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Received

Accepted

Published

Citation:

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concerns about different levels of housing quality and neighborhood quality. In Latin America, a large number of public programs for housing finance have been opened to individual construction and home improvements, also for low-income households. However, applicants must meet different requirements, such as formal ownership of the land. Therefore, not all households with low incomes can make use of those home financing programs. A cooperative form of house building can be considered as an intermediate form between individual self-help housing, and social housing in the form of projects. The main hypothesis in this paper is that the cooperative form can combine the advantages of both forms of production and eliminate a number of disadvantages of the incremental self-help housing. Disadvantages of self-help incremental building processes are, among others, that some homes are not completed, there are unfinished homes over a long period of time, and that the needed urban densification processes are not reached sufficiently.

This paper is organized as follows: the next section (2) provides a brief overview of the incidence of housing cooperatives in three world regions. The third section presents the cooperative model with mutual-assistance of the Uruguayan federation of housing cooperatives 'FUCVAM'. In section four the growing popularity of the FUCVAM model in Central America is discussed for the period 2004-2016.

The roles and organizational structures of some aid organizations ('FUNDASAL from El Salvador and 'We E ect from Sweden) are described in the fifth section. Aspects of house construction, building

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Uruguay. The movement was not connected to the government, but eventually national legislation facilitated the functioning of the

in 2008), where the members could buy the land relatively cheaply and where the conditions of the loans were beneficial. In recent years, the housing production increased, especially in Honduras, as a result of the implementation of a funding program from the national government.

The interest rates of loans are about 10 percent on an annual basis; the monthly fees are between USD 100 and USD 120. In the other three countries, the governmental aid for this form of social housing is still limited or absent. Instead, funding is obtained thanks to the financial support of non-governmental organizations. However, all the aid organizations combined are not capable of offering sufficient financing for the construction of the houses; this is a task for national governments and the banking sector.

So far, the housing production by cooperatives through mutual assistance in Guatemala has been limited. This is mainly due to the limited possibilities of public housing finance. The cooperatives' production in Honduras is relatively high, due to a public housing program and the availability of financial support for the cooperatives.

This is led directly to a significant production of social housing by these cooperatives. Housing production by cooperatives through mutual

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in height. Then, they began with the construction of the community facility. At that time, the families had already been working for two



Figure 7:

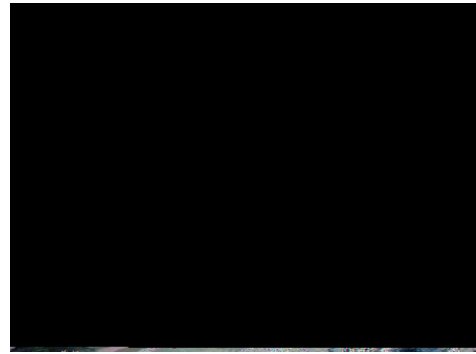


Figure 8:

cooperative housing associations, and helps them to convince governments that housing should be seen as a human right.

The organization aims to help its partner organizations and their members to generate sustainable solutions through savings, loans and insurances. Housing finance, designed for low-income households, is an important tool in all We E ect's work, but the organization's resources are not unlimited. As the cooperatives are independent and governed by their members, the members control the building processes and the financial aspects. Consequently, they mutually become the owners of the housing complexes. This is a major advantage, as this kind of model discourages people from borrowing too much and falling into a debt trap. We E ect created the Regional Program on Housing and Habitat in Latin America (VIVHA) to implement the FUCVAM cooperative housing model. In practice, the Uruguayan FUCVAM provides the philosophy and the ideology for the cooperative movements in Central America, while the Swedish aid agency We E ect finances the start-up activities of the cooperatives. Start-up activities include group formation, purchase of the land, and the construction of a community facility called a 'salon comunal'. Furthermore, We E ect strives to build relationships with various levels of the government and with other NGOs that help the cooperatives with organizational, legal and technical assistance. We E ect also ensures that the cooperatives have a good internal organizational structure and helps to establish internal committees for the administration, works, purchase of building materials etc., and external networks. This has also led to the establishment of national umbrella organizations to help the local cooperatives with all stages of their development and building processes.

Figure 9: A photograph showing a construction site with a concrete foundation and some structural elements visible.

We E ect, as a stimulator and financial facilitator of the cooperative movement in Central America, seeks nationally working social and technical non-governmental organizations to support the local cooperatives in their house-building processes. In El Salvador We E ect cooperates with the NGO FUNDASAL, in Honduras with the 'Mesa del Sur' and the Foundation 'San Alfonso', and in Guatemala with the NGO IDESAC. These are experienced organizations which have worked for a long time to improve the housing and living circumstances in the countries concerned. FUNDASAL, for example, is a very experienced aid organization that - during the years - has helped families build 51,000 houses, and 270,000 families have benefited from its help (data from 2014) [14]. Furthermore, We E ect successfully stimulated the establishment of national umbrella organizations that can help the local housing cooperatives become mutual-help communities on the local level. For example, in Nicaragua the national organization that

was established is CENCOVICOD, in Honduras it is MECOOVISUR, in El Salvador FESCOVAM, and in Guatemala MEGCOVAM.

Figure 10: A photograph showing a construction site with a concrete foundation and some structural elements visible.

Different technical aspects of the residential buildings and the architecture of the homes are discussed below.

Figure 11: A photograph showing a construction site with a concrete foundation and some structural elements visible.

The examined cooperatives provide basic homes with a living accommodation between 40 and 60 m². There are mainly two types of houses, namely single-family homes in a semi-urban environment, and small stacked apartments, which are only found in the historic center of San Salvador. The single-family homes are all ground-floor houses (1 layer). The dwellings have a living room/kitchenette, a bathroom, and two bedrooms. The first thing that some residents do when they have enough money is build an extra bedroom behind the house, which can be done with individual self-construction. Houses were also built in a stacked form, namely in two layers at two construction locations in the historic city center in San Salvador (Figure 8). This is encouraged by the government within the framework of the necessary restructuring of the historic city center and the promotion of the livability and safety there. With the help of the mentioned Italian fund, the realization of 10 additional cooperatives is becoming a reality. FESCOVAM, the federation of the housing cooperatives in El Salvador, is involved with this project, which will benefit around 400 additional families in the inner city. In the four countries under review, a total of 90 housing cooperatives have been founded, of which - in 2016 - about 80% were yet to be realized. Thus, there is still a large growth potential.

The biggest obstacle is the absence of funding opportunities from the government and private banks. Many families would be facilitated with a grant of USD 2,000 and a loan of USD 8,000. According to We E ect, the members of the cooperatives in Uruguay and also in these other countries pay off 100% of their loans.

Figure 12: A photograph showing a construction site with a concrete foundation and some structural elements visible.

In principle, the applied construction techniques are traditional. A good foundation is always built, and the construction is always made to be earthquake resistant. This means that reinforcing columns are built at the corners of the house, and these are connected to the horizontal beams (which together are called 'the crown'), creating a framework. Within the framework the walls are built of hollow concrete blocks, which provide some degree of insulation against the heat. The roof coverings usually consist of galvanized metal sheets. The roofs are usually not insulated. In some cases in Guatemala, suspended ceilings are realized,

and these insulate the houses rather well. Natural ventilation is always available. There has only been a little experimentation with sustainable building materials such as compressed blocks of loam and sand and adobe building blocks. According to the technical NGO FUNDASAL [11], in villages there are opportunities for the development of walls of adobe, which should be finished with plaster. The cooperative houses are all built durably, but they could be more sustainable. Experiments

group, mutual assistance, and technical and organizational assistance.

ereby, the quality of the construction and the architecture is high.

is can be considered as durable housing, both from a technical and a social point of view. Successful urban social housing projects

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