

A Federative Approach of Decision-Making Aid in Urban Development

G. Kouamou

National High School of Engineering, Cameroon

C. Pettang

National High School of Engineering, Cameroon

INTRODUCTION

The interest in **urban planning and development** is a major preoccupation in the two last decades. In fact, the urban development is the act of improving living conditions, which are necessary for rest and for labour, for the health and education facilities, for the various exchanges and provisioning, for the moving of the population between their dwellings and their working place. However, the cities of the developing countries know serious problems of urbanization due not only with the non application of the urban guide (SDAU) when it exists, but also with the inadequacy of the policies of management of the city needed by the populations. That is why the proliferation of unstructured quarters around the cities, without the urban services necessary for their operation like drinking water network, electricity, and roadway system.

Facing these failures, the urban development is not any more the only fact of the municipal authorities. The populations through associations and the non governmental organisations are more implied, these activities are carried out under the impulse of the multilateral backers that support and finance the actions of the different actors.

In order to propose new approaches of the urban development, we started by defining a characterization of the city for better apprehending its morphology and its operation (Pettang, Kouamou, & Mbumbia, 1997). This characterization permits to deal with the land question, since the soil is the beginning of any installation (Pettang & Kouamou, 1999).

The purpose of this article recapitulates the steps recommended for a new approach of the decision making in **urban development**. It is based on:

- The identification of the characteristic parameters which describe a city.
- The determination of the criteria used to appreciate these parameters.
- The installation of an information systems which is able to store the urban data, to capitalize the actions and knowledge of the various urban actors since the democratization of the imagery survey allow the various municipalities to gradually build the numerical cartography of their space of action.

This study presents a new approach for solving the problem on urban development. This approach emerges on a decision support platform which consists of a set of specific applications for a collaborative work.

In the reminder of this article, we begin by discussing the passed solutions which were adopted by the municipalities. After that, we present the approach which allows a better analysis of the urban development problem. This approach could be explained with regard to the concept of observatory. Finally, we describe a kindly platform which could support such an approach by providing a collaborative decision support aid.

BACKGROUND

The **urban development** in the developing countries is focused mainly on the thorny question of the **spontaneous habitat**. This type of quarter are characterized by the poor quality of building materials that is used to make the dwellings and the lack of the infrastructures (roadway, water, and electricity supply ...) necessary for a better quality of life in urban areas. The presence

of this type of habitat in urban environments results from several combined factors: the demographic explosion, the poverty, and the failure of the policies of habitat. The traditional model of solution used by the authorities is based on the abandonment and the reorganization.

This solution consists in improving the accessibility of the dwellings by opening the roadway system. Consequently, the dwellings being on the road are destroyed. In spite of the multiple carried out actions, the effectiveness remains mitigated, initially because the interventions do not include coordination and do not take into account the correlation of the problems to be solved (Logone, 1992, Lebogo, 1994), then because they are interested in very few real problems of these districts (UNDP, 1993).

The decision in urban development must take into consideration the quality of life, the social cohesion, and the effectiveness of the urban services. In this process which is participative, we note the intervention of several actors divide up in the following categories: the authorities, the networks suppliers (electricity, water, telephone), NGO, populations through associations, researchers, and finally, the financial (bank, international organizations). These constraints induce a complexity on several levels:

- At the lower level, an intervention concerning an aspect can influence the others aspect.
- At the level of the actors, the efforts of the ones and others must be coordinated to avoid the interferences of the interventions.
- At the decision level, any actor can make strategic, tactical, or operational decisions.

Indeed, each actor is a decision maker on his level and each action of its own part constitutes a decision of urban development. It is necessary to especially avoid conflicts at the operational level where the actions are sectorized. According to the United Nations, the decision must integrate the search for equilibrium between the various groups (UNO, 1991).

To harmonize the efforts made by all, each actor must intervene by taking account of the actions carried out by the others, thus the need for the capitalization of knowledge in a common space accessible to all.

Levine (1989) states that the main role of a DSS consists to store data and to present it to the decisions makers. That is, while a DSS software must include

a data component capable of handling the databases and a component of dialog primitives that are used to manage interfaces (Luhandjula, 1996). But in the case of urban development and planning, this vision of DSS must be enhanced in order to facilitate the collaborative work between the users.

NEW APPROACHES OF THE URBAN DEVELOPMENT

Concept of Urban Observatory

The centralized management formerly monopolized by the authorities is obsolete today. The new orientation is based on the participative approach of urban management. It implies several categories of actors whose combined efforts are capitalized within the observatories.

An observatory is a unit made up of people and tools in charge of studying, supervising, and controlling a phenomenon or a set of phenomena that are social, economic, political, or environmental in order to facilitate their comprehension. An urban observatory is dissociated by its specificity in action (Assako, 1996). Indeed, an urban observatory is structured for research on the city and its development. Its purpose is to provide the relevant elements making it possible to include/understand the dynamics of the socio-economic and space phenomena of the city and its close periphery. The activities of an urban observatory deal with the acquisition, the treatment, and the analysis of the data, and the dissemination of knowledge on the city.

Components of a City

The city consists of a juxtaposition of identifiable entities generally called "quarter." These zones are characterised by a certain number of components which the most significant are: the site, the land, the habitat, the roadway system, networks, technical, and the equipments. The three first translate the morphology of the city whereas the others inform about the real operating condition of the city. The appreciation or the evaluation of these components is done using the criteria which make it possible to classify various urban areas. This characterization generates data from which one can evaluate the state and the level of degradation of a city.

4 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/federative-approach-decision-making-aid/11275

Related Content

Information Distribution Decisions Supported by Argumentation

Ramon Brena and Carlos Chesñevar (2008). *Encyclopedia of Decision Making and Decision Support Technologies* (pp. 489-495).

www.irma-international.org/chapter/information-distribution-decisions-supported-argumentation/11289

Dynamic Capabilities and New Product Development Performance: A Conceptualization and an Empirical Test

Mohammadyasser Darvizeh and Jian-Bo Yang (2020). *International Journal of Strategic Decision Sciences* (pp. 65-87).

www.irma-international.org/article/dynamic-capabilities-and-new-product-development-performance/269690

Intelligent Expert Decision Support Systems: Methodologies, Applications, and Challenges

Abdel-Badeeh M. Saleh and Tetiana Shmelova (2021). *Research Anthology on Decision Support Systems and Decision Management in Healthcare, Business, and Engineering* (pp. 510-531).

www.irma-international.org/chapter/intelligent-expert-decision-support-systems/282602

Web-Based Public Participatory GIS

Tan Yigitcanlar and Ori Gudes (2008). *Encyclopedia of Decision Making and Decision Support Technologies* (pp. 969-976).

www.irma-international.org/chapter/web-based-public-participatory-gis/11342

Is the Character of Institutional Leadership Central to the Quality of Higher Education (HE) Management?

Nwachukwu Prince Ololube (2017). *International Journal of Strategic Decision Sciences* (pp. 46-64).

www.irma-international.org/article/is-the-character-of-institutional-leadership-central-to-the-quality-of-higher-education-he-management/181063