CONTEMPORARY CONCEPTS IN PHYSICAL PLANNING

Edited By
LAYI EGUNJOBI

VOLUME 1

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ENVIRONMENT

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22.1   Introduction

The literature has stressed the influence of the environment on human beings and the influence of human beings on the environment. The environment helps in forming and nurturing humans' Also, the diverse ways human beings influence the environment have been given much attention in the literature. However, most humans have hazy awareness of existing human-environment symbiotic relations. The expected goal of maximising the benefits and, at the same time, minimising the negative consequences of the human-environment interactions has not been realised. There is, therefore, a very pressing need to increase the awareness of what the environment really is, the existing symbiotic relationships between man and the environment, and the diverse ways by which human beings could affect the relationships positively and/or negatively.

The need to provide education on the environment emanated from the realisation of the fact that many students and professionals in environmental studies and environment-related disciplines, like urban and regional planning,

do not have adequate information on the environment, its constituent parts, and how they could use their professional skills to influence the resultant human-environment relations. This gap is one of the major concerns of this chapter. This chapter will provide adequate information on "the environment", in order to make the reader aware of the environment in which he/she lives, and also to enable him/her comprehend the extent to which the environment influences urban and regional planning education and practice. In achieving this goal, the chapter is divided into four sections. Immediately after the introduction is the 'conceptual and historical issues in environment'; the third section explains the relationships and relevance of environmental issues to urban and regional planning; the fourth section concludes the chapter by explaining the implications of environmental issues to urban and regional planning education.

22.2   Conceptual and Historical Issues in Environment

The environment has been defined in diverse ways. Since the environment is, generally, everything around us, the various definitions have been affected by the professional leanings of the definers. For instance, Davis (1989), from the medical sense, defines the environment as including "the surroundings, conditions or influences that affect an organism." Last (2001) also defines the environment for the International Epidemiological Association as: "All that which is external to the human host. [These] can be divided into physical, biological, social, cultural, etc., any or all of which can influence health status of populations…" Prüss-Üstün and Corvalán (2006) further buttress the medical perspective of the environment by arguing that the environment would include anything that is not genetic, although it could be argued that even genes are influenced by the environment in the short or long-term. A more all-embracing definition is provided by The American Heritage (2013), that conceives the environment as combination of external physical conditions that affect and influence the growth, development, behaviour, and survival of organisms. Similarly, WebFinance (2014) views the environment as the sum total of all surroundings of a living organism, including natural forces and other living things, which provide conditions for development and growth as well as of danger and damage.

For the purposes of environmental planning, however, a more practical definition of the environment is needed. This is because physical planning actions generally try to change, not only the natural and physical environments (and related behaviours, for example bush clearing), but also such other

interventions that modify the social and cultural aspects of a community, which are usually independent of the environment (for instance cultural pressures on lifestyle, unemployment, migration and demographic factors).

Smith et al. (1999) provide one of the most all-embracing definitions of the environment, especially from physical planning perspective. In explaining the environment, Smith et al. (1999) gave a diagrammatic illustration of the environment, from the most inclusive to the most restrictive definition. The key elements of their conceptualisation of the environment are presented in Figure 22.1.

- Total environment
- Behavioural, social, natural and physical environment
- Social, natural and physical environment
- Natural and physical environment
- Physical environment
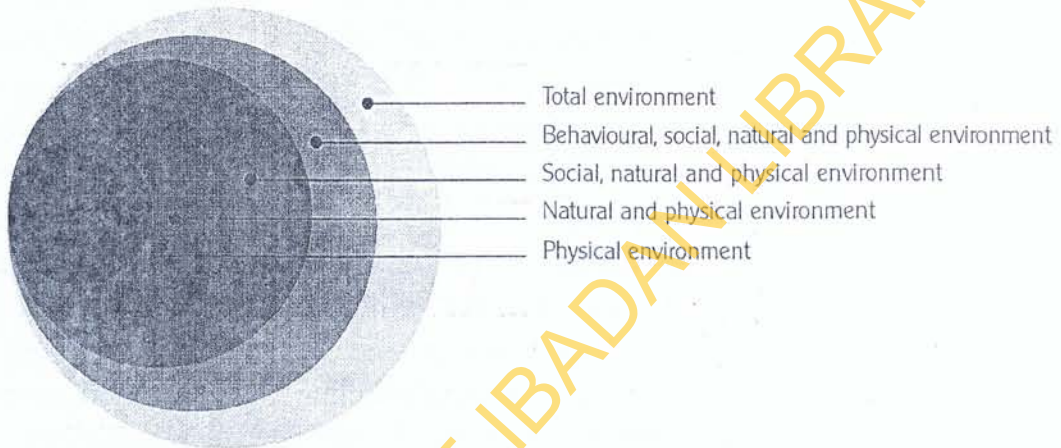
Figure 22.1: The Broad Perspective of the Environment
Source: Smith et al. (1999) in Prüss-Üstün and Corvalán (2006)

Smith et al. (1999) view the environment as comprising five key interrelated parts, with the *physical environment* being the nucleus, and other 'environments' in concentric layers, radiating outwards from the physical environment nucleus to the total environment that envelopes all the component environments. The first layer enveloping the physical environment is the '*natural and physical environment*', which is, in turn, enveloped by the *social, natural and physical environment*'. The fourth environment, enveloping the third, is the *behavioural, social, natural* and *physical environment*, while the fifth that envelopes the other 'environments' is the '*total environment*'. This conceptualisation of the environment provides a clearer picture of the environment that conforms with the perception of the urban and regional planning profession. This conceptualisation will be elaborated on later in the chapter.

Cursory observations of the definitions/conceptualisations of the environment reveal relative current nature of concerns for the environment, especially as perceived in this chapter. This is not surprising as, globally, concern about the

possible consequences of human continuous unabated use and abuse of the environment, and the need to minimise environmental contamination did not develop until the 1960s, when Rachel Carson published her book *Silent Spring* (Carson, 1963) and the publicity surrounding it. The book focused on the environmental harm caused by indiscriminate use of pesticides in the agricultural sector of the economy. The gory picture painted by her book drew the attention of the whole world to the unintended negative consequences of man's failure to protect itself by protecting the environment.

With the realization of humanity's dependence on the environment, the United Nations' Organisation (UNO) organised many conferences that led to nations signing Conventions centred on the need to limit humans' negative activities on the environment. Prominent among these commissions and/or conventions are the World Commission on Environment and Development, chaired by Gro Harlem Brundtland, which published *Our Common Future*, the first serious attempt to link poverty to natural resource management and the state of the environment (in the 1980s); and the 1992 UN Conference at Rio de Janeiro, where the main agreement was Agenda 21, which set out priorities and practices for all economic and social sectors, and how these should relate to the environment. The Rio Summit was followed by some international successes, including the signing of the Convention on Biodiversity in 1995, the Kyoto Protocol in 1998 and the Stockholm Convention on Persistent Organic Pollutants in 2001. Ten years after the Rio, the World Summit on Sustainable Development was then held in Johannesburg in 2002, again raising the profile of sustainability. The Johannesburg declaration assumed 'a collective responsibility to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development – economic development, social development and environmental protection – at the local, national, regional and global levels.'

By the turn of the century, the pursuit of the environmental sustainability was seen as an essential part of the global efforts to reduce poverty, and this was confirmed in two important declarations. In September 2000, world leaders agreed to the Millennium Development Goals (MDGs) at the United Nations Millennium Summit. Highlighting the stark choices facing humanity at the dawn of the twenty-first century, the eight goals with their 18 associated targets and 48 indicators focus efforts of the world community on eradicating poverty in all its forms by achieving concrete and measurable objectives by the year 2015, thereby moving the world toward greater equity and sustainability. Among these objectives is to ensure environmental sustainability in development planning

and implementation, formally stated in Millennium Development Goal 7. Environmental sustainability is inextricably linked to the other Millennium Development Goals.

22.3   Relevance of Environmental Issues to Urban and Regional Planning Issues

As a dynamic academic and professional discipline, urban and regional planning issues have evolved from the primary focus on public health and housing quality in its earliest days (Ratcliffe, 1985). This has been through its focussing on ordering the use of land, and character and siting of buildings and communication routes so as to achieve the maximum practicable degree of economy, convenience and beauty (Keeble, 1969) to embracing planning for the distribution and utilization of everything that could enhance the quality of human's life in the environment (Sanni, 2015).

In carrying out their activities, urban and regional planners often work hand in hand with the various communities in which they operate, to prepare development plans, in the form of local plans, town plans, regional plans or national plans. These plans are futuristic in nature and contain plans for the future growth and development of the planned environment. The plans are also sustainable in nature, ensuring the maximization of benefits to the present generation without compromising future generations' comforts.

In discussing the relationships and relevance of environmental issues to urban and regional planning issues, Smith et al.'s (1999) 'broad perspective of the environment' is adopted. However, our discussion is limited to urban and regional planning issues and their relationships with relevant environmental issues to:

a.   Physical character of the planning site
b.   Population
c.   Employment and industry
d.   Housing
e.   Offices and shopping
f.   Transportation
g.   Leisure and recreation
h.   Rural planning
i.   Conservation
j.   Resource planning and pollution
k.   Public participation in planning

Detailed explanations of the planning issues and their relevance to the environment are presented as follows.

(a)   Physical character of the planning site

The physical planning site is the 'canvass' on which the proposed development plan will be painted. Urban and regional planners need to obtain adequate information on the physical characteristics of the planning environment: its terrain, whether flat, undulating etc.; the type of vegetal cover; the type of soil, weather elements in the site; drainage pattern, and so on. The physical characteristic of the planning site is very crucial in determining the use of each parcel of land, as these determine the economic efficiency of the plan. Conscious efforts are made to use each site in the planning area for its most suitable use. For instance, the type and quality of soil is usually taken into consideration in allocating a piece of land for either buildings or other development or for agricultural/ recreational purposes. Cautions are also taken to ensure that fertile agricultural land is not encroached upon for building construction while barren land that require fertilizers are left for agricultural purposes. In the same vein, undulating lands and land with high gradients are not much suitable for residential purposes. Hence, the physical attributes of the planning environment generally play significant roles in influencing the final physical morphology of the planned environment. This becomes very crucial if (and when) achieving the highest practicable degree of economy is a central goal of the plan. The physical and natural environment, as perceived by Smith et al. (1999), is thus very crucial in urban and regional planning issues on the physical and natural terrain on which planning activities take place.

(b)   . Population

Development plans are for the people, and improving the quality of human's life is always a central theme of physical development planning. Hence, obtaining adequate information on the population in the planning area is a very crucial stage of the planning process. Urban and regional planners usually obtain adequate information on the overall population and also on their spatio-temporal distribution. Hence, they need to know the population distribution by locations, by socio-economic attributes like sex, age, education, income, occupation and ethnicity. Understanding the existing overall population and their socio-economic and demographic characteristics enables the planners to factor these variations into their planning activities. For instance, while the overall population determines the ability of the population to meet the

required threshold level for social services, the population, together with their purchasing power, in terms of their disposable income, are more crucial in the distribution of non-social services like private secondary schools and shopping malls.

Town planners also obtain information on the culture and cultural dynamics of the population. This aspect of the information on the population is very crucial since urban and regional plans to be prepared by physical planners are futuristic in nature and, therefore must take into consideration the social, cultural and economic attributes of both the present and future inhabitants of the planned environment. The diverse information required on the population buttress the relevance of the cultural environment already identified and incorporated in Smith et al.'s (1999) conceptualization of the environment.

(c)   Employment and industry

Information on varieties of employment types, locations and forms available in the planning environment are very crucial to planning activities, as widening employment opportunities in the planned environment is a cardinal goal of planning activities. In addressing the issues of employment, urban and regional planners obtain information on the level of employment, income, types of employment in terms of industrial, public service, self-employment, unemployment, etc. They observe the trends in employment opportunities and project the trends into a future date.

Information are also obtained on the existing levels and types of the industries available in the planning environment. Urban and regional planners are interested in detailed information on the scale of the industry (whether large-, medium- or small-scale), sources of inputs, destinations of the outputs, form of the industries (whether extractive, processing or manufacturing), and the effects of the industries on the environment (whether injurious or non-injurious).

Since boosting the economy of the planned environment is one of the main goals of regional development plans, urban and regional planners are interested in identifying economic activities that could enhance the economy of the planned region. Where no prominent one(s) exist, planners often try to stimulate the promotion of one or two as a way of stemming rural-urban migration that often necessitate introduction of regional development planning. Discussions on employment and industry have emphasized the importance of the economic environment issues to urban and regional planning issues.

(d)   Housing

Housing, comprising houses and the facilities, services and amenities within

them and in the neighbourhood (Agbola, 2005; Olatubara, 2008; 2012) is the most prominent land use in any planned environment, and is the most valuable in archaeological terms, as housing provides long-lasting information on the level of development of the different communities. The types of buildings, the design, materials used for construction, the allocation and distribution of various functional spaces within and around the buildings, the relationships of the buildings to one another, etc. are all indicators of the social, cultural and technological development of the inhabitants of the community. Housing is so crucial a planning issue that urban and regional planners usually devote much time and attention to obtaining comprehensive information on indicators of housing quality and usage, like: the location; accessibility of the building; type; materials used and conditions of foundation, walls, floor, ceiling, roof; general appearance; availability, type and condition of in-house facilities and amenities, such as toilet, kitchen, bathroom, electricity, and water supply; number of rooms and occupancy rate; and relationship between the building and other buildings.

As one of the first three most basic needs of man, urban and regional planners always give much attention to housing issues in planning programmes. They not only take stock of the existing housing, but project housing needs in relation to the present and future population and allocate commensurate amount of land for both the present and future population. Conscious efforts are made by urban and regional planners to factor the population's cultural, behavioural and social environments into their investigations and actions on housing, as failure to do this is always counter-productive in form of abandoned public estates, good examples of which are found throughout Nigeria.

(e)   Offices and Shopping

As stated earlier, enhancing employment opportunities of the residents is one of the main goals of development plans, and, in addition to industries, ample provisions of office and shopping spaces are made. These are provided at different levels of planning, ranging from the neighbourhood through districts to the whole city region. At the neighbourhood level, shopping and office facilities are provided to meet immediate needs of the residents within a reasonable distance from the dwelling units. Shopping facilities at this level take the form of corner shops providing "daily needs". District offices and shopping facilities serve two or more neighbourhoods and provide higher-order services compared to those provided at the neighbourhood level. Offices and shopping facilities at the city regional level provide services for the whole

city region and are often sited at the most accessible part of the city. Adequate provision of office and shopping facilities in the planning area enhances the lives of the residents by helping to minimise the lengths of journey to these crucial services.

In planning for the location of offices and shopping, urban and regional planners should guide against the temptations of adhering strictly to Western-oriented planning standards that are often at variance with the prevailing social and cultural practices in the planning area. Persistence of street trading and illegal shopping and office activities in most of the urban areas in Nigeria might be an indicator that urban and regional planners might need to re-visit some of their present approaches to provision of offices and shopping facilities in the country.

(f)   Transportation

As stated earlier, urban and regional planning activities involve allocating and distributing land use activities in the planning area, and providing adequate communication channels to link these diverse land uses. The efficiency or otherwise of the development plan prepared by urban and regional planners depend much on the level of efficiency of the associated transportation network provided for by the planners. In planning for the transportation system for the planning area, urban and regional planners take stock of the existing transportation system in the planning area: the existing modes, households' travel behaviours, existing transportation infrastructure and the like. Planning for transportation involves taking into consideration the prevailing physical, natural, social, cultural and behavioural environment in the planning area to enable the urban and regional planners to evolve the most efficient transportation mode for the planning area.

(g)   Leisure and recreation

Realising the fact that human beings cannot work at all times without observing some leisure time, urban and regional planners often incorporate planning for leisure and recreation in their plans. Planning for leisure and recreation involves obtaining adequate information on the natural and physical recreational facilities present in the environment. Emphasis is usually on using each site for its most beneficial land use. For instance, it is far more economical to site boating activities where natural water bodies exist than in other locations where artificial water bodies will be created. Urban and regional planners also need to obtain adequate information on the social, cultural and behavioural

environment prevailing in the area that could influence availability and use of leisure times in the communities and the various recreational activities that could enjoy patronage if provided.

(h)   Rural planning

Urban and regional planners do not limit their planning activities to urban areas. They also provide plans to guide the growth and development of rural communities. The major goals of rural development planning include: enhancing economic activities in the communities, promoting residents' access to life-enhancing facilities, amenities and services, and stemming rural-urban migration. Since primary activities, like agriculture and extractive industries, constitute major occupations in rural communities, urban and regional planners ensure that adequate information are collected on the prevailing natural, physical, social, cultural and behavioural environment in the rural communities that will be covered by the rural development planning programme, as the success or otherwise of the plans depend on the extent to which these "environmental issues" are factored into the resultant plan.

(i)   Conservation

Since 1963 when Rachel Carson published her book *Silent Spring,* and the publicity surrounding it, global concerns on the consequences of humanity's laissez-faire attitudes to the use of the physical and natural environment have been on the increase, and the importance of conservation has received global importance. Urban and regional planners are not only concerned about conserving the natural environment to guide against possible negative consequences of humanity's careless ways of handling the resources, but are also involved in conserving historic sites, rare natural scenes, monuments, historical buildings and artefacts. They, thus, help ensure that the total environment, consisting of the natural, physical, social, cultural and behavioural environment, is conserved, both for the health of the present and future generations, and in the form of historical artefacts for future generations.

(j)   Resource planning and pollution

Maximising the benefits of the present generation without mortgaging future generations' benefits is a cardinal goal of urban and regional planning programmes. Hence, there is the need to make adequate plan to ensure that each resource is utilised optimally. For instance, in the case of planning for agricultural activities, it is best that adequate information be obtained on the

types and quality of soil to ensure that agricultural products that are most suitable for each soil are cultivated on them. This has the advantage of reducing dependence on artificial fertilizers that might, in the long run, not be more economical.

The issues of pollution are also very much related to the case of environmental pollution already discussed above. Emphasis in this section is on ensuring that the development plans are designed to bring environmental pollution to its lowest level in the planned environment. Here, urban and regional planners have some strategies such as zoning regulations, density control, road layout and alignment, control on use of building, control on facilities, and amenities and services that must be provided in the planned environment.

(k)   Public Participation in Planning

Planning is for the people, and improving the quality of their lives is the primary focus of any planning activity. Since they are the ones whose lives will be touched by the plans, as they live in the planned space, the success or otherwise of the planning activities depends on their accepting or rejecting the contents of the plan. Urban and regional planners should, therefore, endeavour to ensure public participation at every stage of the planning process, starting from when decision to plan will be taken, through the setting of the goal, formulating the objectives, collecting relevant data, analysing the data collected, identifying different strategies to achieve the goal and objectives of the plan, selecting the most plausible strategy, costing the selected strategy, implementing the selected strategy, and monitoring and reviewing the executed strategy to ensure that the anticipated goal of the plan is achieved.

It is obvious from the various stages of the planning process through which the public will navigate with the urban and regional planners that, by the end of the planning process, the team, comprising the planners and the community, must have taken adequate care of every aspect of the total environment as conceptualized by Smith et al. (1999).

This section has provided concrete evidence on relationships of environmental issues to urban and regional planning. The next section concludes the chapter by discussing the implications of environmental issues for urban and regional planning education.

22.4   Implications of Environmental Issues to Physical Planning Education

From the discussions presented above, it is clear that environmental issues are very much relevant to urban and regional planning issues. What is not so clear

is the extent to which the training and professional practice in urban and regional planning is in tandem with Smith et al.'s (1999) comprehensive view of the total environment.

For instance, development plans prepared by urban and regional planners, designed to guide physical growth and development of various planning areas, are normally expected to take adequate cognizance of all the five composite members of the "total environment" as depicted by Smith et al. (1999). A major way by which the design skills are inculcated in urban and regional planners, right from school is by incorporating Studio Design Projects as compulsory courses throughout the duration of training in every planning school. Various types of design projects, including residential layout design, neighbourhood design, districts design, town centre design, urban renewal, and regional development planning, are taught by seasoned urban and regional planners in urban and regional planning schools.

A major generally observed error in the training of urban and regional planners, especially in the case of development planning, is that too much emphasis is placed on graphics of the presentation, based on some 'planning standards'. Adherence to planning standards is seen, by many planners, as the sine qua non for development planning, to the total neglect of public participation. In cases where some forms of public participation are encouraged, contributions are often not welcomed beyond data collection, and the public is expected to accept the final products prepared by the 'experts'.

Oftentimes, the final graphical designs produced, though very beautifully drawn, labelled and presented, are at variance with the social, cultural and behavioural needs of the would-be beneficiaries, who are not often ready to adopt and execute the plans prepared. Good examples are master plans prepared for some cities in Nigeria in the late 1970s and 1980s that are yet to be implemented decades after they have been completed and submitted to the various governments that awarded the contract for their preparation.

The emphasis in this section of the chapter is that the failure of many urban and regional planners to see the environment beyond the natural and physical environment, and not giving adequate attention to the cultural, social and behavioural peculiarities of each planning area are responsible for some of the planning failures observed in Nigeria today. For instance, failure to adequately appreciate the social, cultural and behavioural contexts of the evolution and arrangement of traditional mud buildings and the pedestrian-based circulation pattern in the core of most traditional cities in Nigeria could

be responsible for their degenerating into slums. Empirical studies have revealed that residents always modify the environment to suit their social and cultural traits (Sanni and Adunola, 2007). Therefore, there is the urgent need to ensure that appreciation of the total environment is inculcated in urban and regional planner's right from school. This will play a significant role in boosting the activities of urban and regional planning, especially in creating planned environments that are generally acceptable to the majority of the inhabitants.
To inculcate the professional habit of taking adequate cognizance of the total environment in the training and practice of urban and regional planning profession, urban and regional planning students need to first be introduced to courses in the natural, physical, social, cultural, economic, administrative and behavioural studies before being introduced to graphics and designs. These various courses being advocated here should be taught by urban and regional planners, not specialists in these various disciplines, to ensure that urban and regional planning students are taught these courses as they are applicable to urban and regional planning profession, and should not be distracted by professional jargons that the professionals in the various disciplines might tend to stress.

To this end, we strongly advocate the need for the Town Planners Registration Council (TOPREC), the umbrella body responsible for coordinating the training and registration of professional urban and regional planners in Nigeria, to set up a curriculum committee to review and harmonize urban and regional planning syllabi for various urban and regional planning schools in the country. The committee should be empowered to take far-reaching decisions on the contents of the new syllabi, ensuring that adequate provisions are made to enhance the knowledge of up and coming urban and regional planners, especially in relation to tapping all benefits of comprehending the mutual relationships between environmental issues and urban and regional planning.

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