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IMPACTS OF URBANIZATION ON FARMING COMMUNITIES OF CAGAYAN DE ORO CITY AND PATHWAYS TO SUSTAIN LOCAL FOOD PRODUCTION

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ABSTRACT

The main objective of this study was to find out how small farmers were affected by urbanization. The study was conducted during 2020 in 2 barangays (districts). Cagayan de Ore (CDO) City specifically canitoan and pagatpat, Philippines. There were 12 and 11 farmers in Canitoan and Pagatpat, respectively who participated the focus group discussion (FGD). Majority of them was considered as small farmers due to the size of their farm which was less than 1 hectare. Around 70 hectares of agricultural land in Canitoan were transformed into a private housing subdivision. Qualitative approach was employed using FGD and farmers were organized and interviewed as a group. Data revealed that agricultural lands had been converted into residential or commercial purposes. CDO agriculture area was decreased from 91.5 to 81.89%. Urbanization affected the farmer in term of displacement, income source, decrease economic status and negative motivation for agriculture. In conclusion, urbanization in CDO which brought progressive economic development had negatively affected the lives of some small farmers. We suggested proper policies to find alternatives for the farmers so that they could continue to produce food in the surroundings of the city and thus made city and rural areas more resilient in food supplies and also water regeneration.

KEYWORDS: Urbanization; expansion; urban coverage; food resilience; good governance; thematic

INTRODUCTION

The United Nations (UN) has repeatedly reported that the world is becoming urbanized at rapid pace. More than half of the global population now lives in urban areas (55% currently from 30% in 1950). By mid-century, UN estimated that roughly two-thirds (68%) of the world's population will be living in cities. These cities can either be currently existing urban areas or newly transformed urbanized areas. The global urban population is projected to grow by 2.5 billion urban dwellers between 2018 and 2050, with nearly 90% of the increase concentrated in Asia and Africa (United Nations, 2019). In the Philippines, the percentage of population residing in urban areas was recorded at 45.3% and 51.2% in 2010 and 2015 respectively with 7,437 barangays classified as urban and 34,599 as rural (Philippine Statistics Authority, 2019).

Urbanization is a result of a number of drivers (GRAY LINE). These drivers differ in some respects due to the unique regional, geographic and cultural nuances in various parts of the world, as well as the level of development and economic maturity, which also influence the specific shape of migration patterns. Regardless of these differences, the urbanization trend is global and many of the drivers seem to be common across regions and development levels. Historically, urbanization has been a positive force for economic growth, poverty reduction and human development. An increasing share of economic activity and innovation becomes concentrated in cities, and cities developed as hubs for the flow of transport, trade and information (United Nations, 2019). Approximately 80% of global gross domestic product is generated in cities. Cities also become places where public and private services of higher quality are available and where basic services are often more accessible than in rural areas. People are drawn to cities because of varied opportunities for education employment, particularly in the industry and services sectors. They are also leaving the rural areas because of a lack of rural development that encourage traditional and modern small businesses to become better (Grübler and Fisk, 2013).

As a city becomes more urbanized, its land coverage also expands. Investors are attracted and start coming in requiring land spaces to establish their businesses. Infrastructure development normally follows while people from other places start to settle and migration takes place. This expansion of the city's "urban coverage" basically radiates from the city center going towards outward direction wherever it is strategically and economically feasible. Along the way, those areas that are reached within the scope of the expansion are forcibly converted into a new purpose which could either be commercial, industrial or residential in nature. In most of cases, places affected are farming areas with a number of small farmers tilling the land being their only source of living. For most of them, it is the only kind of livelihood that they know which they have inherited from their ancestors and it is already their way of life. The farm is not just about farming but it is the place where they grow up and they call it home. Local farms can be a backbone of food resilience and a source of really fresh products (Unitated Nations, 2019; Grubler and Fisk, 2013).

Over the last four and a half decades (1970-2015); Cagayan de Ore city (CDO) is attributed to high annual birth rates coupled with in-migration of people from other areas who were drawn by job and income opportunities in both the public and private sectors. CDO is the commercial and business hub of Northern Mindanao. Owing to its strategic location, accessibility by land, air and sea transportation, it is the city of choice for many local and foreign investors (Doczi, 2015).

According to the 2019-2022 City Agricultural Development Plan (CDO's city government), despite rapid urbanization and unprecedented growth in trade and commerce, agriculture remains an integral part of the city's economic activities. It is the major source of income for residents in the rural barangays of CDO where areas for crop production and livestock and poultry raising are located. Of the city's agricultural lands, more than half or 17,488 hectares in 26 barangays are existing farm areas devoted to the production of various food and commercial crops (Philippine Statistical Authority, 2019).To protect the farmers and preserve farmlands from the overgrowing urbanization, policies must be formulated. Policies are better crafted when they are grounded withsolid basis that reveal the real situation of the society and one of the most effective ways is through research. The focus of this study was in barangays Canitoan and Pagatpat (2 of the 26 barangays) and the main objective was to find out how small farmers were affected by urbanization.

MATERIALS AND METHODS

The study was conducted in 2020 and it employed the qualitative approach wherein (FGD) was used as the main tool for data collection. The Agricultural Productivity Operations Office of the City Government of CDO organized the farmers' organization of the 2 barangays. The farmers were interviewed together collectively as a group using a set of questions. FGD was conducted independently in each barangay (canitoan and pagatpat) and their responses were recorded. It elicited narrative information underlying the participants' experiences and understanding. Thus, the researchers attempted to make sense of, or interpret, social reality in terms of the meanings the participants ascribed to it. Thematic interpretation was adopted as the main interpretive method. Profiling of the farmers was also undertaken. Participants were assured of anonymity and were required to sign the Free Prior Informed Consent (FPIC) form, indicating therein that the data obtained from the discussions would be used for research purposes. Secondary data from literatures were also utilized. Statistical Package for Social Sciences (SPSS) was utilized for data analysis.

RESULTS AND DISCUSSION

There were 11 and 12 farmers in Pagatpat and Canitoan, respectively who participated the FGD. They were members of their own respective organizations namely the Pagatpat Cagayan de Oro Farmers Association, Inc (PACAFAI) and the Canitoan Farmers Multi-purpose Cooperative (CAFAMCO). Farmer profile and land size are shown in Table 1 and Table 2. Majority of them were considered as small farmers due to the size of their farm which was less than 1 hectare. The 2 organizations had stressed out that some farms in their respective barangays were already converted for residential or commercial purposes. During the FGD, the President of CAFAMCO said that some 70 hectares of agricultural land in Canitoan were transformed into a private housing subdivision. This was not only happening in CDO but it was actually a very common scenario in cities globally undergoing expansion in area coverage because of the need for more land spaces brought about by economic progress. Urbanization process is demanding a transformation of land use in surrounding rural area to cater to the needs of the present urban areas. Urbanization is a key feature of economic development (Aouri *et al.,* 2014).

Table 3 shows the decrease of land size in CDO particularly for both agriculture and forestry from 91.5% to 81.89% during 1986 up to 1996 respectively. In another decade (Fig. 1), there was again a decrease of agricultural land size in CDO from 2003 to 2013. These

Table 1. Profile of farmer participants

		Canitoan		Pagatpat	
Variable	**Category**	**Frequency**	**Percent**	**Frequency**	**Percent**
Gender	Male	6	50	5	45.5
	Female	6	50	6	54.5
Age	41 - 50 years old	2	16.7	5	45.5
	51 years old and above	10	83.3	6	54.5
Civil status	Single	3	25	1	9.1
	Married	8	66.7	10	90.9
	Separated	1	8.3		
Number of children	0	3	25	1	9.1
	1 – 2	3	25	1	9.1
	3 – 4	3	25	8	72.7
	5 or more	3	25	1	9.1
Farm size	1 hectare or less	12	100	8	72.7
	2 hectares or more			3	27.3
Number of years farming	1 - 10 years	2	16.7	3	27.3
	11 - 20 years	4	33.3	3	27.3
	21 - 30 years	4	33.3	3	27.3
	31 - 40 years	2	16.7	2	18.2

Table 2. Land size of barangays Canitoan and Pagatpat

Barangay	Land area (ha)	Farm area (ha)	Farm area percent share to land area	Number of farmers	Agri. land correct private housing
Canitoan	1,234.86	400	32.4%	625	70 (ha)
Pagatpat	1,100.07	580	52.7%	984	--

Table 3. Decrease in agriculture land in two separate decades

Character	**Decades**	
Agriculture and forestry	**D1**	**D2**
Agriculture	37.0	
Pasture	38.0	
Forestlands	14.0	
Wetlands & misc	2.5	
Built-up areas	**8.5%**	**18.11%**
Residential	4.1	
Others	4.4	
Institutional, parks & plazas & commercial	-	4.05
Residential	-	12.38
Industrial	-	1.68
Total	100.0%	100.0%
Source: City planning & development office, Cagayan de Oro city		

Note: D1 = 1980-90 and D_2 = 1990-2000

were proofs that showed previously utilized agricultural lands in CDO were converted into non-agricultural purposes such as residential, commercial or industrial. Data (Table 4) depicted the land conversion in Canitoan and Pagatpat, farmers. Their homes and source of income were lost. They had to find somewhere else to live and farmers motivation to continue farming was negatively affected. They felt secure for their households' economic status. Somehow they felt that very soon they would be wiped out because of "urban area expansion" as they were also situated in the same area.

Arouri *et al.* (2014) said that one of the direct negative effects of urbanization on rural household is on agricultural landholding. Urbanization could lead to more landless or near landless households according to Ravallion and Walle (2008) and Satterthwaite *et al.* (2010). Coulibaly and Li (2020) clearly stated that urbanization had impacted the livelihoods and quality of life of rural communities who depended on the agricultural sector as their main economic activity. Bryant (2004) reported that in rural communities

affected by the urbanization process, pressures were exerted upon the natural resource base and there were changes in the socio-demographic structures.

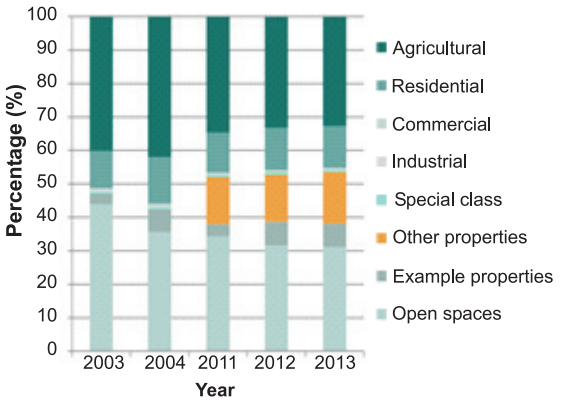

Fig. 1. Decrease of agricultural areas in CDO

Table 4. Impact of urbanization on farmers of CDO

Sr. No.	Character	Ranking
1.	Displacement	1
2.	Income loss source	2
3.	Economic status decrm	3
4.	Motivation to agriculture	4

In year 2000, a projected 30 million hectares of croplands globally were located in areas that were expected to be urbanized by 2030, representing in a total cropland loss of around 2%, out of which Asia and Africa were projected to experience 80% of global cropland loss due to urban area expansion according to a report by the United Nations Convention to Combat Desertification (2019). In India for example, about 1.5 million hectares of agricultural land went to urban growth between 1955 to 1985 (Fazal, 2000). In China's Hang-Jia-Hu region, the alteration of agricultural landscapes to make way for rapid urbanization has reduced the total area of agricultural landscapes in the region (1,260,665 hectares) by 28.5% from 1994 to 2003 (Su *et al.,* 2011). In Hanoi, Vietnam, about one-third of agricultural land has been converted into residential areas (Coulibaly and Li, 2020). Population pressure together with increasing urbanization and industrialization has considerably reduced the land available for agricultural production (Alauddin and Quiggin, 2008).

In response to the increasing urbanization, many local governments imposed strict land use control (Wu, 2008). In the United States for example, Wu and Cho (2007) found that local land use regulations reduced land development by 10% in the five western states between 1982 and 1997, with the largest percent reduction occurring in Washington (13.0%), followed by Oregon (12.6%), California (9.5%), Idaho (4.7%), and Nevada (2.8%). Malik (2015) emphasized that it is important to design policies for combating agricultural land loss recognizing the socio-economic aspects of farmers affected by urbanization.

CONCLUSION AND RECOMMENDATION

With decreasing number of areas for agriculture, urbanization clearly threatened farmers in CDO affecting them physically and economically. Therefore, the government must come up with policies on land conversion that provide structure for socio-economic support to affected farmers. Decisions and actions prior to actual land conversion should be followed a series of consultative process involving all stakeholders to ensure a fair and holistic resolution taking into consideration the preservation, protection and conservation of the natural environment in general. CDO should make a master plan for the development of a food-shed with appropriate structures where modern life and rural development can go hand in hand and create interesting alternatives to further migration towards the city and even to encourage some reverse-migration.

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Sr. No.	Author's name	Contribution	Signature
1.	Horacio Factura	Collected the data and wrote-up the mansucript	
2.	Francis Thaise A. Cimene	Provided inputs for results and discussion write-up	
3.	Ian Mark Q. Nacaya	Helped in data collection	
4.	Ralf Otterpohl	Provided inputs for conclusion, recommendations and reviewed the manuscript