ARCHITECTURE FOR EDUCATION

INTRODUCTION

For many years now, UNESCO has accumulated a vast experience in the field of research, planning, design, construction, management, maintenance and evaluation of educational buildings and furniture.

UNESCO’s Architecture for Education Sub-Programme is engaged in architectural work in the area of educational buildings and furniture which involves technical co-operation with Member States, training of national specialists, exchange of information and the development of pilot projects to be replicated at a larger scale within the country and in other countries with similar conditions. The whole set of photos and graphs of relevant projects in this key area are provided under the Section “School Buildings” of this CD-ROM.

I. HISTORICAL BACKGROUND

In 1962, following recommendations of UNESCO's International Conference on Educational Buildings, (London, July 1962) which were approved by the UNESCO General Conference at its twelfth session, the basis of a programme concerning educational buildings and facilities was launched together with services to implement it: an architecture for education unit at UNESCO headquarters and, for a period of ten years, three regional centres for educational building activities concerning Asia and the Pacific, Africa, and Latin America and the Caribbean.

The activities were financially and technically supported by UNESCO as well as by the host countries and were conducted and executed by offices in Paris and in the regions as indicated below:

- the Architecture for Education Unit, created at Headquarters in Paris;

- the Regional Educational Building Institute for Africa (REBIA), as a follow-up for UNESCO’s School Construction Bureau for Africa, established in Khartoum (Sudan) in 1961 (1962-1972);

- the Asian Regional Institute for School Building Research (ARISBR) established in 1962 in Bandung (Indonesia). In 1964 it was transferred to Bangkok (Thailand) and finally to Colombo (Sri Lanka), where it resumed its activities in 1966 as AROSBR;

- the Educational Building Centre for Latin America and the Caribbean (CONESCAL) in Mexico, established in 1963, continuing to function until 1984, after termination of UNESCO subsistence in 1973. CONESCAL also received financial support from the Organization of American States (OAS).

The activities of these Institutes focused on research in areas such as design guidelines, space and comfort norms, climatic conditions, and on training of national specialists including in management of large scale construction programmes in order to establish Educational Buildings Units within the Ministries of Education. The Institutes developed methodologies for the establishment
of inventories, school mapping, educational policy and planning on the establishment of annual and mid-term school construction programmes, etc. Moreover, combined studies were done by the three Institutes, such as costs of secondary schools.

The three Institutes collaborated with the International Union of Architects (UIA) and joint meetings were organized every year at a different place to exchange information on results of research and work on joint activities.

In 1972 a decision was taken to integrate the regional school building centres into the UNESCO Regional Offices for Education. Thus, the conditions were created in the regions and at headquarters for interdisciplinary work.

This move was in line with the decision of the General Conference at its fifteenth session to regroup all regional activities into Regional Offices for education. The guiding principles of this decision were:

- to establish integrated regional structures, enabling a multidisciplinary approach in educational projects (including building-related projects);

- to provide broad education-oriented training courses for local specialists (including architects, engineers);

- to promote development work with the help of multidisciplinary teams;

- to render services by sending multidisciplinary teams on mission to Member States.

These Regional Offices which included an architecture for education unit, were:

- Regional Bureau for Education in Africa (BREDA), Dakar, Senegal;
- Principal Regional Office in Asia and the Pacific (PROAP), Bangkok, Thailand;
- Regional Office for Education in the Arab States (UNEDBAS), Amman, Jordan;
- Regional Office for Education in Latin America and the Caribbean (OREALC), Santiago, Chile.

The merging of the Institutes with the Regional Offices facilitated interdisciplinary work. In addition to the previous activities which focused on research and training, UNESCO started to be more active in providing technical assistance to Member States and implementing externally financed projects (World Bank, Regional Banks, UNDP, Funds-in-Trust), self-benefiting projects, etc.) Training and research continued, exchange of information increased with emphasis on dissemination of information. The co-operation with the UIA increased through the Working Group on Educational Cultural Spaces which UNESCO continued to support for the organization of an international seminar every two years.

During the 1960s, UNESCO's activities in this field were mainly financed through the regular programme.

The 1970s were characterized by large capital investment programmes in educational buildings at all levels, to cater for the increased demand for education due to rapid demographic growth in many countries and the recognition of the importance of access to and equity in education. During
this time, many countries became independent and national education plans were developed. The policy of achieving Universal Primary Education (UPE) was a main goal. The activities of the Educational Buildings Units followed these general trends and provided advisory services and implemented projects.

This was the time when UNESCO started to have extrabudgetary financed project activities. However, UNESCO attached an architect (financed from the regular programme) to such an activity to also do research.

The 1980s and early 90s were characterized by severe financial constraints, not only in UNESCO but also in Member States. This resulted in a reduction of staff and regular programme activities and at the same time a significant reduction in capital investment programmes for buildings in Member States. Thus, the educational buildings programme had to readjust its focus to the changed needs of the Member States, and relying mainly on extrabudgetary resources.

II. TRENDS

The 80s have often been characterized as a decade of lost opportunities. After the enormous progress achieved in the field of education in the 60s and 70s, a stagnation and even decline in primary school enrolments has taken place. Moreover, the quality and pertinence of education has deteriorated, and the statistics show a growing number of repeaters or school drop-outs. The general teaching conditions have also deteriorated. There is a lack of didactic materials, and school facilities are inadequate and in bad condition. This situation, at the end of the 1980s can be illustrated by the fact that more than 100 million children, including at least 60 million girls, had no access to primary schooling, more than 100 million children and countless adults fail to complete basic education programmes; more than 960 million adults, two-third of whom are women, are illiterate.

Confronted with such a crisis, an international initiative towards basic education for all led to the organization of the World Conference on Basic Education for All in Jomtien, Thailand in March 1990. This Conference launched a historic world-wide campaign with the aim to meet basic learning needs for all, introducing a new vision for education. This expanded vision encompasses universalization of access to education and the promotion of equity, focus on learning, broadening of the means and scope of basic education, enhancement of the environment for learning and strengthening of partnerships. The scope, which needs constant redefinition, includes early childhood education, primary schooling, skills training, literacy and non-formal education programmes on various issues. Delivery systems need to be diversified. The improvement of the quality and relevance of basic education is a major issue. In the approved Programme and Budget for 1996-1997, emphasis has been put on providing lifelong education for all. The activities of the Architecture for Education Sub-Programme have been following this concept. Recognizing that appropriate educational spaces are a key variable to effective learning, emphasis is not only put on the need for a sufficient number of affordable educational facilities in order to achieve education for all, but also and most importantly on their quality and appropriateness to different educational needs of various target groups. The task of the architect is to respond to educational, social and cultural needs in terms of spaces. The design and construction of education facilities for all have to be determined by the community, to suit their requirements and reflect their cultural and social values.

Moreover, the reform and reconstruction of education systems has become a major area of activities. In this perspective, many countries are requesting assistance in developing norms and standards for educational buildings. For many years, many different agencies have been involved in one country which led to the construction of a variety of educational buildings, not always adapted to
the local needs. Moreover, the trend of decentralization puts more weight and responsibilities on the local communities which often implement the construction of school buildings and need to be guided by general norms and standards. UNESCO has been implementing projects in Mozambique, Haiti, Bosnia-Herzegovina, Morocco, Palestine in the development of design guidelines and educational buildings norms and standards.

In the 1980s and 90s, maintenance and repair have become important activities. In many countries, the building stock created in the 60s and 70s often is in urgent need of maintenance and repair and there are little funds for large scale building investments for educational buildings.

III. STRUCTURAL ORGANIZATION

The educational buildings programme, in 1996, consists of an architecture for education unit at UNESCO Headquarters, as well as in several Regional Offices. It is organized in a flexible way and operates in a decentralized, though still co-ordinated, manner.

UNESCO’s Architecture for Education Units are located in Headquarters and the following Regional Offices:

- PROAP, UNESCO Bangkok.
- BRED A, UNESCO Dakar.
- UNESCO Beirut.
- Presently there is no architect in UNESCO Santiago. However, the programme is implemented either by Headquarters or by consultants.

These units co-operate with Member States in all geographical regions of the world and also maintain close collaboration with non-governmental organizations, such as UIA, and various research institutions.

IV. EDUCATIONAL POLICY AND PLANNING

Provision of educational facilities as part of educational policy and planning

Early on, UNESCO realized that a good, balanced education policy can only produce results if an educational building policy can be developed at the same time. In 1962, this realization led to the formation of regional UNESCO school building centres, which made UNESCO a trend-setter. A next step was made in 1972 with the decision to integrate the regional school building programme into the UNESCO Regional Offices for Education (now located in Dakar, Bangkok, Amman and Santiago). In this manner the conditions were created in the regions to tackle and elaborate projects in an integrated manner and educational projects - with regard to planning as well as content - may thus be viewed and tested for accommodation consequences.

The educational facilities planning process can be divided into four phases: diagnosis and analysis, research and development, planning, and implementation. These four activities are linked and depend on each other, but their sequence should not be viewed as fixed since they are flexible and due consideration should always be given to the situation prevailing in a country and the optimum timing of actions to be taken. Seen like this, they can help to deal with priority problem areas and thus respond in a pragmatic manner to the level of advancement of the planning process in each country.
A comprehensive image as regards the physical situation in schools has to lay at the basis of an educational policy and the design of its implementation. In this respect UNESCO assisted Member States with the elaboration of extensive inventories of existing school facilities and the utilisation of these facilities, such as: from the 1960s through the Regional Educational Building Institute in Africa (REBIA), for the Sudan and for Kenya and later through UNESCO Dakar for Sierra Leone.

Another fundamental instrument for the definition of educational policies and implementation strategies is the study of functional physical requirements which go with educational reforms. In this respect UNESCO's Educational Buildings Programme assisted in the definition of norms and design guidelines, such as for the Côte d'Ivoire, Cameroon and Burundi, Morocco, Bhutan and for higher Education in Laos.

V. MAIN THRUST

Where there is an education requirement, there is an architectural response.

The priorities of the Architecture for Education Sub-Programme are based on the general policy of UNESCO as regards educational matters. Key concepts of this UNESCO approach are: basic education for all; life-long education; reform and reconstruction of education systems; education of girls and women; rural and community development, community participation and decentralization of decision-making. In this framework, UNESCO's Educational Buildings Programme promotes the development of appropriate and functional school buildings, libraries, furniture and equipment. Emphasis is put on finding appropriate and affordable solutions for building and management of educational facilities; flexibility of the design; options for broad practical uses of the facilities; appropriate technologies for construction and furniture; use of local material, regional construction methods and local labour, and especially, education and training of architects and construction craftsmen in all areas mentioned here. This approach is expressed by the many studies and reports produced over the years by the educational buildings programme.

In the past decade the main thrust of the programme has been to assist Member States in the development of functional facilities for all educational levels, at low cost through the development of local human and material resources. Design guidelines for primary, secondary, general and technical educational facilities, as well as for facilities for higher education have been developed and published. Information exchange is being promoted through the publication of studies and an information bulletin. Special advisory services are being given to least developed countries with a view to providing assistance for the reconstruction of their education systems, and in pursuit of the provision of "Education for All", as well as to countries effected by natural or man-made disaster.

VI. ACTIVITIES OF THE PROGRAMME

In the 1990s, the Educational Buildings and Furniture Programme has been focusing on two main fields of activities, namely 1.) Education for All and 2.) Emergency Assistance.

• EDUCATION FOR ALL

As a follow-up of the Jomtien Conference, the Architecture for Education Unit has developed a project model for the provision of educational spaces for Education for All. Through its architectural work, the Unit is promoting EFA by developing Centres for Education for All in various regions.
A Centre for Education for All can be defined as a grouping of educational services designed to meet the basic learning needs of all members of a given community. Such a grouping may consist of one, some or many areas and spaces for learning brought together in a single location or dispersed according to the availability of resources. It can operate in any available existing space or location, or new facilities may be designed and constructed. The learning opportunities provided are those selected by the local community and may include primary education, literacy and post-literacy, women’s education, basic skills training, health and nutrition education, day-care, social and cultural activities. The Centres are developed in close co-operation with the local communities and various ministries. The concept is based on the principle that services are established as a result of local decision-making and consultation and depends mainly on self-reliance for its administration and organization. This new concept has spurred enormous interest and a first pilot project in Venezuela has been funded by a private Donor (ELF). Other Centres have been developed in Afghanistan, Argentina, Cameroon, Costa Rica, Greece, Mexico, Mozambique.

- **RECONSTRUCTION AND DEVELOPMENT OF NATIONAL EDUCATIONAL SYSTEMS**

  Technical assistance is provided in war and post-war situations, as well as in natural disaster situations.

  Schools in the context of civil unrest have a particular importance. While, as public property, they often become in a situation of unrest, a target for looting, they also offer shelter to refugees, they become feeding centres, etc. Their early rehabilitation gives hope as this signals returning stability. Schools and learning centres, during the recovery process, are linchpins facilitating consultations with the community, hold elections, etc.

  The UNESCO Educational Facilities Programme has been involved with damage assessment and the definition of progressive reconstruction strategies, among others in Somalia, Liberia, Rwanda, Bosnia, Arab Occupied Territories, etc.

  But it is not only in countries where a total breakdown at national levels occurred that UNESCO provides support services and advice. These services are also being extended in a context of local disruption of the education system, including destabilisation through an accelerated urbanisation process.

  **Example: War and Post-War Situations**

  Recently, UNESCO has assisted in the construction of three educational centres/primary schools in Bosnia-Herzegovina for refugee children of the three ethnic groups.

  In Iraq, UNESCO provides through the UN/DHA Inter-Agency Humanitarian programme, assistance in the repair/rehabilitation of school buildings and production of school furniture as well as the supply of educational kits.

  In the Arab Occupied Territories, UNESCO has assisted in the rehabilitation of 17 schools, of which 14 were in the Gaza Strip and 3 in the West Bank. Moreover, a kindergarten for 50 disadvantaged children has been constructed.

  Other countries covered in the past are: Somalia (UNESCO Dakar), Afghanistan, Cambodia (UNESCO Bangkok), Viet Nam, Lebanon, Angola, Mozambique, Nicaragua, Guatemala, Liberia.
Example: Natural Disaster

The Programme also plays an important role in designing safe and secure school buildings in areas prone to natural disaster. This includes assessing the damage of the educational buildings and furniture, drawing up of emergency plans of action for the immediate relief/rehabilitation phase and preparing of project proposals for external financing as well as implementing those proposals. The programme also develops design guidelines for earthquake and other natural hazard-prone areas, including the construction of prototypes which incorporate the principles developed. Examples of countries assisted in situations in natural disaster are: Algeria, Egypt, Bangladesh, Armenia, Mexico, Madagascar, El Salvador, Nepal, Nicaragua, Honduras.

VII. THE FOUR MAIN PROGRAMME ACTIONS

The four programme actions of UNESCO’s educational building programme are:

1. Exchange of Information and the Publication of Research Studies
2. Technical Co-operation with Member States
3. National Capacity Building and Training of National Specialists
4. Pilot projects

1. EXCHANGE OF INFORMATION AND THE PUBLICATION OF RESEARCH STUDIES

The objective of this activity is the dissemination of experience acquired in the field of educational buildings, including publications, audio-visual materials and research findings, as well as the organization of national, regional and international seminars, study tours, etc. The development of the International Information Network is mainly carried out through the publication of a newsletter (First World Directory of Services in the Field of Educational Buildings and Furniture) and through horizontal exchanges among national services. Each of UNESCO’s Educational Buildings Units has developed a regional directory which serves to increase communication within the same region. The World Directory, which is updated periodically, includes these regional directories in order to promote interregional exchange of experience and information.

2. TECHNICAL CO-OPERATION WITH MEMBER STATES

Operational action: From technical assistance to co-operation for development.

Assistance is provided to Member States, at their request, with a view to establishing or strengthening national departments responsible for the design, planning and management of educational buildings and furniture, including buildings able to withstand earthquakes and other natural disasters. UNESCO also executes or assists in the identification, preparation and implementation of a great number of extra-budgetary projects in the field of school construction. These projects are generally financed by banks, other UN-agencies, donor countries, or private donors.

UNESCO’s inputs at these levels have been principally to identify and prepare projects on the basis of national policies and educational reforms. The modalities of implementation have been twofold. Mostly, UNESCO works closely with the national authorities and local communities, and in many cases, the creation of national school construction services and project implementation units
has been supported. Moreover, national architects and contractors in the private sector have been mobilized, which also had a training effect and thus contributed to national capacity building.

Thus, to a significant extent, UNESCO has assisted Member States to generate implementation capacities at community and grassroots levels, their direct engagement being considered the only way to achieve the objective to provide "Educational Facilities for All".

A synthesis of community and "grassroots" involvement, financing from private sources, an innovative approach to educational facilities and a notion of educational facilities development in a broader sense, which includes educational industries, is demonstrated in UNESCO's "Literacy Caravan". This UNESCO Co-Action project, jointly piloted by the UNESCO Dakar, the National Federation of UNESCO Clubs and the Ministry of Education in Senegal which created "Educational Resources Centres" in each of the ten regions of Senegal demonstrates the great impact a non-formal educational delivery system may have.

3. NATIONAL CAPACITY BUILDING AND TRAINING OF NATIONAL SPECIALISTS

The development of national capacities and the mobilization of local resources for the planning, design, construction and management of educational buildings and furniture through the promotion of a better utilisation of technologies involving local labour and materials has always been an important part of the programme.

During the thirty years this programme has been operational it has assisted Member States in the creation, through advisory missions and training, of Educational Buildings Services in a great number of developing countries. These Services have been instrumental in improving the national coverage of educational infrastructures in view of promoting an equilibrated access, for the population as a whole, to education services. They generally are responsible for the preparation of inventories, norms, guidelines and architects briefs. At downstream implementation levels they are playing an advisory role, while also being involved in technical back-stopping of national school construction projects.

Among the more significant activities in this respect, one may note the three seminars: "SCHOOLCONSEM" (respectively in 1981, 1985, and 1995) which brought together national education facilities specialists from the sub-Saharan African region to identify tendencies and exchange significant experiences. The latest of these consultations (SCHOOLCONSEM III, organized in UNESCO Dakar) emphasized the need to restructure national Educational Facilities Services and Project Implementation Units in the context of today and tomorrow.

Training

An important component of nearly every educational facilities programme or project relates to human resource development. In the Regional Offices and Headquarters, but especially also in the sub-regions and in countries where projects are implemented, training activities are carried out. They consist, inter alia, of national, subregional and regional seminars and training workshops for officials of national bodies, educationists, administrators, architects, planners and cost experts, for site supervisors, community and extension workers and "barefoot architects" including training at experimental building sites and in-service training for construction workers.
The training of “barefoot architects” consists in training courses and in-service training of local practically oriented craftsmen who are then entrusted with the designing and the building guidance of simple community facilities realised with the aid of local community associations. Emphasis is put on the use of appropriate technologies by application of locally available materials and building methods.

Training is also provided on an individual basis in the Regional Offices and through study tours. Moreover, Technical Co-operation among Developing Countries (TCDC) is supported through sub-regional or regional training activities. UNESCO also contributed to training of international educational facilities specialists, through for example the associate expert programme. UNESCO also produces training materials in the form of manuals and audio-visual aids for self-instruction or group teaching. Owing to this continuous UNESCO effort, a potential arsenal of trained, dedicated people has been built up in many countries.

However, whereas in the 1960s and 70s training activities were a main part of the programme, training has become a built-in component of projects in the 1980s and 90s. This development is mainly due to the change of funding.

4. PILOT PROJECTS

Pilot projects provide technical support to Member States for the development and construction of prototype multifunctional educational facilities meeting the requirements of both formal and non-formal education, using local materials and improved construction techniques, including resistance to natural disasters. These pilot projects are designed with a view to being replicated within the same country or adapted to others with similar conditions, and to serve as a basis for large-scale externally financed national construction programmes.

Example: School improvement schemes in Myanmar. A team trained by UNESCO (one architect with further assistants) has been working on the improvement of approximately 1,000 rural schools. This concerned meeting primary requirements in terms of water tightness, hygiene and sanitation (80 per cent of the budget) and curriculum upgrading (20 per cent). In addition, 8,000 teachers have been educated as “multifunctional” teachers for non-formal rural education. The project is financed by the United Nations Children’s Fund (UNICEF), with the communities contributing labour and materials, at minimum matching the UNICEF contribution.

Example: Participation in mountain village schools in Nepal. A team of two UNESCO experts, one UNICEF official and 11 national specialists worked in the mountains for the design and construction of small rural schools together with the village population.

The project developed as follows: Briefing process with the villagers at a level understandable to them; local designing by team members; revision of design (and improvement) during the participation procedure with the villagers; publication of technical guidelines; and construction by the villagers under guidance of team members. In this way some hundred small schools have been built in this mountainous country inaccessible to normal transport.

VIII. FURNITURE

UNESCO considers buildings and furniture as integrated components of a global facilities approach. However, in some cases, furnishing is also dealt with separately in a number of projects.
The problems to be tackled in the area of furnishing are various. Apart from lack of furniture, the existing furniture is often in a pitiful state. Moreover, it is frequent that the furniture in use is detrimental to health because it is not appropriate to the children's size and thus forces the children to adopt wrong sitting positions. Maintenance of much furniture in use is too costly and often does not lead to an improvement of the functional quality either.

Restoration or replacement of furniture is often an easy way to satisfy the first demand for improvement of facilities.

When tackling the furniture problem, in connection with a building project or otherwise, UNESCO takes account of the following aspects:

- Anthropometric data analysis: an examination is desirable per country (or region) and has also already been carried out in many cases because the body sizes may differ sharply in different areas; these data form the basis for models to be developed;

- Models: on the basis of the anthropometric data, the main dimensions for sitting and worktop heights are determined. The worktop dimensions are derivatives of functions to be performed and restrictions owing to space dimensions, the minimum number of models required, production method and availability of materials. From there prototypes are developed and tested;

- Production: on the basis of the information acquired (anthropometric data and models), the production is determined for the numbers required. Attention is paid to industrial capacity (often not available), the use of locally available material (often a problem in the dry-warm climate areas), production methods for large series to be used by local volunteers and professionals, and the lowest possible cost for production and maintenance. Transport of furniture is another aspect which is taken into consideration;

- Training: In the framework of the furniture component of the Programme, training for furniture development may be part of a project which may include processing of basic data, design, spatial studies and making test series.

Support has also been provided for the development of school furniture in the framework of education for all, which puts emphasis on flexibility of furniture, to be used in different teaching situations, furniture for all sizes, cultural aspects (i.e. squatting desks).

Projects which concern the development of school furniture at conceptual, manufacture and management levels have been carried out, in Togo, Niger, Malawi, Botswana, Mali, Ethiopia, Venezuela, Bhutan, Philippines, Laos, Iraq, Morocco, Sudan, etc.

IX. LOOKING TO THE FUTURE

To make Education for All a reality at basic levels and to balance access to further levels of education, physical facilities for formal as well as for non-formal education need to be provided for in a more balanced and sustainable manner.

Local realities and possibilities need to be taken sufficiently into account by centralized planning services and the bottom-up approach in planning and implementation needs to be strengthened.

Numerous examples presented at the SCHOOLCONSEM III have demonstrated that a community-based development approach is beneficial as regards the strengthening of local identity and involvement, the appropriateness of space provided and materials employed, regular maintenance, cost control and local financing.

This tendency is expected to prevail in the provision of educational facilities. Large school construction projects may disappear all together, while community-designed and built schools will become more popular, reflecting local realities and needs, the community being involved at conceptual, construction and maintenance levels.

The profile of the traditional school construction units at central level may change, in this context, from building units into monitoring and advisory services. On the basis of "grass-root" inputs, they may become be focal points for upstream policy setting at macro-planning level. Activities may include establishment of inventories and school mapping, the preparation of norms and technical guidelines, the realization of research and prototypes, specialized information and documentation service. A clear redefinition of responsibilities of government services involved in educational facilities management at national level is required. Central services have to safeguard in particular the access to education for the most vulnerable groups. The creation of national school building funds may be envisaged.

At micro-planning and down-stream implementation level, communities and users will be more directly involved. Important training activities should take place to prepare the communities for this new situation. Local school management committees would have to become a common feature, and maintenance plans would have to be drawn up by these committees.

Major shifts in educational needs, curriculum, educational delivery and technology are changing the function, size and environmental needs of educational facilities and furniture. Therefore, the planning of educational facilities must take into account these changed needs and realities and the planning process must integrate educational, technological and design requirements.