

Urban Design and Education Programme: its significance and achievements as they relate to local and international frameworks

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ABSTRACT: The Urban Design and Education Programme (UDEP) has been established by the UNESCO International Centre for Engineering Education (UICEE) in collaboration with the Department of Infrastructure of the State Government of Victoria in Australia. Under this scheme the UICEE/UDEP has undertaken five specific projects. The key objectives of these projects have been to carry out research and development, promote world's leading ideas and improve education and training in the area of urban design and sustainable development. A new strategy to the education of urban designers has been developed, which includes the conduct of so-called design studios, as well as two highly specialised continuing education courses run under the common title *Leading by Design*. The paper presents an overview on the structure and achievements of the five projects. Particular emphasis is being placed on the aims and objectives of the individual project and the way in which they may impact on the professional development of the individuals involved in urban design, planning and management, particularly with regard to the professional needs of personnel from councils, government units and industry.

INTRODUCTION

The UNESCO International Centre for Engineering Education (UICEE), at Monash University in Melbourne, Australia, and the Department of Infrastructure (DoI) of the State Government of Victoria, Australia, established a UICEE Urban Design and Education Programme (UICEE/UDEP) in June 1999. This is an independent programme for the research and promotion of world-leading ideas in urban design and sustainable development, and to develop a better understanding globally of issues of engineering, planning, architecture and urban design.

The UICEE is the world's first and only such centre for engineering education, focusing on human resources development within the engineering academia and industry. The UICEE/UDEP has been a logical extension of its commission, focusing on the quality of engineering outcomes as they relate to urban design and sustainable development, as well as the education in this important area.

At this stage, the programme mainly concentrates on issues of importance to the Australian State of Victoria. The key objectives of the UDEP include:

- Improvement of urban design skills.
- Development of innovative urban design processes and tools.
- Enhancement of public awareness of urban design issues and opportunities.

The programme is comprised of five projects that address issues of critical importance and develop tools relevant to the project's objectives. These UDEP projects comprise the following:

- Design Assessment Criteria and Methods for Outcome Oriented Planning.
- Design Mediation and Community Consultation.
- Urban Design Tools.
- International Urban Design Fellowship Programme.
- Urban Design Training Courses.

The programme is intended to support positive urban development activities locally and globally through:

- Education;
- Development of improved practices;
- Advice to governments;
- Exchange of staff and ideas;
- Demonstration projects.

The Urban Design and Education Programme uses Australian development models as a starting point for global action. To meet local challenges, five exciting projects have been formulated with the Victorian State Government's Department of Infrastructure.

THE GLOBAL CONTEXT

The establishment of the UICEE/UDEP has to be seen and considered in a global context and is a response to the following challenges:

- Urbanisation is one of the most significant challenges that the global population must face.
- Many regions, such as South-East Asia, are undergoing a paradigm change with profound social effects on economic and social sustainability.
- Successful urbanisation can create healthy, attractive, safe and productive environments for urban populations.

- There is a need around the world for governments and private organisations to develop and apply urban management practices that achieve sustainable economies and communities.
- South-East Asia is experiencing a particularly fast and difficult urbanisation process with the growth of mega-cities. The success or failure of this process will have major implications for the global community.
- Australia, with its widely recognised success in urban design and development and acclaimed for its liveable cities, is in the best position to assist others in the development of urban centres [1].

The process of globalisation has a profound and often negative effect on small regional centres everywhere. The traditional ways in which economic activities were conducted in the past change with globalisation, usually leaving regional centres with greatly diminished roles resulting in the deterioration of the employment market. This situation often forces regions to accept unsustainable economic activities and environmental deterioration.

The process of change limits locally-based business opportunities, causing potential leaders and enterprising individuals to migrate to the main cities. Diminishing community services and educational facilities often exacerbate this situation further. When the economic strength of local communities is weakened, it is difficult for them to maintain or improve their urban environments.

Fighting the combined effect of these kinds of changes is usually well beyond the capacity of most regional communities, as the solution lies in fundamental structural adjustments and finding a specialist niche at the state, national or even international level (such as the production of ecological food or advanced manufacturing).

In an increasingly competitive world, it is the town, city and region that are becoming the points of comparison. The design quality of urban areas affects our ability to attract investment and to generate wealth in two ways. Firstly, through the efficiency of the system and the ability to avoid unnecessary waste; and secondly through the image that is projected from both the built environment and the culture that is associated with it [2].

There are many international examples where urbanism or an urban design led approach has been successful in assisting regional centres to adjust to a changing external environment. In particular, the French programme of re-positioning local towns and cities in order to participate in the European Union (EU) market offers a good model to consider.

ISSUES IN SUSTAINABLE URBAN DEVELOPMENT

Major causes of world urbanisation pressures are population growth and globalisation, as economic change encourages the migration of people from rural communities into urban centres in search of employment and a better life.

The world population currently stands at about 6 billion persons and is growing at 1.33%, or an annual net addition of 78 million people. The world's population in the mid-21st Century is expected to be in the range of 7.3 to 10.7 billion (see Table 1) [3].

Table 1: Population for the world and major areas (1998-2050).

Major area	Population size (in millions)	
	1998	2050
World	5,901	8,909
Africa	749	1,766
Asia	3,585	5,268
Europe	729	628
Latin America and Caribbean	504	809
Northern America	305	392
Oceania	30	46

The rapid rate of population growth, coupled with increased urbanisation, means that by the year 2010, well over 3.7 billion people would be classified as urban dwellers – more people than inhabited the world just four decades earlier [4].

Cities in developing countries are suffering from unplanned population and urban growth; they just grew. This means that infrastructure, such as roads, housing, water supply and treatment, has not kept up with the explosive demand. Traffic congestion is common, often severe, with peak-hour speeds in Asian cities averaging around 16 kilometres per hour [5].

Common problems of rapid urbanisation that contribute to significant health problems and a miserable standard of living for millions of people include:

- Inadequate waste management is where both collection and landfills services do not meet demands.
- Poor management of public infrastructure.
- Inadequate zoning.
- Poor pollution monitoring and control.
- Lack of consultation and information procedures.

Urban problems and unsustainable practices are not only limited to developing countries. North American, European and Australian cities also suffer from urbanisation problems and practices that are proving to be unsustainable. One of the major problems afflicting these continents is urban sprawl. It is a pattern of physical development characterised by the decentralisation of land uses, with planning and management practices that are governed by the use of single-use zones that separate activities and functions.

Sprawl requires the use of a private vehicle to move from one single-use zone to another. Its success destroyed the walking suburb where now jobs, grocery stores, community centres, even schools, are separated from housing [6].

Like any other urbanisation model, the suburbs cannot be repeated endlessly. In Australia, and in other countries that have adopted this model, the signs of serious strains have emerged. These include:

- The high cost of providing new infrastructure.
- Social and cultural alienation and displacement.
- Negative impacts on the ecological system (in particular increased usage of cars and the burning of fossil fuels).
- Unequal access to opportunities and services.
- Public safety [7].

World organisations, academics and professionals in the area of urban planning and design agree that the issue of sustainable urban centres has reached a point of crisis. Local and international strategies are being developed to help address such issues.

THE ROLE OF URBAN DESIGN

The urban design process is used in overall place management, not just at the traditional project level, but also more strategically by interpreting Municipal Strategic Statements (MSS) and other strategies in a physical way [8].

Urban design is a unique, three-dimensional multidisciplinary approach aimed at achieving safe, functional and aesthetically relevant public environments for local communities. It sits alongside other techniques like strategic planning, cultural planning, regional development and economic strategies. Rather than a replacement to any of these, it could be seen as integrative, drawing on other techniques and acting as an implementation tool itself. It enables the built environment to express local influences and conditions in a creative way.

While there are many players (social scientists, lawyers, economists, ecologists, engineers, etc) tied up in the management of place, there is a core group whose understanding of the relationship between urban structure, spaces and buildings, and ability to develop three-dimensional concepts is central. The *urban design* expertise embraces the following key areas:

- The relationship of built form to topography and setting.
- The relationship of built form to the historical development of a place.
- Urban structure (including building and spatial typology).
- The relationship of built form to activity and movement.
- The generation of 3D concepts on an urban scale.
- The presentation and explanation of the concept of place management.

The role of the urban design process in the interpretation of planning policies, such as the MSS, was introduced in course modules. Urban design was introduced as a creative way of developing concepts to express local values, influences and aspirations.

THE NEED FOR A PROGRAMME IN URBAN DESIGN AND EDUCATION

In common with many countries, planning and development in Australia has undergone radical reforms in recent years. Basically, these reforms amount to a lessening of the regulatory and reactionary approach in favour of a performance-based system.

The performance-based approach provides much greater flexibility and opportunity for developers willing to engage with the system; it should also provide the community with many benefits, including more innovative design outcomes, a better use of available resources and much shorter timelines.

However, as can be found with the introduction of *The Good Design Guide for Medium-Density Housing*, a performance-

based approach is very dependent on all parts of the industry having an appropriate degree of skill [9]. This includes not just the designers and developers, but also the planners undertaking assessments, the infrastructure agencies responding to new ideas and the community representatives communicating the potential benefits and providing a strategic framework within which better proposals can be developed.

There is presently the danger of losing the benefits from planning reform with a retreat to regulation and control caused mainly by a lack of skill and preparedness to engage with a performance-based system. This is leading to a situation in which more and more projects are waiting on an appeal, and appeal delays are extending as the issues become more complex. In Victoria alone it is estimated that the value of projects currently waiting on appeal exceeds three billion dollars and is growing daily.

Aims of the UICEE/UDEP

The aims of the UICEE/UDEP are to provide material and information of practical value to the community, state and local government authorities, developers, engineers, designers, academics and students to promote leading edge and world's best practices in the field of urban design and planning. For the purposes of the UICEE/UDEP, urban design includes the physical design, management, planning of relationships and uses and activities in and around buildings and landscape, and their interaction with the public realm.

Basic Objectives of the Programme

The UICEE/UDEP endeavours to develop and promote international standards in urban design education and practice, with particular emphasis on the practical implementation of design-based planning and development. It undertakes research, develops curricula and provides technical expertise in the following areas:

- Ecologically sustainable development;
- Urban design;
- Engineering design;
- Urban development;
- Performance-based planning;
- Economic indicators of planning;
- Quality issues.

Functions of the Programme

The following functions of the programme were envisaged:

- To be an independent source of policy and project advice.
- To stimulate, promote and carry out practical research in the area.
- To be a focal point for research and transfer of information on relevant research.
- To formulate and deliver educational courses for local government and the development industry.
- To formulate international courses that will be delivered electronically and through franchised educational institutions.
- To publish and distribute materials promoting research, development and education in the area.

Moreover, it was expected that the project would establish standards and protocols for:

- The implementation of performance-based systems.
- Guidelines for generic issues.
- Continuing education in urban design and sustainable development.
- Undergraduate education in urban design and sustainable development.
- Postgraduate education in urban design and sustainable development.

PARTICIPATION IN THE PROGRAMME

It was envisaged that the UICEE/UDEP would be funded from a range of sources, spreading the cost fairly across the major beneficiaries. However, this was not the case and the DoI provided the financial resources required for the programme. It should be mentioned at this point that the programme, as an extension of the UICEE, was developed quickly as an active working resource for the development community.

The membership arrangement was that new members could elect to join the UICEE via the urban design programme. Existing UICEE members could also elect to be registered with the programme in addition to their normal membership and activities. However, the programme's paramount aim was to extend the range of activities for the UICEE members so that they can benefit from the opportunity of participating in this programme.

Stakeholders

The UICEE/UDEP has demonstrated to have provided wide benefits for all major players in the development industry since its actions have encouraged more efficient processes, higher quality outcomes and outcomes that are related to measurable benefits. It is believed that the local and international communities have benefited from the improved standards of urban design and management and the better quality of development worked out and proposed by the programme.

All levels of government have benefited from the availability of an independent source of advice, training, standards and techniques.

Developers have benefited through the availability of proven techniques that are designed to complement the latest trends in planning and development. Moreover, it is anticipated that they will benefit more in the longer term as government planners and engineers become more skilled in urban design through the implementation education and training component of the programme.

Educators have benefited from the UICEE/UDEP programme by taking part in research and education activities carried out under the programme. They have been able to take advantage of the developed tools, designed curricula, training and education programmes, as well as from the information published so far.

The UICEE/UDEP has become a powerful advocate of performance-based planning development processes and will act against regulatory backlashes. It is hoped that the

UICEE/UDEP has provided important benefits to the wider community as it has advocated for modern techniques to help communities to:

- Explore and understand their future potential.
- Identify and maximise the benefits of change.
- Identify and protect significant aspects of existing culture and the environment.
- Achieve a higher level of certainty about the future of urban environments.

It should be pointed out at this stage that the activities of the Urban Design and Education Programme of the UICEE are supported by an Expert Committee, consisting of leading local and international professionals and academics in the fields of architecture, urban design and planning.

DESIGN ASSESSMENT CRITERIA AND METHODS FOR OUTCOME-ORIENTED PLANNING

The way planning applications are assessed at local government has been changing with the introduction of a new planning system. Prescriptive controls that previously guided decision-making have been replaced with outcome-oriented objectives. Design and development assessors are now required to consider how an application is likely to perform against criteria.

This aim of the project was to offer greater consistency and confidence to the planning and development industry by providing a standard assessment method. The general perception was that setting criteria would enhance the quality of decision-making. Furthermore, the improvement of the quality of urban developments in Victoria, through better standards in design assessment practice at the local government level within the planning process, was an important aim of this project.

A wide range of more specific objectives of the project was identified. These include the following:

- To review and analyse current practice in assessing design issues within the planning process.
- To establish areas of concern requiring improvement.
- To review national and international assessment models.
- To establish design assessment criteria and objectives in planning.
- To develop options for design assessment processes.

DESIGN MEDIATION AND COMMUNITY CONSULTATION

The aim of this project was to investigate how to best achieve quality design outcomes and the types of services that can be provided by local government through the investigation of appropriate design mediation processes for the planning system. Another aim of the project was to resolve more development applications at an early stage and improve the quality of the design, and to establish a role of the Victorian Civil and Administrative Tribunal (VCAT) as a place of appeal and not as the normal process to achieve design assessment mediation and final decisions. The more specific objectives of the project were:

- To investigate the reasons and issues, which result in a high number of appeals to the VCAT.

- To research on design mediation processes used locally and internationally.
- To develop and verify options for the design mediation process.

As a major exercise under this project, appropriate design mediation processes for the new planning system were investigated.

URBAN DESIGN TOOLS

The Urban Design Frameworks document includes a formalised planning and urban design approach and methodology used in the preparation of strategic physical planning documents, as well as the Urban Context Reports, which includes a formalised approach to the preparation of the urban design submission in support of a development proposal. These important urban design tools were developed by the Department of Infrastructure [10][11].

The aim of the project was to review how the Urban Design Frameworks and Urban Context Reports are used as tools for managing change. To investigate the possibility of establishing a standard method for delivering Urban Context Reports and Frameworks plans in Victoria was also an important aim of the project. The more specific objectives of the project were as follows:

- To research on the range of urban design tools used locally and internationally.
- To review the practice of using the Urban Design Frameworks and Urban Context Reports.
- To develop a set of recommendations for minimum standards for preparing Urban Design Frameworks and Urban Context Reports.
- To provide suggestions and recommendations for model processes for Urban Design Frameworks and Urban Context Reports.

The Urban Design Tools project produced, with the active participation of many Councils in Victoria, a set of important proposals in relation to several established, as well as contemplated, urban design techniques. In particular, several improvements have been suggested in relation to the two most commonly used tools, namely the already mentioned Urban Design Frameworks and Urban Context Reports.

INTERNATIONAL URBAN DESIGN FELLOWSHIP PROGRAMME

An important component of UDEP is the so-called visiting fellowship programme. The aim of the project is to present the best international practice in the field of urban design by inviting leading international designers, planners and engineers to Victoria. The visits would provide opportunities for local professionals to be exposed to best international practice. The specific objectives of the programme are:

- To establish a network of international experts in the urban design field interested in participating in this project.
- To inform public urban design debate through showcasing international examples by visiting fellows.

- To improve local urban design expertise through professional seminars and other projects involving international experts.
- To improve urban design advice provided to local and State Governments.

Visiting international professionals are expected to undertake a number of activities, including:

- Public forums;
- Media debate and interviews;
- Conferences and seminars;
- Design workshops;
- Lectures;
- Leadership of design studios.

It was envisaged that through the programme of visiting fellowship, Melbourne would strengthen its state and national role as an urban design centre in Australia and globally. It is hoped that this aim has largely been achieved.

Funding arrangements with other Victorian stakeholders will be made to extend visits by the international experts and maximise this programme's effectiveness.

URBAN DESIGN TRAINING COURSES

The existing urban areas of our towns and cities experience major social change, which manifests itself in decreasing household sizes. This de-population of urban centres and the combined ecological and economic cost of urban sprawl are behind the government policy of urban consolidation and new performance based planning system. The resulting re-urbanisation of our suburbs requires a new set of design-based skill from all parties involved in the process.

The aim of this project is to improve design assessment skills in relation to development proposals within existing urban area. The more specific objectives are as follows:

- To provide training opportunities that explore urban management techniques to achieve vision, introduce public communication concepts and explore the issues of the re-urbanisation experience and planning reform.
- To provide training and professional development to improve design assessment skills in relation to development proposals in existing urban areas.

The more specific project objectives are to:

- Explain the nature of re-urbanisation, as experienced by Victoria, and the objectives of planning reform.
- Develop skills in setting environmental and built form visions.
- Explore urban management techniques to achieve visions.
- Outline innovative administrative structures.
- Improve design assessment and mediation skills.
- Introduce a number of public communication concepts.

Two comprehensive courses, one for Councillors and Chief Executive Officers within local government, and the other for Council Officers and Private Practitioners, have been developed and delivered by leading practitioners in the field [12].

The first course targets councillors and chief executives within the local government. It is particularly intended for the local government sector and top practitioners and specifically for those whose decisions impact on the built environment and the location of activities.

The main objective of the course is to introduce a structured approach to the process of managing the urban environment in consultation with the community - *place management*. Furthermore, the course introduces an innovative approach to urban design by organising so-called *design studios* and placing emphasis on their role in the urban management process [13][14].

The practitioners level course complements the executive course by concentrating on the needs of practitioners from local government and private industry in relation to using urban design in order to achieve better development outcomes for local communities [15].

CONCLUSIONS

The paper presents a new and unique approach to assisting engineers, developers, designers, assessors and community representatives in making use of procedures and techniques in sustainable development in general and in urban design in particular.

Work is in progress to develop a more strategic approach to solving problems in planning and development, which is based on the concept presented in *Designing Competitive Places* - a policy on urban design for local governments in Australia [16].

The Urban Design and Education Programme, through the five specific projects presented in the paper, endeavours to change the way in which urban design and management has been carried out so far.

The established programme seems to be the right vehicle to promote and develop performance-based systems, which can be an important step towards resolving the present high level of conflict within the planning and development realm.

The design, development and introduction of the educational projects into the UDEP, and in particular the engagement of international visiting fellows, has proved to be an excellent vehicle for the transfer of knowledge and skills, as well as for the promotion of best practice in urban design and management.

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