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## A Linear Settlement for Emergency Structure: The Gaza Strip's Case Study

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### Abstract

This paper tries to analyse one possible approach that has enabled us to experiment a strategy for a new settlement based on emergency structures applied in a particular context: The Gaza Strip.

First of all, due to the difference between all the paradigms of the strategies of primary health care and emergency medical assistance, the paper tries to demonstrate that there is one possible model that could be adopted as the requirement for the human condition of the Gaza Strip. In that area, the most important problems are related to the lack of educational facilities, health care, relief and social services, microcredit and emergency assistance. In addition, this paper analyses some different proposals planned by experts about the construction of artificial islands and linear systems of communication between the West Bank and the Gaza Strip. Our research, through a holistic approach to the problem, identifies some priorities in a possible plan of intervention. By recognizing a long-term strategy, the proposal is defined within a main territorial axis into the Gaza Strip that can be considered as a basic element of a linear settlement for the realization of an emergency structure that connects Gaza City to Rafah. In the Gaza Strip this axis is immediately identifiable as a morphological feature that is, at the same time, communication network and an element of local organization. It represents an essential element as a result of both its high degree of accessibility and its functional character.

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Finally, the paper aims to survey urban problems in such a situation and considers this axis as a great opportunity in order to achieve a linear system of emergency facilities including the major cities of the Gaza Strip, passing through the greatest refugee camps and

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near the main crossings. Besides, this research is attending modular architecture as an adequate strategy for this case study, considering the property of flexibility, in order to increase/ decrease the settlement based on needs.

## 1. Introduction

The organization of health care refers to the concept of primary health care (PHC) on the one hand and, of emergency medical assistance (EMA) on the other hand. There are some important differences between PHC and EMA; PHC aims at promoting health in a developing society, while EMA concentrates on safeguarding survival in an emergency situation.

PHC responds to people's health needs and demands, to safeguard, promote and restore health; it's also about other aspects of society, such as education, both in social and economic terms. Access to primary health services was affirmed as a fundamental human right in the Declaration of Alma-Ata in 1978. It identified Primary Health Care (PHC) as the key element to the attainment of the goal "Health for All". EMA, instead, concentrates on protective physical survival, that is an assistance and/or intervention during or after a disaster to meet the life preservation and the basic subsistence needs; it should be part of a package of emergency relief measures, including provision of water, shelter and food. The time perspective in an EMA structure is short-term, while for PHC it is long-term. In EMA, "cure" is dominant over care and the autonomy and the effectiveness of care takes absolute precedence over the other characteristics. For all these reasons, we have decided to consider the emergency medical assistance as the requirement for the human condition of the Gaza Strip. This area is home to a population of more than 1.76 million people, including 1.26 million Palestine refugees. The tightened blockade, imposed in June 2007, has decimated lives and livelihoods, resulting in the impoverishment and de-development of a highly skilled and well-educated society. The most important problems are education, health care, relief and social services, microcredit and emergency assistance. Over half a million Palestine refugees in Gaza live in the eight recognized Palestine refugee camps (Beach, Bureij, Deir El-Balah, Jabalia, Kahn Younis, Maghazi, Nuseirat and Rafah) (Fig. 1), which have one of the highest population densities in the world.



Fig. 1. Main cities and refugee camps in the Gaza Strip.

## 2. A dialectical approach

There are some priorities that can be considered in a possible plan of intervention: the sanitary emergency, the hard accessibility to the Gaza Strip and the importance of an urban system to connect the main centres of this area. Restrictions of the movement of people and goods to and from Gaza have undermined the living conditions of Palestinians in Gaza; it is limited to three gates: the gate of Rafah, the crossing of Erez and Kerem Shalom (Fig.2a). The first one is opened six days a week for the movement of a number of authorized travellers, Palestinian medical and humanitarian cases only. The second one is controlled by the Israeli authorities and it is opened six days a week for the movement of aid workers and of a limited number of authorized travellers including Palestinian medical and humanitarian cases. It was opened for the holders of international identification (humanitarian cases, medical cases, traders and staff of the United Nations) and international staff. The last one, also controlled by the Israeli authorities, is opened five days a week for movement of authorized goods only. For this land, increasingly smaller and with a growing poor population, plans exist for the elimination and/or deportation of the inhabitants as well as for radical reorganization projects and urban settlements. These projects provide some information about the model territory of society advocated by the "international community". Developed by Israeli and American experts, these proposals are based on two main choices: the construction of a series of artificial islands and the realization of a linear and continuous system, going through all the cities of the West Bank, connecting Haifa to Gaza.



Fig. 2. (a) Identification of crossing areas; (b) Actual situation of the Gaza Strip.

The first hypothesis for the realization of artificial islands appeared in 2003 in a publication of the Jaffee Center for strategic studies at the University of Tel Aviv. This project was introduced as a solution for the density problem and the shortage of Gaza land. The same parameters were used to study some other solutions such as, in 2004, the idea of the Center for Macro Projects and Diplomacy of the Roger Williams University that was presented like a “new land for peace” during a conference about “constructing prosperity in the Middle East”. Using the same principles, in 2005 Rand Corporation published a project for the reconstruction of the whole West Bank land. The main idea was the creation of an infrastructural system from Haifa to Gaza, with a harbour and an airport that connects the cities of Jenin, Tubas, Nablus, Salfit, Ramallah, Jerusalem, Bethlehem, Hebron and Rafah. This system was characterized by the presence of a high-speed railway, a toll road, a water main, an energy network and communications. This project will allow the reorganization of urban centres and the development of a linear city, called ARC. By tackling these themes in a dialectical way, we find it possible to define a long-term strategy that can recognize a main territorial axis into the Gaza Strip as a basic element of a linear settlement for the realization of emergency structures. In the Gaza Strip, this axis is immediately identifiable as a morphological feature, representing, at the same time, a communication

network and an element of local organization that can unify the main centres from Gaza City to Rafah (Fig.2b).

It represents an essential element both for its high degree of accessibility and for its functional character. This strategy is organized around different connections between the structures of existing settlements and the new infrastructure along this axis. Moreover, this strategy is focused on the design of health and social prototypes shaping new relations between urban structures and territorial infrastructures, which are able to improve the territorial relations.

### 3. Results and Discussions

The literature abounds with evidence of the impact of distance on the accessibility and subsequent utilization of health care services. The various models realized, have included variables such as distance and time travelled, the size and shape of catchment areas, and the degree of dispersion of facilities. For EMA it is often necessary to set up a separate health system. A typical refugee camp health system has a network of curative health posts that constitutes the first line; then, a small team, often headed by an auxiliary nurse, staff of health posts. There is usually one health post per population of 3000 to 5000 inhabitants, located in a makeshift building close to the affected population. Secondly, it is essential to include in the medical facility a high degree of flexibility, modularity, aggregation and reversibility, because the building could expand over time supporting the different needs of the community. Peripheral extensions with ancillary services such as home visitors are often necessary to establish a link between the beneficiaries and the health services. Also intermediate structures are often established close to the beneficiaries. Vertical and specialized services, such as mobile teams or feeding centres, are often needed. All these services usually result in a parallel health system that is only marginally linked to the pre-existing health system, e.g. only to refer patients needing surgery or blood transfusion. This research employs some of these principles to study a linear system of health facilities according to the distribution and organization of refugee camps, the location of crossings and the place of main cities. Along this axis, it is possible to organize a sequence of five areas with health centres and other facilities such as public structures, schools and health posts. Two of these areas are near Gaza City, the third one is near Deir al Balah, the fourth one is near Khan Yunis, and the last one is in the area of the dismissed airport (Fig.3).

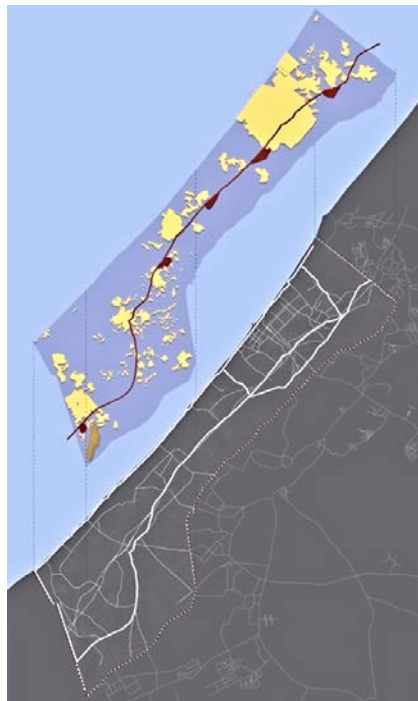


Fig. 3. Main axis with facilities.

In this case, along this new axis, it is possible to define how the dependence of structural features on the features of infrastructural system or, vice versa, the dependence of the features of an infrastructural system on the features of a structural system, are essential relations to the logic of town planning. In such case, the linear system should be implemented through structural elements, such as all the health care and social services, and linked to the infrastructural axes, although the connections are not enough developed.

But such relations do exist and therefore the hierarchical functions influencing the different elements of the territorial structure arises exclusively when the urban problem is no longer a problem only of organization or control of the contradictory growth of a stable human settling, but it becomes a redefinition of a social system in the light of an idea of the architecture and of the city, which is at last an attribution of sense to stable human society.

#### 4. Conclusions

Gaza Strip is a very difficult place, with a lot of problems which are, in particular related to the lack of educational facilities, health care, relief and social services, microcredit and emergency assistance. The idea for the realization of these centres along the main axis is that they should be multi-purpose, flexible and modular spaces. Their architecture and especially the design and technological experimentation should play the role of guide and comparison with the rules of production, with intervention strategies and with operational legislation. The architectural design should provide a number of important innovations and interesting guidelines to produce a multi-scale prototype to be placed in different contexts. The most important architectural quality of these emergency structures should be flexibility: flexibility in the movement between the spaces, flexibility for being able to change the functions inside the system and flexibility for growing and expanding. A flexible space can be arranged in different ways by testing alternative solutions and choosing those most suitable one for wider application. Flexibility appears to be an icon of contemporary construction, an indicator of adaptability both for architectures and for spaces. The flexible approach to project acquires an evolutionary character, because the medical and social facilities have the ability to evolve over time adapting to different territorial situations. Therefore, a unique construction system able to operate for different usage purposes without changing the underlying logic can be a good method to think about the design of these emergency centres.

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