



Munich Personal RePEc Archive

# **Cooperative housing and sustainable development goals from the economic perspective: case study of Egypt**

Shaker, Saber

1 December 2019

Online at <https://mpra.ub.uni-muenchen.de/104514/>  
MPRA Paper No. 104514, posted 08 Dec 2020 07:35 UTC

# Cooperative housing and sustainable development goals from the economic perspective: case study of Egypt

**Dr. Saber Adly Shaker**

*Associate Professor, Helwan University, Cairo, Egypt*

*Email: [saberadly@commerce.helwan.edu.eg](mailto:saberadly@commerce.helwan.edu.eg)*

## ABSTRACT

The housing sector is linked to 13 out of the 17 Sustainable Development Goals by 2030. Thus, all countries of the world are pursuing the sustainable development agenda as a second phase, after the completion of the MDGs. In 2019, Egypt has achieved about 66.2% of the total SDGs, and soon, Egypt is expected to achieve five goals as green goals. Cooperative housing has created nearly 4.7 million direct and indirect jobs and it considers the second provider of residential units by 19% in Egypt. Finally, there are several types of sustainable financing instruments, such as green bonds and social impact bonds, which contribute to enhancing the role of cooperative housing in achieving sustainable development goals.

**Keywords:** SDGs, Sustainable finance, Cooperative housing, Cooperative banks , Grameen Bank.

## I. INTRODUCTION

The World Bank claimed that by 2030, the world will need about 300 million new housing units. This urges all stakeholders to invest in the housing sector, because of the need for long-term investments by the government alone (**World Bank, 2016**). As the world moves towards achieving the Sustainable Development Agenda by 2030, it can be said that the housing sector will be one of the most important sectors that will contribute significantly to achieving such sustainable development.

In particular, the role of cooperatives in achieving many goals associated with sustainable development is due to the great importance of the cooperative sector at the economic level in the world. According to 2019 statistics, the number of cooperatives in the world has reached 3 million, providing about 280 million jobs. The world's 300 largest cooperatives generate revenues of \$US2.1 trillion (<https://www.ica.coop/en>).

Therefore, the research problem can be formulated in the following question: "To what extent can cooperative housing affect sustainable development? and the research hypothesis can be formulated as follows: there is a direct relationship between cooperative housing on one side and sustainable development on the other.

As for the research methodology, it is the practical and procedural steps on which the research will be based. The following sub-steps are:

- The research is based on the deductive approach through the application of 90 countries as a research sample, including Egypt. So, the research results are therefore applicable to any single country.
- The type of data and method of estimation, the application framework is based on cross-sectional data, based on the year 2019 data.
- The research plan consists of an overview of cooperative housing; the SDGs 2030 and Egypt's situation; the macro and micro perspectives of cooperative housing in Egypt; sustainable financing of cooperative housing ; successful international experiences in financing cooperative housing ; the empirical study; results and recommendations.

## II. AN OVERVIEW OF COOPERATIVE HOUSING

The term cooperatives are generally referred to as an automatic association by a group of individuals who are voluntarily united to meet their economic, social and cultural needs so that they aspire through a democratically managed jointly owned enterprise. Cooperatives are therefore classified as social institutions, reflected in the main objective of cooperatives in maximizing social benefits more than profitability. The members of a cooperative organization are therefore of similar social level and class, in order to protect their interests and to achieve collective economic and social development. Here below are the 7 principles (Jannatul Islam, Mobarak Karim and Ashraful Begum, 2014).

- Voluntary and Open Membership;
- Democratic Member Control;
- Member Economic Participation;
- Autonomy and Independence;
- Education, Training, and Information;
- Co-operation among Co-operatives;
- Concern for Community.

Cooperative housing is a type of cooperative based on function. Cooperative housing refers to those housing communities that are formed for the purpose of purchasing buildings inhabited by members. Therefore, the membership of an individual in a cooperative housing association gives him the right to housing. The institution is administered through a board of directors elected by members. In general, the economic framework of cooperative housing can be summarized in the following items (Duru, 2019):

- *Affordable price* where the main objective of cooperative housing is to provide affordable housing service to groups with different income brackets, particularly limited and middle-income.
- *Diversities in both age and social class* where cooperative housing provide housing services regardless of the age in addition to all families.
- *The appropriate alternative* through the contribution of cooperative housing to provide an alternative to traditional or public housing models, where ownership, management, and decision-making by members are carried out collectively and systematically.
- *Stimulating innovation* where cooperative housing can stimulate innovations in the optimal design of housing units, consider environmental dimensions and exploit common spaces to optimize collective resources.
- *Economies of scale* through the contribution of cooperative housing to take advantage of opportunities to reduce average costs at all stages of the project life from the purchase of land, the purchase of raw materials...etc.
- *The social dimension* through the possibility of cooperative housing contributing to reducing housing problems for some of the neediest groups, such as those with special needs; low-income families; refugees, etc.

Historically, the first appearance housing cooperative was in New York in 1857. To provide accommodation services in the form of studio rooms and joint exhibitions for

artists. The first fully cooperative housing pool was through a group of immigrants from Finland in New York City in 1916. In addition, three global models of co-operative housing can be distinguished as follows **(Margaret Lund, Tom Guettler and Angela Dawson, 2003)**:

- *Market Rate or Equity Co-op*, where both purchases and sales of residential units are made at the prevailing market price. The member, therefore, does not own the housing unit, but rather owns a share in the cooperative that owns the residential units. The member has a long-term lease contract to occupy a housing unit, and the members of the Cooperative organization determine who is entitled to own the housing units.
- *Limited Equity Co-op*, where the Cooperative sets maximum limits on the resale of residential units. The main objective is to maintain the long-term sustainability of cooperative housing, as well as to take advantage of the value of government support allocated to the Cooperative Society away from speculative objectives.
- *Leasehold Cooperative*, where a minimum member's share is set in the cooperative. The leasing company leases residential units from the owner of these units and make it available to house members of the Cooperative. This model combines rent and cooperative together, thus benefiting from reduced land purchase costs, utilities and construction of residential units from scratch. This pattern is very appropriate when the owner of the housing units is a nonprofit organization. Mainly, this rental relationship aims to warrant that the real estate assets are operated on a regular basis to maintain them.

In the case of Egypt, the cooperative movement has emerged since the fourth decade of the twentieth century. Then came the first housing construction cooperative in 1952, the Maadi Housing Cooperative. The first appearance of government intervention to support cooperative housing in the 1953-1954 budget was valued at EGP 2.5 million with a simple interest rate of 3%. Practically, Law No. 14 of 1981 regulates the mechanisms of the work of cooperatives in the field of housing, and in general, can be distinguished between three types of cooperative housing in Egypt as follow:

- *The Cooperative Society for Construction and Housing*, a democratic mass organization that provides housing to its members, provides services for the integration of the residential environment and provides maintenance and care services for the housing groups.
- *The Joint Cooperative Society for Construction and Housing*, consisting of at least two Cooperatives Society for Construction and Housing, is involved in the establishment of a single cooperative housing project for the participating associations.
- *The Federal Cooperative Society for Construction and Housing*, consisting of at least five joint Cooperative Society for Construction and Housing located within the governate, performs cooperative services for participating associations and initiates the terms of reference assigned to it by the Central Housing Cooperative Union.

### **III. SUSTAINABLE DEVELOPMENT GOALS 2030 AND EGYPT**

The term sustainable development first appeared in 1987 in a report of the United Nations Environment and Development Committee. It was noted that sustainable development was to meet the needs of society today, without eliminating the ability of

future generations to meet their future needs. The report also emphasized the balance between the interests of developing and developed countries, as well as the integration of the environment and development together, while eliminating trade-offs and the conflict between stimulating economic growth on the one hand and protecting the environment on the other **(Selman, 1998)**.

The first formulation of the goals related to Sustainable Development emerged in 2001, with the adoption of the millennium development goals (MDGs) by the UN members. Namely, it has 8 objectives related to education, health, environment, partnerships, and non-discrimination, which expired in 2015. The United Nations has been keen to conceptualize and formulate sustainable development during the second phase 2016-2030. Thus, the outcome of the Agreement on the Sustainable Development Agenda 2030, which includes 17 objectives; 169 targets; and 244 variables. In general, SDGs 2030 has three dimensions integrated together which are the economic dimension; the environmental dimension; and the social dimension. In fact, not all the 244 variables are available to measure the sustainable development of all countries, which considered a major challenge to follow the progress of sustainable development at the level of each country **(H. Amin-Salem, M.H. El-Maghrabi, I. Osorio Rodarte, and J. Verbeek, 2018)**.

Table (1) summarizes the framework of SDGs 2030. In addition, an explanation of the percentage of data availability in each target for Egypt. Therefore, the availability of variables needed to measure sustainable development in Egypt is about 43%, and the most available targets for variables are 9<sup>th</sup>, 5<sup>th</sup>, 8<sup>th</sup>, 6<sup>th</sup>, 3<sup>rd</sup>, and 3<sup>rd</sup>. The least available targets for variables were 10<sup>th</sup>; 15<sup>th</sup>; and 12<sup>th</sup>.

**Table (1): Substantiable Development Goals Framework and Egypt**

NO	Goal	Targets	Variables availability in Egypt			Total variables	% Available for Egypt*
			Not Applicable	Not Available	Available		
1	No Poverty	7	0	8	6	14	43
2	Zero Hunger	8	0	8	5	13	38
3	Good Health and Well-being	13	0	11	16	27	59
4	Quality Education	10	0	7	4	11	36
5	Gender Equality	9	0	3	11	14	79
6	Clean Water and Sanitation	8	0	7	4	11	36
7	Affordable and Clean Energy	5	1	1	4	6	67
8	Decent Work and Economic Growth	12	0	4	13	17	76
9	Industry, Innovation, and Infrastructure	8	0	2	10	12	83
10	Reduced Inequality	10	2	8	1	11	9
11	Sustainable Cities and Communities	10	1	11	3	15	20
12	Responsible Consumption and Production	11	1	10	2	13	15
13	Climate Action	5	2	4	2	8	25
14	Life Below Water	10	0	7	3	10	30
15	Life on Land	12	3	9	2	14	14
16	Peace and Justice Strong Institutions	12	0	15	8	23	35
17	Partnerships to Achieve the Goal	19	3	10	12	25	48
<b>Total</b>		<b>169</b>	<b>13</b>	<b>125</b>	<b>106</b>	<b>244</b>	<b>43</b>

\*Calculated by the author

**Source:** Central Agency for Public Mobilization and Statistics, Egypt.

As for the progress worldwide in achieving the 2030 Sustainable Development Goals, statistics for 2019 according to the ranking of 162 countries in the world indicate that the top five countries in the Sustainable Development Index were Denmark (85.2%), Sweden (85%), Finland (82.8%), France (81.5%); Austria (81.1%), while the latest five countries, all of the African continent, ranked last, are the Central African Republic (39.1%); Chad (42.8%), the Democratic Republic of the Congo (44.9%), Nigeria (46.4%); Madagascar (46.7%). Egypt ranked 92<sup>nd</sup> in the world, 9<sup>th</sup> in the Arab world and 6<sup>th</sup> in Africa with a score of 66.2%. **(United Nations, 2019).**

In addition, housing services affect 13 sustainable development goals in 2030. Housing services have a direct impact on achieving five goals: No poverty; gender equality; Clean Water and Sanitation; Affordable and Clean Energy; and Sustainable Cities and Communities. On the other hand, housing services have an indirect impact on achieving eight sustainable development goals: good health and well-being; decent work

and economic growth; industry, innovation and infrastructure; reduced inequalities; Responsible Consumption and Production; climate action; Peace and Justice Strong Institutions; partnerships to achieve the goal **(Steve Weir and Emily Napier, 2018)**. Hence, the role of cooperative housing in achieving the 2030 Sustainable Development Goals. The process of partnership between the various parts responsible for providing housing services in each country is carried out in order to achieve the direct and indirect contribution of the housing sector to the achievement of sustainable development with its objectives and targets.

Table (2) shows the direct impact transition from the housing sector to achieving the SDGs 2030. In general, there are four potentials for the status of the target according to the technical assessment by the Global Sustainable Development Index. It might be a green goal, which means that the achievement of the goal. Or it might be a yellow target, meaning there is a small challenge to achieve the goal. Or the goal may be orange; meaning there is a significant challenge to achieve the goal. Or the goal may be red; meaning there is a major challenge to achieve the goal.

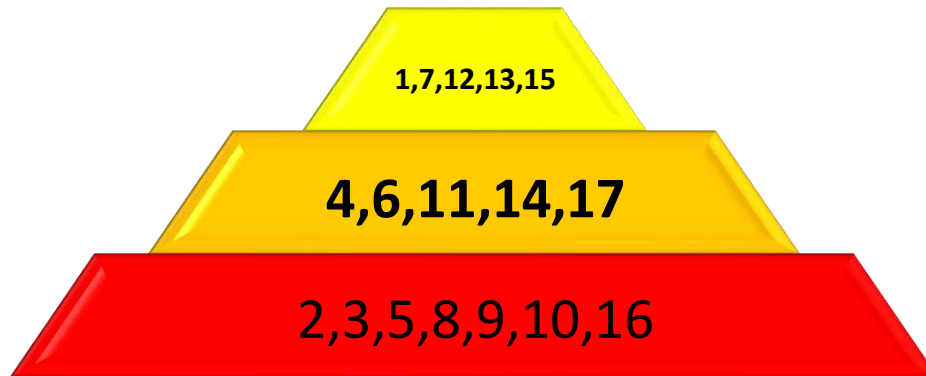
**Table (2): The direct mechanism transition from housing sector to SDGs 2030**

Goal No.	The goal	Direct mechanism transition	The status
1	No Poverty	-The provision of adequate housing services reduces the adverse effects of economic, social and environmental shocks. - Equal access to economic resources for housing services, as well as land ownership and management and income generation enhances sustainability.	Yellow
5	Gender Equality	Equal access to housing services protect females against discriminatory practices and policies related to both land distribution and residential ownership	Red
6	Clean Water and Sanitation	Providing safe, healthy and appropriate housing services.	Orange
7	Affordable and Clean Energy	Providing energy-efficient, clean energy-based housing systems with an appropriate economic expense.	yellow
11	Sustainable Cities and Communities	- Providing adequate and affordable comprehensive housing systems.  - An integrated housing policy that ensures coordination between economic, social and environmental policy and infrastructure, and links it to urban and rural environmental planning systems.	Orange

**Source:** (Steve Weir and Emily Napier, 2018)

Generally, there is no green goal for Egypt until 2019. However, a pyramid for Egypt's SDGs can be designed according to the scale of the challenges facing each goal, as illustrated by Figure (1). For example, there are five targets in Egypt may be converted from yellow to green in the coming years, namely (1); (7); (12); (13); and (15).

Figure (1): SDGs pyramid in Egypt 2019



Designed by the author based on (United Nations , 2019)

#### IV. MACRO AND MICRO PERSPECTIVES OF COOPERATIVE HOUSING IN EGYPT

At the macro level, cooperative housing contributes significantly to investments in the whole housing sector in Egypt. For example, the sector's total investment in Egypt during the period (1993-2013) was EGP 42.6 billion. Also, total investment in the governorates' housing directorates topped the first place by almost 44% during the same period. Cooperative housing' investments came in second place, with total investments during the same period amounting to about EGP 8 billion, accounting for 19% of Egypt's total housing sector investment **(World Bank, 2015)**.

In addition, there has been a growth in the supply of housing units for cooperative housing. During the period (1982-1997), cooperative housing contributed 350,118 housing units, in addition to 823,308 housing units in the government sector through cooperative loans, and therefore the total supply of housing units by the cooperative sector during that period was about 1173426 housing units **(Housing and Reconstruction Division, no date)**. Assuming that the average number of direct and indirect jobs per housing unit is about 4 per year **(Palestinian Centre for Economic and Social Development, 2012)**, then it can be said that during the period (1982-1997) the cooperative sector contributed to the creation of about 4.7 million direct and indirect jobs.

On the other hand, in the fiscal year 2016/17 cooperative housing contributed 382 housing units and increased to 1154 in the fiscal year 2017/18. All these units were under economic housing and low-cost housing **(Central Agency for Public Mobilization and Statistics, 2019)**. Overall, it is estimated that the number of housing units required to meet the surplus of demand in Egypt's housing sector is about 500,000. Investment in Egypt's housing sector is therefore expected to reach about US\$12 billion in 2020, compared to US\$7.2 billion in 2012 **(Adel al-Hamili, 2017)**.

As for the micro-level, Egypt's real estate sector trends for 2019 indicates to a set of observations on the market research, which must be considered to contribute to the success of cooperative housing in terms of housing unit design, pricing, etc. In general, the most important points can be explained as follows **(Aqarmap, 2019)**:

- The top buyers for real estate are the age group that is at least 31 years old.
- The top category of the average family size for real estate demand is 4 members per family.
- The top demand for real estate was for the investing purpose.



- The top priorities of the residential community internally, which the buyers want to have, are the green spaces.
- The most priority outside the residential community, which the property buyers want to be available, are the markets and transport services.
- The main sources of buyer financing of the property were income and long-term savings. Only 10% of property buyers rely on bank financing.

In summary, cooperative housing have a major impact on the economic development of developing countries. This comes through impact transit channels such as employment and investment, which in turn affect income level. Therefore, when the environmental and social dimensions of cooperative housing are added, the scope of impact transmission channels will be expanded to talk about sustainable development.

#### **V. SUSTAINABLE FINANCE OF COOPERATIVE HOUSING**

Normally, finance is the most important issue facing cooperative housing in all countries of the world. Mortgage or mortgage finance is intended for the financing process by a particular party; It can, therefore, be said that mortgage finance is a right of property, official mortgage or other guarantees accepted by the financing authority, which are implemented in accordance with the specified legal controls. Thus, real estate finance activities are not limited to residential use buildings, but also extend to commercial use buildings, including the renovation and replacement of real estate. In general, there are two sources of financing for cooperative housing in Egypt: loans; citizens' savings. The main participants in real estate lending in Egypt are the following **(Noha Fawzi Mansour, 2008) (Adel Al-Hamili, 2017):**

- *Banking institutions* specializing in mortgage finance as well as commercial banks, and all of them are controlled by the Central Bank. The process of mortgage lending began in 2005 after the issuance of the Executive Regulations of the Mortgage Finance Act No. 148 of 2001.
- *Non-banking institutions*, consisting of both mortgage finance companies and mortgage refinance companies. They are subject to control through the General Authority for Financial Supervision, in accordance with specific conditions and controls.
- *Mortgage Guarantee and Support Fund*, which targets low-income groups. For example, the Fund pays half of the land expenditure after receiving it from the State after providing basic services and facilities. The maximum amount of funding is EGP 25,000, the maximum funding period is 20 years, and the premium may not exceed 35% of income.

Regarding the real estate finance market in Egypt and its vital indicators. It's possible to indicate to the following observations **(Central Department for Research and Policy, 2018):**

- The value of real estate finance services in Egypt comes through the monthly income bracket more than 3500 pounds per month. For example, the value of mortgage finance for this income bracket amounted to approximately EGP 385 million, accounting for 70% of total mortgage finance during the first third of 2018. This compares to EGP 112 million, or approximately 20% for income brackets, less than 2,500 pounds per month in the same period.

- The number of beneficiaries of mortgage services in the monthly income category was equal or lower EGP 2,500, which was about 1054 which account for 55% of beneficiaries during the first third of 2018.
- There is an increase in demand for housing units of an area of at least 86 m2 by more than 96%.
- The value of the mortgage balance of the mortgage companies accumulated as of March 2018 at about EGP 3.85 billion.
- The real estate refinances balance as of March 2018 is estimated at EGP 1.4 billion.
- the number of beneficiaries (contracts) accumulated was approximately 46,998. As of March 2018, there were about 15 finance and refinancing companies with a source capital of EGP 2.1 billion.

In general, sustainable financing is included in a range of financial instruments that are sustainable. The most important of these tools are the following:

- *Social Responsibility Investment* is a type of investment that, along with financial criteria for investment evaluation, adds another set of non-financial standards, such as environmental, social and governance indicators. It is also called responsible investment, as it improves risk management in investment decisions and delivers attractive financial returns by paying attention to sustainability and directing investment towards sustainable business **(Geobey, Sean and Olaf Weber, 2013)**.
- *Impacting Investment* is a type of investment that attempts to create a positive environmental or/and social impact and is considered as the main private source of sustainable development financing. This investment aims to meet social and environmental challenges while achieving a financial return on investment. This investment is rooted in businesses and charities that direct part of their investments to social and environmental issues **(Weber, Olaf and Blair Feltmate, 2016)**.
- *Social Impact Bonds*, these bonds achieve a dual financial and social return at the same time. The first social impact bond was issued in the UK in 2010 to attract private investors to solve social issues and problems. The financial return paid on these bonds is combined with the outcomes of the funded project. In general, this type of bond deals with various sustainable development goals, particularly Goal 11 sustainable cities and communities **(Trotta, Annarita, Rosella Caré, Raffaella Severino, Maria Cristina Migliazza and Alessandro Rizzello, 2015)**.
- *Green Bond* is a fixed-income financial instrument that is effective in addressing global environmental issues. These bonds are linked to about five sustainable development goals, under which private sector investment is directed to areas of sustainable development, with appropriate financial returns compared to traditional bonds. The success of this tool requires that the private sector be bound by environmental and social disclosure rules as same as the financial disclosure **(Sustainable Banking Network, 2018)**.
- *Green Credit* is a type of credit promoted by China. Through this tool, credit is provided on concessional terms if the borrower adheres to environmental rules and requirements in the establishment of a particular project **(Stanway, David, 2016)**.

Overall, the achievement of the sustainable development agenda worldwide requires a range of \$5 to \$7 trillion. In contrast, investments in the five previous sustainable financing instruments are worth about \$24 trillion. Thus, it reflects the fact that achieving Sustainable Development Goals is possible under the condition that sustainable financing tools are utilized **(Weber, 2018)**.

In summary, the previous sustainable financial instruments can be added to Egypt's financial market. therefore, cooperative housing at all regulatory levels can use these instruments to provide the necessary funding. At the same time, commitment to environmental and social dimensions to achieve sustainable development goals such as environmental design, the use of renewable energy resources, etc. Also, using Key Performance Indicators where the terms of credit and incentives provided by the government vary to cooperative housing.

For example, for goal number 11, which is linked to sustainable cities and communities. Statistics at the level of Egypt indicate that the most polluted governorates are respectively: Beni Suef, Al-Gharbia, Minya, Assiut, Cairo, and Manofia **(Central Agency for Public Mobilization and Statistics, 2018)**. In this case, the government should provide a package of financial and non-financial incentives for the establishment of environmentally friendly cooperative housing in those governorates to reduce environmental unsustainability. In more detail, credit requirements could be provided to finance cooperative housing that are more easily facilitated as the degree of pollution increases in the area concerned, as well as the distinction in the sale prices of land provided by the government in accordance with the same criterion.

## **VI. SUCCESSFUL INTERNATIONAL EXPERIENCES IN COOPERATIVE HOUSING FINANCE**

Usually, the Successful international experiences in financing cooperative housing in the world are based on two main factors: cooperative banks and the government role which can be explained as follows:

*Firstly, Co-op Banks*, which indicates to financial institutions that are closely related to their members and characterized by a range of features such as client-owned entities (clients are owners); democratic management of members; dividends distribution as a part in reserve and the rest distributed to the members according to specific legal controls; locality where its members belong to a specific geographical area and its activities are limited to this area **(Fiordelisi, F. and Mare, D.S., 2014)**.

Practically, the Grameen Bank experience, known as the Village Bank or The Bank of the Poor in Bangladesh, can be displayed in 1983. It targets the poor and provides them with credit services, in what is known as microfinance. With regard to the role of the Village Bank in housing services, there are three levels of credit provided to members of the Cooperative Bank, and generally paid in weekly installments for a period of not more than 10 years, as follows **(Yusuf al-Fki Abdul Karim, 2006)**:

- *The pre-initial level*, under which the member receives a credit amount of no more than 750 Bangladeshi takas, provided that two years have passed the membership.
- *The initial level*, under which the member receives a credit amount of up to 10,000 Bangladeshi taka, and receives 4 columns and a sanitary toilet, provided that the membership has passed.
- *The basic level*, under which the member receives a credit amount of up to 25000 Bangladeshi taka, and receives any number of columns and a sanitary toilet, provided that the membership is five years.

In general, Grameen Bank experience can be used to provide adequate housing in Egypt in the poorer villages project. The project should be an institutional framework for cooperative housing in the neediest areas. Cooperative Housing in those areas can start with government funding at a certain share (e.g. 70%) and the rest represent shares of members in those areas, with the state contribution gradually reducing in exchange for increased members' contribution.

In addition, national cooperative bank experience in the United States of America. Established in 1978 and privatized in 1981 as a cooperative financial services institution, it has 2,900 clients and assets of about \$2 billion, manages a total asset of \$7 billion, and provides about US\$6 billion in loans to state cooperative housing. The United States of America in 10 years, the following represents the most important financial services provided to American cooperative housing (**Jeremy Morgan and Larry Mathe, 2017**):

- *Blanket Loans*, which fund the activities of the housing cooperative communally and are guaranteed by real estate, land, buildings or a combination of them for all members of the Housing Cooperative.
- *First mortgage services* and the mortgage are guaranteed on the value of the land. These loans are characterized by fixed interest rates, and their interest rate is slightly higher than that of 10-year U.S. Treasury bills. The duration of these loans is 10-30 years.
- *Second mortgage services* used in case a housing cooperative's desire to increase its capital in the future. Interest rates are variable according to market trends.
- *Balloon loans*, where the current loan balance is not repaid by monthly payments according to the payment schedule until the end of the loan term. The remaining balance of the current loan is financed through a new loan.

In summary, this experience can be used to provide adequate funding for cooperative housing in Egypt. The NCB model in the United States of America provides flexibility in financing, especially given the diversity of appropriate financing systems. The introduction of a crowdfunding pattern for cooperative housing members to finance the activities from the purchase of land to the implementation of housing units, in which case the balloon loan can be relied upon so that the activities of cooperative housing do not stop for reasons of underfunding at any stage of the project life.

*Secondly, the role of the government*, which means how the government and its numerous institutions can use various tools to stimulate the activities of cooperative housing, in order to achieve its intended objectives. Review of the role of the government in Jordan, the Czech Republic, the Philippines, Austria, the United States of America, England, Germany, Belgium, France, and Canada. The most important lessons can be the following (**Iman Omar Mohammed Askar, 2005**) (**Abdullah bin Mubarak Al-Saif, 2019**):

- Providing land for cooperatives at affordable prices with payment facilities.
- Provision of long-term loans, which can be up to 50 years for cooperative housing to support them in the land price and construction expenses, excusing them from any regular fees or taxes.
- Modernization of the legislative environment through the development of alternatives to the ownership of housing units in cooperative housing, such as permanent rent mechanisms, with the payment of the required rent.

- Provide cash support to low-income families to cover the required monthly rental expenses.
- In the case of rental cooperatives, the monthly rent is determined not to be profitable. This is done by ensuring that the monthly rental payments cover maintenance activities and expenses for the cooperative housing work.
- Identify a standard model from an engineering perspective that considers the economic costs and environmental dimensions of the design of housing units. For example, in the Philippines, buildings are required to be no more than 3 floors to minimize the cost of building foundations.

## VII. EMPIRICAL STUDY

Basically, the field of cooperative housing suffers from a relative scarcity of academic literature related to the economic aspect. This may be due to several reasons, the most important of which is the lack of regular data on cooperative housing to enable studies based on both time series data and panel data. These restrictions have thus contributed to the analysis of the impact of cooperative housing on sustainable development using cross-sectional data which can be clear as follows:

- As for the nature of the data and the sample size the paper depends on cross-sectional data, where the most recent year of the Sustainable Development Index data was selected in 2019, thus the sample of the study are 90 countries, which in this case reflects the number of observations.
- As for the variables of the study are divided into a dependent variable, the Sustainable Development Index, denoted by the SD, and its data source United Nations. On the other hand, there are three independent variables as follow:
  - a) Cooperative housing, denoted by COOP, have been used by each country's cooperative institutions from the sample study within the membership of the International Co-operative Alliance, known as ICA. That variable has been treated as a dummy variable, which takes zero value in the absence of state cooperative institutions within the alliance, or the right one in the case of state cooperative institutions within the alliance, and the ICA data source.
  - b) Human development, denoted by HDI, measures the impact of both income, education, and health. Its data source is UNDP.
  - c) The mortgage burden, denoted by MORG, reflects the relative importance of a mortgage compared to the average income in each sample country. It comes from the NUMBEO database.
- For the regression result using the ordinary OLS method, a set of notes can be shown in output (1) as follows:
  - a) There is a significant positive relationship between cooperative housing and human development as independent variables and sustainable development as a dependent variable.
  - b) There is an insignificant positive relationship between mortgage burdens as an independent variable and sustainable development as a dependent variable.

- c) The estimated model is a fit model due to the value of both the R2 and the Adj R2. Thus, it indicates that the three independent variables commonly explain between 74% and 75% of the value of the dependent variable.

### Output (1): Regression output

Dependent Variable: SD  
 Method: Least Squares  
 Date: 10/27/19 Time: 18:24  
 Sample: 1 90  
 Included observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	36.92919	3.975077	9.290181	0.0000
COOP	4.838192	0.841047	5.752583	0.0000
HDI	40.21559	4.792741	8.390936	0.0000
MORG	0.007540	0.004337	1.738438	0.0857
R-squared	0.750520	Mean dependent var		72.51333
Adjusted R-squared	0.741817	S.D. dependent var		6.024877
S.E. of regression	3.061344	Akaike info criterion		5.119011
Sum squared resid	805.9769	Schwarz criterion		5.230114
Log likelihood	-226.3555	Hannan-Quinn criter.		5.163815
F-statistic	86.23888	Durbin-Watson stat		1.804729
Prob(F-statistic)	0.000000			

## VIII. CONCLUDING REMARKS

The paper with both theoretical and practical frameworks try to answer the main question, which is how cooperative housing can contribute to sustainable development with a reference to Egypt?, and the conclusion of the above is that cooperative housing contributed to Egypt's creation of more than 4.7 million jobs, as well as more than 1 million residential units since the 1980s. Therefore, the more recommendations for cooperative housing in Egypt are:

1. Settlement of tasks and responsibilities between the General Authority for Cooperatives and the Cooperative Union to avoid any conflict.
2. Create cooperative entrepreneurs through professional training courses to overcome the administrative problems of the cooperatives.
3. Public incentives package from the government through taxes incentives, technical assistance, and payment incentives
4. Implement financial innovations and instrument by the banking sector
5. International collaboration in the area of cooperative finance.

## REFERENCES

### First: References published in English language

- 1- Aqarmap. (2019). *Egypt real state trends*. Aqarmap.
- 2- Duru, M. (2019). Cooperative Housing and the Big Impact. *Affordable Housing Investment Summit Africa*. Nairobi, Kenya.
- 3- Fiordelisi, F. and Mare, D.S. (2014). Competition and financial stability in European cooperative. *Journal of International Money and Finance*, 45(july), 1-16.
- 4- Geobey, Sean and Olaf Weber. (2013). Lessons in operationalizing social finance: the case of Vancouver City Savings Credit Union. *Journal of Sustainable Finance & Investment*, 3(2), 37-124.
- 5- H. Amin-Salem, M.H. El-Maghrabi, I. Osorio Rodarte, and J. Verbeek . (2018). Sustainable Development Goal Diagnostics The Case of the Arab Republic of Egypt. *World Bank, Policy Research Working Paper*.
- 6- <https://www.ica.coop/en>. (n.d.).
- 7- Jannatul Islam, Mobarak Karim and Ashraful Begum. (2014). The Problems and Prospects of Co-operative Society: A case study on its evolution and future possibilities in context of Bangladesh. *International journal of Innovative Research in Management*, 10(3).
- 8- Jeremy Morgan and Larry Mathe. (2017). *Share Loan and Underlying Mortgage Financing*. National Cooperative Bank.
- 9- Margaret Lund, Tom Guettler and Angela Dawson. (2003). *Housing Cooperative Toolbox*. Northcountry Cooperative Foundation.
- 10- Selman, P. (1998). Local Agenda 21: Substance or Spin? *Journal of Environmental Planning and Management*, 41(5), 533-553.
- 11- Stanway, David. (2016, September ). China Provides \$1 Trillion in 'Green Credit. *Scientific American*.
- 12- Steve Weir and Emily Napier. (2018). *Housing Ensures Sustainable Development: A resource guide highlighting housing, land and sustainability in the sustainable development goals*. Housing Innovation Global Programs, Habitat for Humanity International.
- 13- Sustainable Banking Network. (2018). *Creating Green Bond Markets — Insights, Innovations, and Tools from Emerging Markets*. Washington, DC: Sustainable Banking Network.
- 14- Trotta, Annarita, Rosella Caré, Raffaella Severino, Maria Cristina Migliazza and Alessandro Rizzello. (2015). Mobilizing Private Finance for Public Good: Challenges and Opportunities of Social Impact Bonds. *European Scientific Journal*, 11(10), 259–79.
- 15- United Nations . (2019). *Global Sustainable Development Report*. New Yourk : United Nations .
- 16- Weber, O. (2018). The Financial Sector and the SDGs Interconnections and Future Directions . *the Centre for International Governance Innovation*.
- 17- Weber, Olaf and Blair Feltmate. (2016). *Sustainable Banking: Managing the Social and Environmental Impact of Financial Institutions*. Toronto : University of Toronto Press.
- 18- World Bank. (2015). *Inclusive Housing Finance Program: Arab Republic of Egypt*, . Technical Assesment, World Bank.
- 19- World Bank. (2016). *housing finance by 2030* . World Bank.

### Second: References published in Arabic language

1. Abdullah bin Mubarak Al-Saif. (2019). States' experiences in housing cooperation. Al-Luck Library.
2. Adel Al-Hamili (2017). Access to Mortgage Finance: A comparative study on finance and housing in 9 countries. Property Rights Program, Egyptian Center for Public Policy Studies.
3. Housing and Reconstruction Division. (No date). Housing cooperation in Egypt and the role of the General Authority for Construction and Housing Cooperatives. Specialized National Councils, 20services session.
4. Iman Omar Mohamed Askar. (2005). Challenges of the Mortgage Finance Act and the Resolution of Housing Problems: A Case Study of low-income people. published master's thesis. Faculty of Engineering - Cairo University.
5. Noha Fawzi Mansour. (2008). Real estate finance: the activation of the real estate market in Egypt. Ministry of Finance.

6. The central body for public mobilization and statistics. (2018). National Statistical Report to follow up on indicators for 2030 Sustainable Development Goals in the Arab Republic of Egypt. Central Agency for Public Mobilization and Statistics.
7. The central body for public mobilization and statistics. Housing Bulletin 2017/2019. Central Authority for Public Mobilization and Statistics.
8. The Central Department of Research and Policy. (2018). March report on real estate finance activity. The General Authority for Financial Supervision.
9. The Palestinian Center for Economic and Social Development. (2012). The economic and social role of cooperatives in the West Bank. Within the project to support the institutional and economic capacities of the cooperative societies, the Palestinian Center for Economic and Social Development.
10. Youssef Al-Fki Abdul Karim (2006). The experience of the Poor Bank. The experience of combating poverty in the Arab and Muslim worlds. Algeria: Faculty of Economics and Management Sciences, Saad Dahalb Blida University.