several days.

The commission sessions were lively and the discussions quick-paced. Each NAS panelist had a knowledge of French; the workshop illustrated the importance of finding participants with as much fluency as possible. A number of Tunisians with fluency in English assisted when necessary.

The NAS panel found occasion to get together at some point each day or evening to compare notes on progress in the visits and workshop sessions. The pre-workshop meeting with Mr. Ben Abdesselem, and informal sessions with him as the workshop progressed, were extremely helpful to the panel. Minister Bel Hadj Amor hosted a reception for the participants in Carthage when the workshop ended.

C. Press Coverage

The workshop received substantial coverage in the press, especially on the occasions of the opening by the Minister of Education and the closing by Minister Bel Hadj Amor. Examples of the French language press coverage are reproduced in Appendix G.

D. NAS-NRC Contact with U.S. Officials

Mr. Hermon Davis, Jr., AID Mission Director, and his staff became closely involved with development of the workshop as soon as the Prime Minister's Office expressed interest in the NAS SA/OR report. The NAS workshop panel met with the Mission staff to discuss the workshop and to learn of AID's activities in Tunisia. Mr. Davis hosted a luncheon for the Panel and Mr. Ben Abdesselem. U.S. Ambassador Edward Mulcahy, Mission Director Davis, and Messrs. Herman Marshall, Dennis Morrissey, and William Williams of the Mission staff attended the closing session of the workshop. Dr. Morse briefed the Ambassador at the conclusion of the activity.

Appendix A

Papers received from the Office of the Prime Minister, Government of Tunisia,
in preparation for the Workshop on Systems Analysis and Operations Research

| | <u>TITLE</u> | <u>DATE</u> |
|-----|--|---------------------|
| 1. | Coopération Technique entre Pays en voie de Développement | 26 Mai 1975 |
| 2. | Séminaire organisé par l'Ecole Nationale d'Administration sur "LA GESTION DU PERSONNEL" | 12 Novembre 1975 |
| 3. | Séminaire sur la Gestion du Personnel | 12-15 Novembre 1975 |
| 4. | L'Information et la Documentation dans l'Administration et les Besoins en Techniciens de l'Informatior | 1 Décembre 1975 |
| 5. | L'Informatique dans l'Administration | 31 Mars 1976 |
| 6. | Conférence Internationale sur les Plans Nationaux et Régionaux des systèmes et des Services d'Information scientifiques et Technologiques dans les Pays Arabes | 26 Avril 1976 |
| 7. | L'Audit organisé par l'Insitut des Hautes Etudes Commerciales (I.H.E.C.) Carthage - Présidence | 12 Mai 1976 |
| 8. | Coopération Méditerranéenne pour l'Energie Solaire | 28 Mai 1976 |
| 9. | Strategie et Politiques de l'Informatique | 16 Juin 1976 |
| 10. | Seminaire sur le Tourisme et l'Environnement | 22 Octobre 1976 |
| 11. | Echanges et Coopération Economique entre les pays en developpement | 28 Mars 1977 |

| | <u>TITLE</u> | <u>DATE</u> |
|-----|---|----------------------|
| 12. | Stratégie de la Protection de l'Environnement en Tunisie | 8 Avril 1977 |
| 13. | Planification des Effectifs dans l'Administration | 12 Avril 1977 |
| 14. | Séminaire sur la régionalisation | M. H. Ben Abdesselam |
| 15. | Untitled speech for a "Séminaire sur la Régionalisation de l'École Nationale d'Administration (E.N.A.)" | No date indicated |
| 16. | "La réforme administrative: bilan et perspectives" | No date indicated |

Appendix B

Workshop on Systems Analysis and Operations Research

Tunis, May, 1977

Program for NAS Participants and Workshop Agenda

Friday, May 20

10:00 Courtesy call by NAS panel to the Office of International Cooperation, Ministry of Foreign Affairs (Mr. Mohammed Trabelsi)*

19:30 Preliminary meeting with Mr. Mohamed El Habib Ben Abdesslem, Assistant Inspector General, Administrative Services, Office of the Prime Minister*

Saturday, May 21

Individual Visits*

Mr. Hertz

9:00 Graduate Institute of Business Studies
Mr. Ridha Ferchiou, Director

11:00 Institute of Business Management
Mr. Abdellatif Khenakhem

Dr. Morse and Dr. Brown

9:00 Faculty of Sciences
Computer Sciences Department
Mr. Farouk Kazoun

Mr. Everett

9:00 National School of Engineering, Tunis
Mr. Marekcho Ahmed

Lectures and discussion* (at National Institute of Meteorology)

15:00 Tunisian Political System
Mr. Yadh Ben Achour, Faculty of Law,
Political Sciences and Economics, Tunis

17:00 Tunisian Administrative System
Mr. Mohamed El Habib Ben Abdesslem

*For NAS Panelists Only.

Monday, May 23

- 9:00 Lecture and discussion: The Tunisian Educational System*
Mr. Hadi Zghal, Secretary of State, Ministry of National Education
- 11:00 Opening Workshop Session
Mr. Mohammed El Habib Ben Abdesslem

Mr. Mohamed Mzali, Minister of National Education
- 16:00 Systems Analysis and Operations Research (plenary)
Dr. Philip McCord Morse

Tuesday, May 24

- 9:00 Lecture and discussion:
Fundamental Aspects of the Tunisian Economy*

Mr. Mohamed Ghannouchi
Director of General Planning
Ministry of Planning
- 12:30 Meeting with Minister Moncef Bel Hadj Amor, Secretary
General of the Government (Prime Minister's Office)*
- 15:00 Workshop Commissions
- Commission 1: Organizational Structures and Procedures
Chairman, Mr. Abdelaziz Iadh, Deputy, National Assembly
NAS panelist: Mr. David Bendel Hertz
- Commission 2: Personnel Management
Chairman, Mr. Hassine Zayati, Director, Civil Service
NAS panelist: Dr. Arthur A. Brown
- Commission 3: Interagency Cooperation in Efforts Against
Pollution

Chairman, Mr. Zakaria Ben Mustapha, Director of Higher
Education and Scientific Research, Ministry of Agriculture
NAS panelist, Mr. John Everett

Wednesday, May 25

- 15:00 Continuation of Workshop Commissions

*For NAS Panelists Only.

Thursday, May 26

9:00 Drafting of Recommendations and Final Report

15:00 Discussion of Final Report and Recommendations (plenary)

16:30 Closing Session

**Mr. Moncef Bel Hadj Amor, Minister Responsible for Relations
with the National Assembly and Secretary General of the
Government**

Appendix C

Workshop on Systems Analysis and Operations Research

Tunisian Participants

Commission 1

Organizational Structure and Procedures

| | |
|----------------------------------|---|
| LADH, Abdelaziz, Chairman | Député à l'Assemblée Nationale |
| BADRI, Rachid | Ministère de l'Intérieur |
| BOUDEGGA, Mohsen | Centre National de l'Informatique |
| CHAABANE, Sadok | Faculté de Droit de Tunis |
| EL ANWABI, Samir | Ecole Nationale d'Administration |
| EL ARBI, -Ezzeddine | Faculté des Sciences |
| EL-AYADHI, Abdelaziz | Député Assemblée Nationale |
| EL-MIR, Ali | Institut Supérieur de Gestion des Entreprises |
| GRAJA, Habib | Secrétaire Général de l'A.U.T.T.T. |
| JARRAYA, Mohamed | Ministère de l'Agriculture |
| JEMLEDDINE, Brahim | Ministère des Affaires Sociales |
| KANDUN, Farouk | Maître de Conference. Faculté de Sciences (Informatique). |
| KETARI, Mohamed | S/Directeur Etudes de Programme au Ministère des Transports et des Communications. |
| MARRAKCHI, Racuf | Substitut au Ministère de la Justice |
| MILED, Mongi | Direction de l'Informatique au Ministère des Finances. |
| MDALLA, Noureddine | Institut des Hautes Etudes Commerciales |
| M'RABET, Noureddine | Premier Ministère |
| NACHI, Mohamed | Ministère de la Justice |
| ROMDHANE, Ali | Ministère de l'Agriculture, Directeur du C.N.D.A. |
| SAHNDUN, Ahmed | Ecole Nationale d'Administration |

Appendix C

Commission 2

Personnel Management

| | |
|---------------------------|---|
| ZAYATI, Hassine, Chairman | Directeur, Fonction Publique, Premier Ministère |
| ALOUANE, Youssef | Institut Supérieur de Gestion des Entreprises |
| BEN AYED, Ahmed | Assistant, C.R.E.A. Ecole Nationale d'Administration |
| BEN MUSTAPHA | Education Nationale |
| CHEINH, Salem | Premier Ministère |
| HADJ-TAIEB, Mohamed | Administrateur-Conseiller. S/Directeur à la Direction Générale de la Fonction Publique au Premier Ministère |
| HACUARI, Abderrahman | Ingénieur au Centre National de l'Informatique |
| HOUISSA, Mustapha | Président de l'A.U.T.I.T. |
| KAROUTI, Belhassen | Education Nationale |
| SAIDANE, Ahmed | Centre National de l'Informatique |

Appendix C

Commission 3

Interagency Coordination in the Struggle Against Pollution

| | |
|---------------------------------|---|
| BEN MUSTAPHA, Zakaria, Chairman | Directeur de l'Enseignement et de la Recherche au Ministère de l'Agriculture |
| ATALLAH, Sadok | Ingénieur en Chef. S/Directeur de l'Assainissement et l'Hygiène du Milieu. Ministère de la Santé Publique |
| AYARI | Ingénieur au Centre National d'Etudes Industrielles |
| BELGACEM, Mohamed | Ing. Chef de Travaux au Laboratoire Central |
| BEN FARHAT, Noureddine | Chef de Service au Premier Ministère |
| BOUDEYA, Lieutenant Colonel | Ministère de la Défense Nationale |
| BOUGUERRA, Larbi | Professeur. Faculté des Sciences - Tunis |
| BOUSSOFFARA, Hassen | Conseiller auprès du Ministre de l'Economie |
| GASTLI, Lies | Député à l'Assemblée Nationale |
| GHARIANI | |
| HARBI, Hedi | Inspecteur des Services Administratifs au Premier Ministère |
| KAAK, Moncef | Chef de service de l'Infrastructure et de l'Environnement au Ministère de l'Ec.Nationale |
| KAROUI, Zoubair | Directeur à l'U.I.B. |
| KHROUF, Mohamed Larbi | Office National de l'Assainissement, Directeur des Etudes et Programmation |
| LAZOUGHLI, Amena | Secrétariat Général du Gouvernement (Cabinet) |
| TOURKI, Rachid | Institut Supérieur de Gestion des Entreprises |
| ZGHONDA | Association Jeunes - Sciences |

Appendix D

Workshop on Systems Analysis and Operations Research

Discussion Papers

Commission 1: Organizational Structure and Procedures

Systems Analysis and Operations Research Applied to
Problems of Organizational Structure and Procedures

David B. Hertz

Les Structures et les Procédures d'Organisation Administratives

Mohamed El Habib Ben Abdesslem

Commission 2: Systems Analysis/Operations Research Applications in
Personnel Administration

Arthur A. Brown

Gestion du Personnel

Morched Ben Ali

Commission 3: The Role of Operations Research in Controlling Environmental
Pollution

John Everett

Cooperation Inter-Services pour la Lutte Contre La Pollution

Larbi Khrouf

RECOMMANDATIONS DE LA COMMISSION I:

"STRUCTURES ET PROCEDURES ADMINISTRATIVES"

/ a Commission chargée de l'Etude des Problèmes de "Structures et de Procédures Administratives".

- ayant étudié le processus d'application des méthodes d'Analyse des Systèmes et de Recherches Opérationnelles à la planification, l'organisation et au Contrôle Administratifs;
- ayant examiné l'organisation actuelle de l'administration et les efforts déjà entrepris tendant à déconcentrer les unités administratives et à décentraliser la prise de décisions;
- devant la complexité croissante des problèmes que l'administration tunisienne est appelée à résoudre et des liens multiples dans l'espace et dans le temps des différentes décisions administratives;
- ayant étudié les conséquences possibles de l'adoption d'une approche scientifique et de l'introduction d'une technologie avancée au niveau des différents services administratifs;
- étant animée par le souci de rendre l'administration mieux adaptée aux exigences d'un développement équilibré du pays et plus sensible aux attentes d'un public de plus en plus exigeant;

RECOMMANDE

- 1) D'utiliser une approche aussi globale que possible et d'employer des méthodes scientifiques dans la résolution des problèmes administratifs -
- 2) D'introduire des techniques d'Analyse des Systèmes et de Recherches Opérationnelles dans le secteur public et para-public -
- 3) D'entreprendre cette opération avec le maximum de prudence afin d'en assurer le plein succès -
- 4) De favoriser l'adhésion et l'enthousiasme des cadres supérieurs de l'administration quant à cette entreprise.
- 5) De poursuivre et renforcer la campagne de sensibilisation aux méthodes modernes de gestion administrative -
- 6) De doter l'opération des conditions favorables à son plein succès en adaptant chaque fois qu'il est nécessaire la législation et en facilitant l'accès à l'administration des chercheurs et des spécialistes en méthodes de gestion moderne -
- 7) De continuer et renforcer l'action déjà entreprise en matière de déconcentration et de décentralisation -

8) D'entreprendre aussi soigneusement que possible une opération pilote afin de donner un élan à, et assurer l'enthousiasme autour de l'opération globale -

9) D'accorder une plus grande importance aux méthodes d'Analyse des Systèmes et de Recherches Opérationnelles dans les programmes d'enseignement supérieur tout en enregistrant avec satisfaction l'effort d'orientation des bacheliers vers les branches scientifiques -

10) D'instituer aussi tôt que possible une équipe de recherche et de développement regroupant les administrateurs, des chercheurs et des enseignants dont la mission est d'assurer la mise en oeuvre et le suivi des recommandations du séminaire.

Appendix E

RECOMMANDATIONS DE LA COMMISSION II:

GESTION DE PERSONNEL

Dans le cadre du séminaire sur l'analyse des systèmes et la recherche opérationnelle, la commission n° II a été chargée d'examiner l'application de ces méthodes en matière de gestion du personnel de l'Administration au cours de deux réunions qui ont été tenues les 24 et 25 Mai 1977.

A partir d'un exemple théorique, exposé par Mr. ARTHUR A. BROWN, et d'une présentation des problèmes de la gestion du personnel de l'Administration faite par MR. MORCHED BEN ALI, et après échange de points de vue la commission formule les observations suivantes:

I - OBSERVATIONS D'ORDRE GENERAL:

1/ - En tant que démarche intellectuelle reposant sur l'analyse systématique de toutes les données disponibles, la recherche opérationnelle constitue un outil d'aide à la prise de décision dans la mesure où elle permet.

- . de quantifier les objectifs et les moyens à mettre en oeuvre pour les atteindre et de présenter au choix du décideur plusieurs alternatives possibles;
- . de rationaliser le choix qui devient fonction de l'efficacité recherchée, laquelle apparaît notamment dans le rapport coût/résultat.

2. - L'élaboration de modèles mathématiques ne constitue pas un frein à l'introduction de cette méthode dans l'Administration, la mise en équation des données d'un problème étant une simple traduction de ces données dans un modèle.

3/ - L'application de la recherche opérationnelle n'est pas limitée à des pays ou à des domaines spécifiques; son intégration dans l'Administration dépend essentiellement de la disponibilité des équipes de recherche, des équipements nécessaires et des données.

4/ - La gestion du personnel de l'Administration se caractérisant par.

- . une pléthore des agents;
- . un taux d'encadrement insuffisant;
- . une rémunération publique structurellement déséquilibrée et présentant de nombreuses disparités;
- . une absence de politique de formation continue des fonctionnaires, etc....

Il y a ainsi autant de domaines qui pourraient faire l'objet d'investigation par la recherche opérationnelle.

5/ - La Commission conclut que:

- . La recherche opérationnelle ne tend pas à bouleverser les méthodes actuelles mais à les intégrer dans un processus logique où les objectifs, les moyens, les coûts et les résultats sont fixes avec une rigueur mathématique;
- . Les résultats auxquels aboutit la recherche opérationnelle varient selon les problèmes traités, les données disponibles, l'environnement politique, économique et social;
- . L'utilisation de cette méthode requiert un système d'information adéquat, des moyens de mise en oeuvre adaptés et un personnel de formation spécialisée.

II - DOMAINES D'APPLICATION DE L'AS/RO:

- 1/ - La Commission considère qu'il est prématuré de définir les domaines relevant de la gestion du personnel de l'Administration Tunisienne susceptibles d'intéresser l'analyse de système et la recherche opérationnelle, étant entendu que le champ d'application de cette méthode est illimité, et qu'une réflexion globale, appuyée sur des études approfondies, doit être poursuivie sur les actions à entreprendre.
- 2/ - Il apparaît à la Commission que l'AS/RO peut contribuer à la solution des problèmes suivants, retenus à titre d'exemples.
 - . Allocation des moyens humains et matériels et définition des conditions de leur utilisation;
 - . Gestion prévisionnelle des effectifs;
 - . Allègement des circuits administratifs, amélioration du système d'information et normalisation des instruments de gestion;
 - . Motivations des agents etc....
- 3/ - L'informatisation en cours de la gestion du personnel et les actions d'organisation et méthode permettent.
 - . de disposer de l'information de base;
 - . de faciliter l'introduction de l'AS/RO.

4/ - L'introduction de l'AS/RO doit s'accompagner.

- . d'un effort continu de recyclage, de préparation des cadres et d'une adaptation des programmes de formation;
- . de la mise en place progressive d'une structure administrative appropriée permettant de garantir un effort continu et soutenu dans ce domaine.

Appendix E

RECOMMANDATIONS DE LA COMMISSION III:

COORDINATION INTER-SERVICES POUR LA

LUTTE CONTRE LA POLLUTION

La Commission III réunie les 24 et 25 Mai 1977 à Tunis; après avoir entendu l'exposé de M. Everett sur le Rôle de la Recherche Opérationnelle dans le contrôle de la Pollution de l'Environnement, l'exposé de M. Larbi KHROUF sur les différentes formes de pollution en Tunisie et le commentaire des différents documents de travail présentés par les représentants des Départements et Organismes intéressés;

- Considérant la situation préoccupante de la pollution en extension, inhérente à l'essor industriel
- Consciente de l'urgence des mesures à prendre aussi bien dans le cadre technique que juridique aux fins de la prévention et de la lutte contre la Pollution.

Recommande:

1^o) - Etude globale sur la Pollution:

Procéder à l'étude globale des problèmes que pose la pollution en Tunisie en faisant le point de la situation actuelle, des mesures prises et des actions à entreprendre

2^o) - Cellules Départementales de l'Environnement:

Créer au sein de chaque Département intéressé une cellule de l'Environnement ou renforcer les structures appropriées déjà existantes dans certains d'entre eux, en mettant à leurs dispositions les moyens humains, matériels et financiers requis

3^o) - Organisme Coordinateur:

Créer un organisme de coordination entre les cellules départementales de l'Environnement.

Cette coordination présente, outre l'avantage de la rationalisation des mesures la possibilité d'identifier le coût global de la prévention et de la lutte contre la pollution ainsi que les ressources de financement

4^o) - Groupe Tunisien AS/RO:

Former un Groupe Tunisien AS/RO qui aidera l'Organisme Coordinateur

a) dans une 1ère phase à:

- . la collecte de l'information et de la documentation spécialisée auprès des instances internationales ou des Etats confrontés avec les mêmes problèmes de pollution.
- . la collecte des données de base relatives à la pollution auprès des industries polluantes et toutes autres sources de pollution.

b) dans une 2e phase:

à assurer l'activité analytique orientée vers la planification des programmes et l'évaluation aux fins de prise de décision à la lumière des évaluations des alternatives offertes, particulièrement dans les cas cruciaux suivants:

- 1) le déséquilibre écologique latent dans la région de Gabès par suite de l'expansion des industries chimiques dans cette région.
- 2) le risque probable de pollution de nos côtes par les Hydrocarbures en cas d'accident, d'où l'étude des moyens d'intervention.
- 3) L'incidence de l'utilisation des pesticides prohibés ailleurs sur nos exportations des produits agricoles.

5^o) - Code de l'Environnement:

Elaborer un Code de l'Environnement

6^o) - Mesures transitoires: Commission ad-hoc

A titre transitoire, faire assurer la coordination entre les cellules départementales de l'Environnement par les "Services du Premier Ministère", qui aura entre autres tâches de préparer, avec le concours d'une Commission ad-hoc et le Groupe AS/RO Tunisien, la mise en oeuvre de l'Organisme Coordinateur de la Protection de l'Environnement

Appendix F

Speech Given by Moncef Bel Hadj Amor, Minister in Charge of Relations with the National Assembly and Secretary General of the Government of Tunisia on the occasion of the closing ceremonies of the May 23-26 GOT-NAS Workshop on Systems. Analysis and Operations Research

QUOTE Ladies and Gentlemen:

I have followed, with a lively and sustained interest, the work and discussions in which you have been engaged during four days.

To be sure, in setting up this cooperative project with the National Academy of Sciences on systems analysis and operations research, we were aware of the difficulty of passing the message, for it is true that a lack of competence acquired, in this field, by apprenticeship and practice, is still felt in our country and in numerous other developing countries.

I have been convinced that we are on the right track by this seminar, which constitutes the first manifestation of the collaborative project we have just drawn up, by the interest shown by its participants, the quality and consistency of its discussions, and the practicality and pertinency of its recommendations.

The subject of our present meeting, the action we are taking together, steadfastly, for several years now, for the promotion of effective methods of management in administration, all this derives from our determination to acquire and assimilate production and administrative technology and from our objective to make public administration a modern tool serving the citizen and development.

This cooperative project which brings us together today constitutes a means of transferring technology.

Plans and policies of developing countries essentially are oriented more and more towards creating and reinforcing a national technological capacity.

In the future, without any doubt, transfer of technology will maintain a privileged position as a means of cooperation between developed and developing countries. The interest that this question arouses on the national and international level is proof enough.

The transfer of technology is a dominant, persistent concern in bilateral and multilateral relations.

In a very large measure North-South and Euro-Arab discussions consist of this subject.

It should be recalled that the United Nations is preparing an international conference on science, technology, and development for 1979.

Developed countries, and particularly the USA, appear ready to make transfer of technology their prime favorite in the matter of international cooperation and aid to development.

For quite a few years developing countries have incessantly demanded that the process of technology transfer be instituted.

May one hope that all this time has allowed a ripening of ideas on this subject, a firm will to proceed with this transfer, to start it and develop it?

The question is important, the hopes we base on it not less.

Above all, because modern techniques of production and management generally originate in developed countries; knowledge of them is not always well diffused into our lands. Even when it is, the operational exploitation of these techniques is not always easy because of a lack of a satisfactory mastery of these processes.

Hence, we should be alert in our developing countries to adopt those techniques which adapt themselves to our needs, to our possibilities, and, above all, to our imperatives of a generalized, rapid, and progressively more autonomous development.

In addition to the fact that these techniques should be adapted by the latter, action by both parties must be directed toward innovation which effectively relate to the actual problems of developing countries.

Such have been our actions with respect to administrative reform in Tunisia.

Administrative reform, even though naturally condemned to remain a "work unfinished, unaccomplished", merits all of our attention.

Ever since the administration decided to try to preside over the destinies of the economic and social development of the country, it has to accept change, to live with profound alterations, in a word, it must adapt itself to its new ambitions.

At this price, the administration will win its bet; under this condition the administration will rise to the level of its responsibilities. An administration with hardening of arteries, routine, formalistic, is a dangerous restraint to development.

The administration, here and now, is making the appropriate effort to improve its management, its methods of work, its structures, in order to adapt them to the new mission it has given itself.

It is essential to continue to work intently so that the administration changes its character. Important actions have been undertaken since 1970 in order to accentuate these changes. The decentralization of services and the introduction of modern data processing services constitute, in our judgement, preferential means which allow the administration to be equal to its task and to perform its mission.

However, administrative reform is never complete. Many equally important works must be realized or started.

The attributions and organization of the different departments have been definitely stipulated since 1970.

Nevertheless these organization charts will be very distinctly altered by de-concentration, decentralization and the introduction of modern data processing services into administrative management.

Transferring the center of decision, even though only partially, will involve new arrangements concerning the structures at the level of the central administration as well as those of the deconcentrated or decentralized administration.

The relationship between these different structures must be redefined. It will be the same with channels and procedures.

In this respect, the introduction of modern data processing systems into the administration is not less upsetting.

Moreover, defining the relationships between the State and public enterprises merits a very particular attention, taking into consideration the primary role these enterprises are called on to play in the achievement of economic and social development plans.

All of these actions should have as their essential objective increasing the profitability of those services to which they are applied whether in the administration as such or in the public enterprises. The cost and output of services should constitute, from now on, the major concern of all managers.

The use of system analysis/operations research methods will be a great help in continuing the realization of our administrative reform plan.

We have already had contact with this technique in studying the planning, programming, budgeting system, of which it constitutes an essential element. Thanks to this method, the studies and analyses will be conducted in a scientific manner. The authority granted the power of decision will be able to opt for the optimum solution with complete knowledge of the facts.

Systems analysis aids in the choice of a policy or mode of action. It is a question of widening the judgment of the political decision maker by judiciously defining objectives, evaluating actions, taking into account unquantifiable elements, and seeking out the best alternatives.

To this purpose, systems analysis and operations research permit optimizing the effectiveness of the operation man-machine.

But we are aware of the natural limit of all techniques which would claim to solve the problems of mankind automatically. First of all, on the purely technical level, the analyses are necessarily incomplete and much basic data is inevitably

approximate. Then, and above all, we are convinced, whether it is a question of production or management, the key, determining, element remains the man, his intellectual capacity, his creative imagination, and his determination to do well.

We are convinced that cooperation in this field will have beneficial effects. We are ready to improve the structures and procedures of our administration, to benefit from the experience which has been proven in advanced countries.

We are no less convinced that the use of systems analysis and operations research will be very useful in sectors other than that of administration. It is important that the concerned services, notably the technical services and the research and study entities, proceed without delay to adopt and apply this method or to develop and diffuse it as widely as possible.

In this connection, it is important that our faculties, our schools and institutes, our centers of study and research concern themselves with giving systems analysis and operations research the place that it deserves in their programs of education, training and research.

I ardently wish that the work of this seminar will contribute the development of this method in the university as well as in the administration and enterprises.

The work of your seminar has been elevated by the presence of eminent systems analysis and operations research experts.

Because they believe, as we do, in usefulness of cooperation and in the efficacy of technology transfer, they have agreed to animate this seminar to to define, with you, those conditions most likely to assure the realization of your conclusions.

I give them here my greatest thanks; I ask them to believe that Tunisia appreciates the true value of their participation in this seminar, and the will they have shown to contribute, with us, to the evolution and adaptation of structures and procedures of our administration to new tasks of economic and social development assigned by the Plan.

Our thanks are equally addressed to the Ambassador of the USA and to the Director of the USAID who are present today whose initiatives units in development of cooperation between our two countries.

The results of your work are promising. The conclusions resulting from your discussions are worthy of interest. It is fitting that useful steps be taken to bring into being your recommendations for which this seminar has been a beginning and not an end.

I thank you for your attention. UNQUOTE.

LA PRESSE

D E T U N I S I E

6, RUE ALI BACH HANBA TUNIS
☎ 018.000-01-000-000-00

M E R C R E D I
25 MAI 1977

7 JOURNAUX N 1377 - N. 1230

DIRECTEUR RESPONSABLE (Prix : 70 ml.)
DE LA PUBLICATION (France : 1 FF)
ABDELJAKKI AMOR BELKHRA

Séminaire sur l'analyse de systèmes et la recherche opérationnelle

La Tunisie a pris l'option de favoriser l'enseignement technique et scientifique

M. Mohamed Mami, Ministre de l'Éducation Nationale, a présidé, mardi à l'Institut National en présence notamment de M. Philip Mc. Card Moran, membre de l'Académie Nationale des Sciences des États-Unis et de plusieurs fonctionnaires, chercheurs et enseignants tunisiens, la séance d'ouverture de séminaire sur l'analyse de systèmes et la recherche opérationnelle appliquée à la réforme administrative, dont les travaux se poursuivront jusqu'au 27 de ce mois.

C'est spontanément et avec un plaisir très réel que j'ai accepté la proposition qui m'a été faite de présider la séance d'ouverture de ce séminaire consacré à l'étude d'un thème dont l'actualité s'est peu à peu démontrée à savoir l'analyse de systèmes et la recherche opérationnelle appliquée à la réforme administrative, a déclaré M. Mohamed Mami.

Travaux de l'éducation et les problèmes innombrables, qu'elle pose M. Mami a noté :

« Notre pays, devant de se mettre au diapason de la science moderne et de se conformer aux exigences de l'ère technologique, a résolu de passer à l'usage de favoriser par tous les moyens et à tous les niveaux, l'enseignement technique et scientifique.

Il convient toutefois de signaler que cette option qui a été prise le fruit d'une impitoyable réflexion plus qu'une décision, ne constitue pas un frein dans notre action en matière d'éducation puisque elle s'inscrit dans le cadre d'un programme que le Parti Socialiste Démocratique a vu très bien avant nous se consacrer à l'indépendance et que l'État tunisien a confirmé et suivi depuis qu'il a pris en main les destinées du pays.

Pour vous donner une idée plus exacte de cette action je crois nécessaire de relever à cet effet les réalisations que nous pouvons être très fiers de vous présenter dans le domaine de notre enseignement technique et scientifique.

Je crois aujourd'hui, le recul historique admet, que le développement de l'éducation dans la Tunisie indépendante est parti par trois phases : la première que j'appellerai l'ère héritage est celle de « l'émancipation scolaire » et a débuté au lendemain même de notre indépendance.

Donnant le signal, a rappelé M. Mami, le Président Bourguiba déclarait dès juin 1960 : « Nous devons être originels. Nous devons aller de l'avant et ne plus nous contenter de tenir des positions d'arrêt. Ne se souvenant maintenant il faut d'adopter notre manière de faire à pouvoir retrouver le cortège de la civilisation car rien ne sert de se le disputer, nous avons des difficultés pendant des siècles. Notre force c'est d'être avec nos coutumes et d'être déterminés à retrouver le retard. Je s'obstine à croire, malgré d'infortunés, dans un avenir, c'est faire acte de courage que de reconnaître la réalité pour aller vers les conditions acceptables de la modifier. Et vous voyez quelle change, cette réalité ».

Parti de l'enseignement communiqué par une liberté en fait réservée, nous nous sommes lancés avec des moyens matériels et humains très limités, dans une aventure combien ardue, mais combien excitante celle d'ouvrir les portes de l'école à tout enfant au lieu de réserver l'enseignement et de mettre un enseignement qui, en adhérent à la réalité tunisienne, répond aux aspirations de notre peuple.

Et, d'abord, au sein même de nos écoles, une véritable révolution. En effet, le système scolaire mis en place en 75 ans de présence française, se est remplacé par une diversité des structures conduisant à l'industrialisation, par une aban-

de nous de toutes les écoles que et de nous doter de moyens spécifiques spécialement destinés et cela par un dédoublement flagrant entre la situation de Tunisie et celle de l'Europe : 16.000 Tunisiens et 4.000 étrangers en 1976, nous sommes passés de 775.000 en 1970 à 1.100.000 en 1976, ce qui représente une augmentation de 325.000 élèves.

Si l'on ajoute qu'en 1973, l'enseignement secondaire gratuit fait 5.661 Français pour une population de 143.000 contre 6.682 Tunisiens pour une population de 2.900.000, l'on pourra mesurer l'écart existant par le déséquilibre.

Cette situation appelle de toute évidence une réforme urgente et radicale de l'enseignement, réforme qui s'est assignée quatre objectifs essentiels : l'unification de l'enseignement, la rationalisation, son adaptation et l'industrialisation de production de spécialistes.

La croissance quantitative de l'éducation s'est traduite, a observé M. Mohamed Mami, par l'allocation à ce secteur de la part la plus importante de nos dépenses budgétaires 30 pour cent du budget de l'État.

« Nos réalisations dans le domaine de l'éducation qui a pris le pas sur les autres et qui s'est accompagnée de certaines institutions importantes dans leur grande majorité par l'industrialisation de la scolarisation en nous de la dernière décennie.

Conséquence de ces institutions, nous avons sommes attachés, dès 1976, à faire le point de la situation en vue d'opérer les réajustements qui s'imposent.

**M. HZALI PRESIDE L'OU-
VERTURE DU SEMINAIRE
SUR L'ANALYSE DE SYS-
TEMES ET LA RECHERCHE
OPERATIONNELLE**

M. Mohamed HZali, Ministre de l'Éducation Nationale a présidé hier à l'hôtel Hilton en présence notamment de M. Philip Mc Cord Membre, membre de l'académie nationale des Sciences des Etats-Unis et de plusieurs fonctionnaires, chercheurs et enseignants tunisiens, la séance d'ouverture du séminaire sur l'analyse de systèmes et la recherche opérationnelle appliquée à la réforme administrative, dont les travaux se poursuivront jusqu'au 27 de ce mois.

M. Mohamed HZali a prononcé à cette occasion un discours dont nous publierons demain le texte intégral.