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Side Stepping Poor Infrastructure: Enabling Environments in Developing Countries

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ABSTRACT

The concept of inclusive environments in developed countries is now well established. Inclusive environments aim to ensure that all people, including people with disabilities, are able to access and use services and facilities in the built environment. The paper applies this concept to an urban area in South Africa. It shows that urban space is not only used to access facilities but also accommodates a wide range of other activities. The study found that technologies were being created, the built environment modified and user behaviour adapted in order to occupy and use urban environments in unexpected ways. The paper suggests that access is only one of many functions that should be supported in urban environments in developing countries and argues that the symptoms of the additional demands being made on urban environments should not be ignored. Instead these demands should define how environments can be proactively adapted to meet a wider range of needs for a larger proportion of the population. The paper shows how the concept of inclusive environments can be broadened to reflect the way in which urban environments are being adapted to accommodate a wider set of activities and proposes an Enabling Environment framework. This describes and measures the performance of an environment in terms of the extent to which socially and economically inclusive by catering for a wider set of activities identified in the study.

Key Words: Inclusive Environments, Enabling Environments, Developing Countries, People with Disabilities, Old People, Community

1.1 INTRODUCTION

This paper develops the concept of Enabling Environments in a South African context. It shows how the concept of Inclusive Environments, that is widely used in developed countries, can be developed and broadened to relate to the needs of urban users in developing countries by drawing on

innovative design, advanced technology and responsive urban management practices.

The research area identified for the study was Church Square in Pretoria, South Africa. This was chosen because it is a busy central point in the city and has a diverse set of users. The study was carried out by members of Knowledge Services, Architectural Sciences and the Meraka Institute of the CSIR. The study consisted of five stages including:

- **Environmental Access Audit:** This used the Environmental Access Audit process to identify the main access problems in the square.

- **Use Observation:** This involved a photographic survey of the area and was used to identify the different ways people used the urban environment around the square.

- **User Interviews:** This established the reasons why people were in the square and developed a picture of their needs, values and cultural and education backgrounds.

- **Enabling Environment Specification:** The specification draws on the above to define a broad set of performance requirements that should be met in developing country urban environments.

- **Enabling Environment Proposals:** In order to begin to envisage an enabling environment a number of proposals are suggested that would begin to transform a conventional urban environment such as Church Square in to an Enabling Environment.

1.2 ENVIRONMENTAL ACCESS AUDIT

An Inclusive or Universal Environment can be defined as one in which all users are able to carry out their everyday activities safely and effectively, according to their ability, and are not hindered by avoidable factors such as poor design, management or maintenance (Research Group for Inclusive Environments, 2006). A key tool for assessing Inclusive Environments is an Environmental Access Audit. This assesses barriers to access and provides suggested improvements. An Access Audit is a means of:

- examining the accessibility of services and facilities
- identifying physical barriers to access
- measuring how usable facilities are within a building and the services being delivered from it

Typically an audit would carry out an assessment of the following physical features in the built environment:

- entrance and reception
- communication systems, signage and way finding
- horizontal and vertical circulation (corridors, doors, lifts, stairs and so on)
- sanitary provision (WCs)
- lighting and acoustics
- surface finishes and visual contrast
- means of escape
- building management

The study undertook an Environmental Access Audit of Church Square
This identified the following main access problems on the Square:

- car parking: there were limited disabled parking spaces and those that existed were not suitable
- buses: buses and bus stops could not be used by people in wheelchairs
- kerbs: there were limited kerb cuts and the design and location of these made it difficult for them to be used by people in wheel chairs
- bollards and pavement furniture: there were numerous bollards and pavement furniture placed in the route of travel creating hazards for people with sight impairments.
- signage: there was limited signage and signage that existing did not comply with accessibility standards for contrast, font type etc
- uneven surfaces with cambers: many of the surfaces were uneven and had cambers making them difficult to traverse
- thresholds: many of the buildings around the square had thresholds in their front doors limiting access.
- steps: there were steps in the square and into buildings around the square. Many of these did not have associated ramps preventing access by wheelchair users.

A number of these problems are illustrated below

This picture shows a large threshold from the street into the shop. The shop itself has a highly reflective slippery tile floor.

This picture should rubbish bins located in the path of travel and uneven and poorly maintained paving surfaces.

This picture should obstacles placed in the line of travel including merchandise from a shop.

However observation of the area indicated that 'access' or movement through the area was not the only function supported by the built environment and that many other activities existing alongside this.

This suggested that the methodology should be broadened if it was to be used to assess the performance of the built environment. In addition, there are a number of assumptions implicit in the Environmental Access Audit approach that may not be true for a developing country context. These include:

- Facilities and services such as libraries, adult and other education institutions, post offices, banks, recreation and cultural centres are readily available locally.
- Quick and easy movement through space to facilities is of key importance.

Towns and villages in developing countries may not have social infrastructure and services such as clinics, libraries, cultural and community facilities considered 'standard' in developing countries. Their populations may also have higher rates of unemployment, lower education levels, different values and more diverse cultural backgrounds. People may also not see easy movement through spaces as being of key importance as they use space in different ways. For instance, space may be used as a resource for information (by talking to people), for entertainment and debate (by listening to ad hoc performances and speeches), for small informal businesses (such as car washing and photography) and for rest (sleeping).

Environments in developing countries therefore need to respond to this context by establishing the needs, diversity and values of all of their users. In order to understand these better, site observations and user interviews were carried out.

1.3 USE OBSERVATION

The Use Observation study carried out a photographic survey of the area in order to identify the activities in the area as well as 'adaptations' made to enable these activities to be accommodated. The survey indicated that the Square and adjacent areas accommodated a wide range of activities including:

- Sleeping
- Talking
- Reading
- Eating
- Making speeches, preaching or singing
- Selling things
- Preparing and selling food
- Making telephone calls
- Moving or storing belongings
- Washing and guarding cars
- Paying meters
- Parking
- Walking

Some of these activities and site modifications are illustrated below.

This picture show a large number of telephones arranged at different heights under an umbrella. The relatively low call rates and accessible location enable people to make calls regularly and inexpensively. Other informal businesses operating in and around the Square are the guarding and washing of cars, selling newspapers and collection of waste card board for recycling.

This picture show sponges in a brightly coloured sack hung in a tree. This arrangement not only provides a safe place for storing goods but also ensures that merchandise is highly visible and attracts buyers while the seller attends to a range of other business interests such as washing and guarding cars.

These are pictures of two trolleys pushed by itinerant preachers. The preachers present sermons in public spaces like Church Sq and walk from city to city pushing their trolleys. The trolleys contain all items required for living including bedding and food and are kitted out with lights and reflectors to improve safety.
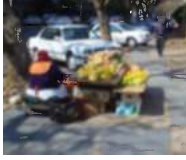
This picture shows a street vendor. Card board boxes are rearranged throughout the day to provide furniture for different uses. In the early morning these are arranged to protect primus stoves that cook magwinya (deep fried dough balls) and boil tea to sell to passing commuters. During the day they are used to display in sweets and fruit. Vegetables and sometimes bread are added to this display to sell to passing to commuters on their way home in the early evening.

This picture shows a makeshift photographic studio in a doorway. This has a white cloth pinned to the door for formal portrait photographs. Other photographers in the Square take photographs with buildings and fountains as a back drop and being in the full sun all day have umbrellas for shade and photovoltaic cells to recharge batteries.

1.4 USER INTERVIEWS

The User Interviews were carried out to establish a better understanding of background of users and how people used the square. This process recording how people walked through and used the Square. Short interviews were also carried out with the observed users. The study revealed the following two patterns.

- People who spent some time in the Square generally came from low income townships or informal settlements, such as Soshanguve, some distance (30-40km) away from central Pretoria. These users used the Square to meet their friends, carry out small business activities such as vending and guarding cars and to rest and eat in between other activities such as driving taxis and visiting government offices.
- The people who spent least time in the square were white office workers and visitors to the CBD who generally walked quickly across the Square. These users lived in middle class suburbs and were concerned about being a victim of crime in the Square.

The interviews revealed that the Square was used in distinctly different ways by different groups of people. Some people crossed the Square as quickly as possible, while others spent a significant amount of time there carrying out activities that would usually be associated with home, work and leisure environments.

1.5 ENABLING ENVIRONMENT SPECIFICATIONS

Drawing on these studies an outline performance specification for urban environments can be developed. This is based on the definition of 'to enable' outlined below:

To provide with the ability or means to do something, or to make possible.
(Soanes and Hawker, 2005)

The Use Observations and User Interviews indicate that people want the urban environment to give them the ability, or means, to do a range of things. These go a long way beyond access as understood in the Inclusive Environments context. The breadth and nature of these demands can be conceptualised in a hypothetical set of activities that should be accommodated in an Enabling Environment. These are outlined below.

- **Business:** People should be enabled to create and run their own small businesses. Start-up and operating costs should be minimal
- **Knowledge and information:** People should be able to access knowledge easily and quickly. In particular, knowledge about human rights, government services, education and work opportunities should be made readily available.
- **Education and study:** People should be able to learn and study in order to gain useful skills and knowledge.
- **Communication**: People should be able to communicate with people locally and globally easily and inexpensively.
- **Work and trade opportunities:** People should be able to find work and access trade opportunities quickly and easily.
- **Self expression and discussion:** People should be able to express themselves and discuss ideas.
- **Governance:** People should understand how government works and be able to influence this in appropriate ways
- **Culture, recreation and sport:** People should be able to access culture, recreation and do sport.

To summarise the requirements of an Enabling Environment a brief definition can be developed:

*An Enabling Environment provides users with the **ability** and **means** to carry out activities that allow them to be socially and economically included in society.*

1.6 ENABLING ENVIRONMENT PROPOSALS

In order to explore this definition in real terms we need to investigate what 'ability and means' may imply in an urban environment. Generally it would

seem that ability and means would be created through one, or a combination, of the following:

- **Physical environments:** The built environment could be designed and managed to enable the activities identified.
- **People:** People with appropriate skills and resources could be located to enable the activities identified.
- **Technology:** Technology could be used to enable the activities identified.

Using these categories some simple proposals can be developed to help illustrate an Enabling Urban Environment:

Physical Environments

- **Urban niches:** Urban environments could be deliberately designed or adapted to include 'niches' that accommodated a more diverse range of activities. This could include generous setbacks in building lines, serviced spaces within external walls and atria of buildings and multifunctional landscaping, street furniture, fittings and fixtures. Activities could be carefully selected and managed to ensure that 'newer' activities (such as small businesses and learning) worked well with established functions (such as banking and office work) in order to ensure that strong symbiotic relationships were formed that not only had useful social and economic benefits but also improved the efficiency of the city as a whole.
- **Service nodes:** Urban environments could be designed to have nodes that enabled users to access services that they needed regularly but which may not readily available at home or in their work environment. These nodes could provide access to email, post, telephone and the Internet, power to charge portable devices, drinking water and washing and toilet facilities.

People

- **Urban management:** Urban managers could help regulate activities in an urban space in to ensure that these were coordinated and worked well. Their role could include guiding visitors to the space, assisting occupants, scheduling activities and ensuring that noise and cleanliness standards were maintained within the space. They could also assist in managing the service nodes (above) and the performance boxes (below).

Technology

- **Performance boxes:** Performance boxes could provide a platform for communication, discussion and self expression. Boxes would be located where a small audience could be gathered safely and comfortably and would have technology that enabled the speaker and the audience to communicate in range of ways. For instance voice communication could be interpreted into text, Braille and a range of local languages. The box could be scheduled by government or NGOs to provide information and to discuss issues with the members of the public as well as being used for adhoc expression, similar to Speaker's Corner in London (www.speakerscorner.net).
- **Distributed exchanges:** A distributed exchange could enable services and products to be advertised on the internet and through the service nodes (see above). This could work in a similar way to E-bay (www.e-bay.com) or talent exchanges. This would enable visitors to area and users to quickly and easily find a particular service or product. Services and products identified in this way could include local government, banking, specialist business, personal tuition, couriering, catering and recycling services as well as clothing, grocery and handmade products.

1.7 DISCUSSION

It has been argued that investment in public infrastructure is key to development as it results in increasing productivity and provides amenities which enhance the quality of life. (Ghosh and De, 2005). This investment, Hall and Jones argue, is the main reason for the differences in prosperity in different countries today (Hall and Jones, 1996).

However investments in conventional public urban infrastructure are expensive, making it difficult for developing countries to ever 'catch up' with developed countries. In addition, existing urban infrastructure in developing countries has often been based on western models that assume users are *educated, employed* and *have access to private infrastructure*. This effectively 'ignores' a large proportion of users who may have limited formal education, be unemployed and have poor access to private infrastructure.

The study therefore suggests that infrastructure investment in urban areas in developing countries may need to be rethought. It argues that the continued development of expensive conventional infrastructure that only meets the needs of a small subsection of the population is perhaps not the best model to follow. Instead it suggests that innovative solutions should be explored. These would use technology, adaptations to existing environments and innovative management to enable urban environments to accommodate a much wider range of activities and support larger numbers of people.

In this way urban environments can become more productive and equitable as existing infrastructure is used more intensively and

marginalised sections of the population are provided with the means to participate socially and economically in society.

1.8 CONCLUSION

Our understanding of urban environments in developing countries is limited. We do not fully understand the diversity and complexity of demands being made on urban spaces and know even less about how these demands can be accommodated. This knowledge is vital in ensuring that cities in developing countries become more responsive to their users.

The study suggests that there may be innovative and cost effective solutions that would enable urban environments to meet a wider range of needs for a larger section of the population than current approaches. It defines an 'Enabling Environment' and outlines a performance specification for this. To illustrate aspects of an Enabling Environment a number of technology, building design and urban management proposals are made.

The paper argues that further research should be carried out as an improved understanding in this area may enable the development of environments that are not only more appropriate than conventional social urban solutions, but are also able to meet a wider range of needs in a more cost effective, and responsive, way.

1.9 REFERENCES

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