**Volume 14, Issue 1, 05 Februari 2023, Pages. 71-86**

*Jurnal Manajemen (Edisi Elektronik)*

**Sekolah Pascasarjana Universitas Ibn Khaldun Bogor**

http://dx.doi.org/10.32832/jm-uika. v14i1.9110

# Preliminary Steps of Urban Farming Spatial Database Development for SDGs Monitoring and Evaluation in Bogor City

***Syarifah Sofiah Dwikorawati[a], Arif Wicaksono[b]*, Budi Susetyo[c]***

*[a,c]Universitas Ibn Khaldun, Indonesia*
*[b]Universitas Pakuan, Indonesia*
** Corresponding author e-mail: arif.wicaksono@unpak.ac.id*

A R T I C L E I N F O

DOI: 10.32832/jm-uika.*v14i1.9110*

*Article history:*
Received:
6 Januari 2023
Accepted:
22 Januari 2023
Available online:
5 Februari 2023

*Keywords:*
*Sustainable Development Goals, Participatory mapping, Urban farming, Focus Group Discusssion*

**A B S T R A C T**

*The mandate of Presidential Regulation 111/2022 states that the Sustainable Development Goals (SDGs) need to be synchronized with the five-year National Development Plan (RPJMN) at the central government level, and the five-year Regional Development Plan (RPJMD) at the provincial and city/district levels. Further synchronization at the national level will eventually be completed in the National Action Plan (RAN), while at the provincial/city/district level it will produce a Regional Action Plan (RAD). This study aims to prepare the first steps for the development of urban agriculture spatial databases to support the monitoring and evaluation of SDGs and the formulation of RAD in Bogor City. The qualitative method used in this research is supported by primary data obtained from Focus Group Discussion (FGD). Secondary data is also used primarily in the analysis between the SDGs and the five-year development plan (RPJMD) of Bogor City 2019-2024. The FGD activity was also attended by 114 representatives of women's farmer groups (KWT). The results of the analysis show that the development of a spatial database of urban agriculture to support the subsequent monitoring and evaluation of SDGs in Bogor City was carried out through an analysis of the role of KWT locations in poverty reduction within a certain radius in each KWT plantation location. The limitation of this study is in terms of the accuracy of the economic valuation of the commodity products, but in general, shows the importance of the urban farming spatial database used in the evaluation of SDGs 1 (No Poverty) and 2 (No Hunger).*

## 1. INTRODUCTION

Bogor Municipality in West Java Province has launched its newest revised five-year development program, RPJMD 2019-2024. It strengthens Bogor Municipality's vision to become a family-friendly city in 2024. However, as mandated by the new Presidential Regulation Number 111 the Year 2022 which synchronizes the national five-year development program with United Nations sustainable development goals known as the SDGs, the Bogor Municipality RPJMD 2019-2024 has not been assessed on how it relates to SDGs. As provided on the UN website for SDGs, SDGs comprise 17 goals which can be seen in Figure 1.


**Figure 1**. SDGs Targets

*Source: UN Office for SDGs website Sustainable Development Goals (SDGs) | UN Office for Sustainable Development,2022*

### SDG's Urgency

The 2030 Agenda for Sustainable Development adopted by the United Nations (UN) in September 2015 is based on international human rights law, and the Sustainable Development Goals (SDGs). A total of 17 SDGs and 169 SDG targets aim to contribute to the realization of economic, social, and cultural rights (ESCR), and a commitment to leave no one behind [1]. The explicit relationship between ESCR and SDGs is mutually reinforcing. The ESCR offers a legal basis and guidance in the implementation of the SDGs, and the SDGs can increase support for the realization of the ESCR. SDGs are designed to end poverty, protect the planet, and improve the well-being of everyone everywhere [2]. The concept of SDGs is needed as a new development framework that accommodates all changes that occurred post-2015-MDGs especially due to changes in the world situation since 2000 regarding issues of natural resource deflation, environmental damage, increasingly crucial climate change, social protection, energy, and food security, and development that is more in favor of the poor [3]. The SDGs reflect a new understanding that today's health and development challenges are increasingly complex, integrated, and interrelated. The whole requires a more integrated and inclusive strategy to achieve economic, environmental, political, and social development that leaves no one behind[4].

Similarly, efforts to achieve Zero Hunger should center on place-based, adaptive, participatory solutions that simultaneously pay attention to local institutional capacity, agroecosystem diversification and ecological management, and the quality of local diets[5].

Thus the urgency of the need for these SDGs is because Indonesia as a member of the UN is committed also to addressing the problem of poverty. If you look at poverty in Indonesia, it is a severe problem because it concerns the issue of wide inequality. Various efforts were made by the central and local governments to overcome the problem of poverty [6]. It is realized that there are still many weaknesses in the 2030 Agenda, which lies in the accountability framework, so the implementation still varies, depending on the commitment of the country concerned. In this connection, the High-Level Political Forum on Sustainable Development (HLPF-UN) is tasked with monitoring the realization of ESCR in UN Member States, promoting equality and non-discrimination, and encouraging the adoption of laws, policies, and Programmes targeting the most vulnerable and those left behind [1].

Broadly speaking, several studies have been performed in Indonesia related to SDGs [7][8]. But very limited studies have addressed the role of geospatial analysis in SDGs implementation. Therefore, this study describes the process of participatory mapping from the women's agriculture group (KWT) Government of Bogor Municipality to obtain an urban farming spatial database as a novelty of research. This article emphasizes the current status of SDGs monitoring and evaluation in Bogor Municipality as well as the effort to arrange urban farming spatial database as a part to do spatial analysis. Therefore, in the first part, this article discusses the current status of SDGs monitoring and evaluation in Bogor Municipality including the formulation of steps to spend the additional funds provided by the Government of Bogor Municipality. The second part will describe the process to form an urban farming spatial database using two Focus Discussion Groups (FGD) involving women agriculture groups (KWT).

**SDG's indicators**

The Sustainable Development Goals (SDGs), which have a set of indicators commonly used by agencies, governments, and communities, do not explicitly consider happiness. The Aggregated Happiness Index (AHI) can be used and applied at different levels of governance to explore that aspect of happiness [9]. The concept of sustainable development is composed of four dimensions, namely economic, social, environmental, and institutional development. The SDGs come with 17 objectives and several indicators for their measurement [10]. Many countries do not have the infrastructure or systems to monitor many indicators. As a result, 68% of environmental SDG indicators currently lack data [11]. The Sustainable Development Goals (SDGs) indicator framework represents a major challenge and a unique opportunity for the advancement of global statistical systems, both in terms of methodological development and governance [12].

In this connection, the Ministry of National Development Planning/Bappenas of the Republic of Indonesia has published a Summary of the Metadata of Indonesia's Sustainable Development Goals (SDGs) Indicators as a reference in the implementation of SDG in Indonesia [13]. Similarly, the Ministry of National Development Planning/Bappenas also prepared Technical Guidelines for the Preparation of Action Plans for Sustainable Development Goals (SDGs) in Indonesia [14]. Several efforts are made by member states to contribute to achieving the 17 Sustainable Development Goals (SDGs) that can be monitored by measuring a set of measurable indicators for each of the goals [Avtar, 2020]. SDG is a global program that can be used as a

reference for community service activities. Analysis of indicators of achievement of goals with the results of community-based program outputs can provide recommendations for future program directions. Program evaluation is carried out in ethical, social, and economic dimensions along with the interpretation of the results [15]. One of the challenges to implementing the Sustainable Development Goals (SDGs) is the measurement of SDGs indicators as the basis for data-driven decision-making and strategies relevant to the SDGs [16].

The concept of sustainable development is structured on four dimensions, namely economic, social, environmental, and institutional development with several indicators for measurement [10]. Many countries do not have the infrastructure or systems to monitor many indicators. As a result, 68% of environmental SDG indicators currently lack data [11].

## 2. RESEARCH METHODS

The method used in this study is descriptive analysis for summarizing the current status of SDGs monitoring and evaluation in Bogor Municipality based on recorded activities. In addition, content analysis was performed based on two FGD sessions for gathering KWT members in Bogor Municipality in the process to build an urban farming spatial database. Related to SDGs, content analysis has been used before by [17] to measure quantitatively the reports from the company.

## 3. RESULT AND DISCUSSION

### Current Status of SDGs Monitoring And Evaluation

In a recent development, PT Surveyor Indonesia (PT SI) has cooperated with Indonesia's Cities Government Association (APEKSI) to launch an I-SIM (Integrated Sustainability Indonesia Movement) application that aims to monitor and classify the progress of SDGs in all cities of Indonesia. Representatives from PT SI have verified two locations in Bogor Municipality namely, Community Health Center in Pancasan and Bogor without plastic (BOTAK/Bogor Tanpa Kantong Plastik).

In supporting SDGs monitoring and evaluation, Bogor Municipality Regional Planning and Development Agency (BAPPEDA) has allocated additional funds for SDGs implementation and policy analysis. This activity within the additional budget of Bogor Municipality in 2022 aims to prepare the Bogor Municipality Action Plan (RAD/ Rencana Aksi Daerah). However, following the recent changes of Presidential Regulation Number 59 which was legalized in 2017 (Perpres 59/2017) with the new Presidential Regulation Number 111 which was legalized in 2022 (Perpres 111/2022) it needs careful planning on how to conduct the programs within the additional funds. Therefore, BAPPEDA invited multiple agencies within Bogor Municipality plus Indonesia Statistical Agency (BPS) to formulate the Term of Reference for additional funds.

The first meeting occurred on October 17th, 2022, where BAPPEDA informed meeting attendance about the additional funds to perform SDGs implementation and policy analysis. In this meeting, the content of previous reports in 2018 related to Perpres 59/2017 has also been discussed. The Bogor Municipality Communication and Information Agency (Diskominfo) is concerned about the possibility of geospatial analysis being included within the program since BAPPEDA has the successful Spatial Planning Information and Management System known as SIMTARU. A Diskominfo representative argued that SIMTARU spatial data could be used in the geospatial analysis for SDGs monitoring and implementation, however, a new information

system should be designed to accommodate SDGs tools. This was followed by the explanation from a chief of budget and evaluation planning within BAPPEDA which uncovered the detailed use of the SIMTARU application. Nevertheless, as the person in charge (PIC) of this additional fund, the research and development section within BAPPEDA performed an initial SWOT analysis to conclude what is best needed to assess SDGs implementation in Bogor Municipality. The SWOT analysis regarding policy and implementation programs using additional funds can be observed in Figure 2. ‘


**Figure 2**. SWOT analysis

*Source: Authors' data processing, 2022*

Based on this SWOT analysis, several recommendations were concluded:

(1) WO Strategy (Maximize Opportunity and Minimize Weakness): “Seeking assistance from BAPPENAS and West Java Province”.
(2) WT Strategy (Minimize Weakness and Threat): “Limiting the study only to social pillars and giving competent university to execute the job”.
(3) ST Strategy (Maximize strength and MInimize threat): “Intense meeting with BM agencies for data updating and early formation of the technical team”
(4) SO Strategy (Maximize Strenght and Maximize Opportunity): “Data updating will be conducted in early days based on revised RPJMD and evaluation”

From the first meeting, a tight schedule in executing SDGs implementation and policy analysis within the time frame and a limited budget have been major considerations. There were also inputs from meeting attendance to limit the study only to social pillars in SDGs. The second meeting was held to strengthen the formulation of the first meeting. Due to limited time and budget, small participants were gathered to analyze the most important things to be completed. In this second meeting, it was revealed that there are two inputs required by the PT SI for the i-SIM application, namely the SDGs secretariat in Bogor Municipality and the area of urban farming. Based on this it is formulated the Term of Reference (ToR) for the SDGs implementation and policy analysis within an additional fund time frame:

(1) To synchronize the revised RPJMD 2019-2024 with SDGs indicators as described in Perpres 111/2022;
(2) To identify which Bogor Municipality agency is responsible for each SDGs indicators;

(3) To recommend the finest composition of the SDGs secretariat in Bogor Municipality based on representatives from government, business, gender, and universities;
(4) To map urban farming locations using spatial methodologies.

Based on this ToR, BAPPEDA and Universitas Ibn Khaldun (UIKA) held Focus Group Discussion (FGD) to gather stakeholders' opinions related to SDGs implementation in Bogor Municipality. Hence, on November 16th, 2022 FGD was held with more than 60 participants. It began with the opening remarks from the Bogor Municipality Secretary who stressed the importance of implementing SDGs and analyzing them with geospatial, especially with Spatial Planning Regulation (RTRW). At the end of the discussions, three representatives from each table talked in front of the audience to give their remarks about the preliminary results of the discussions.

To sum up, the current status of SDGs implementation in Bogor Municipality is in the initial process, to begin with, a preliminary study that emphasizes three main activities as mentioned in ToR. Further innovations are still required to finish the study within the time frame stated in ToR, especially the involvement of spatial technology to map urban farming locations. Both parties within BAPPEDA and UIKA should recommend potential actors to be involved in the SDGs Secretariat, which opens opportunities for qualitative methods such as stakeholder analysis.

**Preliminary Steps of Urban Farming Spatial Database Development**

Based on literature reviews, it can be formulated from geospatial perspectives which method can be used to analyze SDGs issues in Bogor Municipality. Within the field of health-related SDGs, geospatial analysis has been employed to map the child's stunting, wasting, and underweight phenomena in Africa between 2000 and 2015 [18]. In addition, geospatial analysis which combines remote sensing data and population data has been used to observe the significant land use land cover changes in four cities of South Africa to calculate SDG Indicator 11.3.1, Ratio of Land Consumption Rate to Population Growth Rate (LCRPGR)[19]. Further, [7] proposed participatory digital mapping workshops to emphasize the process of communication, collaboration, knowledge co-production, and social learning in conjunction with SDG targets 11.3 and 16.7.

As mentioned earlier, the urban farming area extent data has not been acquired by the Government of Bogor Municipality and as consequence, it delays input into the i-SIM website. Therefore, in this study, the participatory mapping framework is proposed to incorporate geospatial methods in solving urban farming mapping in Bogor Municipality. For practical monitoring dan evaluation of SDGs in Bogor Municipality, urban farming locations in form of a spatial database consisting of geographic coordinates and attribute layers can be analyzed to plan future needs of fertilizers, agricultural product estimation, and its capabilities to eradicate poverty.

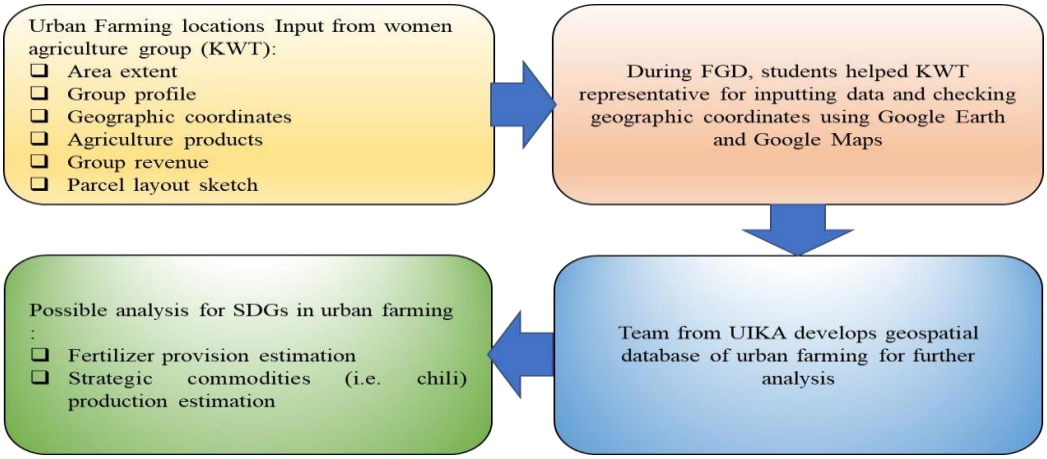


**Figure 3.** Proposed framework for SDGs in urban farming monitoring and evaluation using geospatial analysis.

*Source: Authors'data processing, 2022*

Based on the framework in Figure 6, the second FGD was held with attendants from the women's agriculture group (KWT). KWT from Tanah Sareal, West, North, East, South, and Central Bogor sub-districts were invited to attend the FGD. For the initial assessment, the Government of Bogor Municipality Regional Planning and Development Agency (BAPPEDA) asked the Agriculture and Food Security Agency (DKPP) to provide a list of KWTs in Bogor Municipality. Further selection was made to adjust with FGD room capacity; therefore, inactive KWTs were deleted from the original list. Thus, from 156 KWTs from the submitted list by the DKPP, it was decided to invite only 114 KWTs (see Figure 4).

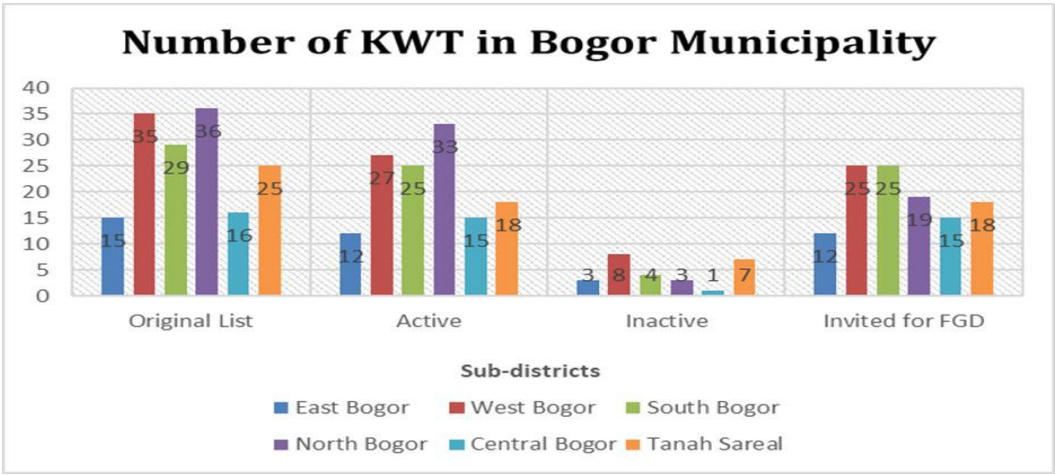


**Figure 4**. Number of KWT in Bogor Municipality

*Source: Data processing from DKPP 2022*

Here are the names of KWT in the Tanah Sareal Subdistrict

**Table 1.** Coordinate KWT in Tanah Sareal Sub District

| No. | KWT Name | X | Y | Address | Village |
|---|---|---|---|---|---|
| 1 | KWT Anggrek Macodes | 106.7761 | -6.5608 | Perum Taman cimanggu, RW 10 kelurahan Kedung Waringin, tanah Sareal | Kedungwaringin |
| 2 | KWT Sauyunan | 106.7886 | -6.5637 | Jl.Singosari Kel.Kedung Jaya, Kec Tanah Sareal | Kedungjaya |
| 3 | KWT Seruni | 106.7985 | -6.5674 | | Kebonpedes |
| 4 | KWT Mitra Harapan Sareal | 106.7948 | -6.5722 | | Tanahsareal |
| 5 | KWT LESTARI | 106.7438 | -6.5617 | | Kedungbadak |
| 6 | KWT Puspa Sari | 106.7875 | -6.5636 | Jl. Majapahit Raya RT06-07 / RW 07 Cimanggu Permai | Kedungbadak |
| 7 | KWT SRIKANDI KBB | 106.8082 | -6.5564 | Jl.Harapan Ujung RT 10 / RW 06, Kel Kedung Barat, Kec Tanah Sareal, Komplek Kedung Badak Baru | Kedungbadak |
| 8 | KWT Mandiri | 106.8021 | -6.5547 | Kedung Halang Sugih Lamping RT 03/RW 07, Kel Sukaresmi, Kota Bogor | Sukaresmi |
| 9 | KWT Mitra Barokah | 106.8010 | -6.5527 | Perum.Graha grande Rt04/Rw08 kel. sukaresmi kec.tanah sereal | Sukaresmi |
| 10 | KWT Tanjung | 106.7956 | -6.5498 | | Sukaresmi |
| 11 | KWT Dewi Guava | 106.7867 | -6.5555 | | Sukadamai |
| 12 | KWT BOUGENVILLE | 106.7755 | -6.5430 | Cibadak RT 2/12 Kel. Cibadak Kec. Tanah Sareal | Cibadak |
| 13 | KWT Kayu Manis Ceria Mandiri | 106.7618 | -6.5272 | Rt 02/RW 12 | Kayumanis |
| 14 | KWT Gempita | 106.7793 | -6.5335 | Jl. Tripang rt.06/13 Perum Taman Tirta Cimanggu, Kel. Mekarwangi, Kec. Tanah Sereal Kota Bogor | Mekarwangi |
| 15 | KWT Anggrek | 106.7814 | -6.5339 | RT.01 RW.03 kel. Mekarwangi, Kec. Tanah Sareal Kota Bogor | Mekarwangi |
| 16 | KWT Akasia | 106.7863 | -6.5379 | Jl.Akasia Rt.05/Rw.13,Kel Kecana, Kec Tanah Sareal, Kota Bogor | Kencana |
| 17 | KWT Griya Amanah | 106.7870 | -6.5160 | | Kencana |
| 18 | KWT Kentagor Mandiri | 106.8225 | -6.5652 | | Kencana |
| 19 | KWT MACODES | 106.7739 | -6.5608 | Jl. kemuning 6, blok M.6 No.9 RT 2/10, Taman Cimanggu Bogor | KEDUNG WARINGIN |
| 20 | KWT Tanjung | 106.8010 | -6.5503 | kedung halang tengah RT/RW 02/06 Kec.Tanah sereal | Sukaresmi |

*Source: Authors'data processing (2022)*

Here are the names of KWT in the Bogor Timur Subdistrict

**Table 2.** Coordinate KWT in Bogor Timur Subdistrict

| No. | KWT Name | X | Y | Address | Village |
|---|---|---|---|---|---|
| 1 | KWT Gentong Tilu | 106.8377 | -6.6465 | | Sindangsari |
| 2 | KWT Semboja | 106.8450 | -6.6509 | Wangun atas RT/RW 06/01 kel.Sudangsari, kec.Bogor Timur | Sindangsari |
| 3 | KWT Nusa Indah | 106.8119 | -6.5760 | Bantar Peteuy RT 02 RW 03 | Tajur |
| 4 | KWT Bening Mekar | 106.8232 | -6.6075 | Jl. Baranang Siang Indah Kp. Cikondong RT. 02/04 | Katulampa |
| 5 | KWT BERKAH MBR | 106.8330 | -6.6249 | Rt.4 Rw.16 | Katulampa |
| 6 | KWT Hepi | 106.8223 | -6.6050 | KP Pasir rt 03/07, kec. bogor timur, kota bogor | Katulampa |
| 7 | KWT Cikal | 106.8234 | -6.6120 | kp. cikeas rt/09, rw/03, kecamatan bogor timur | Katulampa |
| 8 | KWT Matahari | 106.8258 | -6.6208 | | Katulampa |
| 9 | KWT MAWAR MELATI | 106.8180 | -6.6117 | | Katulampa |
| 10 | KWT PENDOPO ENAM | 106.8114 | -6.6117 | | Katulampa |
| 11 | KWT Bunga Harapan | 106.8114 | -6.6117 | | Baranangsiang |
| 12 | KWT Bilqis | 106.8181 | -6.6198 | Jl. sukasari Rt03/Rw01 Bogor timur | Sukasari |
| 13 | KWT Baluntas | 106.8192 | -6.6168 | Bantar Kemang RT02 RW07, kel.Baranangsiang, Kec. Bogor Timur | Baranangsiang |

*Source: Authors'data processing (2022)*

Here are the names of KWT in the Bogor Tengah Subdistrict

**Table 3.** Coordinat KWT in Bogor Tengah Subdistrict

| No. | KWT Name | X | Y | Address | Village |
|---|---|---|---|---|---|
| 1 | KWT Kebun Raya paledang | 106.7909 | -6.6013 | Wilayah kebon manggis, RT 2/4, Kel. Paledang, Kec. Bogor Tengah | Paledang |
| 2 | KWT Dahlia | 106.8072 | -6.5649 | | Gudang |
| 3 | KWT SIKANCIL | 106.7939 | -6.6056 | Kp.Gudang RT/05 RW/1=01 Kel. gudang, kec. Bogor tengah kota Bogor | Gudang |
| 4 | KWT Kujang Kencana | 106.8007 | -6.6062 | Jl. Roda 66, Belong Rt 01/Rw 05, kelurahan. Babakan Pasar, Kecamatan Bogor Tengah, kode post 16126 | Babakanpasar |
| 5 | KWT Kenanga | 106.8061 | -6.5977 | Tegallega Rt.06/01 Kel. Tegallega, Kec. Bogor Tengah, Kota Bogor | Tegallega |
| 6 | KWT Azalea | 106.8101 | -6.5858 | komplek BPT rt03/6 kelurahan babakan, kec. bogor tengah, kota bogor | Babakan |
| 7 | KWT Kenanga | 106.8038 | -6.5889 | Jl. Lodaya Rt.03/01 Kel. Babakan | Babakan |
| 8 | KWT Sempurna | 106.8012 | -6.5894 | Jl. Sempur, Rt 02/ Rw 01, Kelurahan. Sempur, Kecamatan. Bogor Tengah | Sempur |
| 9 | KWT Amarilis | 106.7942 | -6.5925 | Jln. Telepon No.2 RT/RW 02/01 kel. Pabaton kec.Bogor tenagh | Pabaton |
| 10 | KWT Melati Karimah | 106.7931 | -6.5819 | Jln. RE martadina RT/RW 01/03 kelurahan Cibagor | Cibogor |
| 11 | KWT Anggrek Catleya | 106.7815 | -6.5953 | Panaragan Pojok Rt.01/07 Kel. Panaragan, Kec. Bogor Tengah | Panaragan |
| 12 | KWT Strawberry | 106.7887 | -6.6003 | Jl.Paledang Kp.Keramat RT/RW 04/01 kel. panarangan, kec. Bogor tengah | Panaragan |
| 13 | KWT Delima | 106.7831 | -6.5905 | Jl. Semboja No.2 Kel. Kebon Kelapa, Bogor Tengah | Kebonkelapa |
| 14 | KWT Kenanga | 106.7883 | -6.5775 | | Ciwaringin |
| 15 | KWT KEMUNING | 106.8037 | -6.5757 | Jl. Puslitbangtri RT/RW 01/11 Ciwaringin, Bogor Tengah | Ciwaringin |
| 16 | KWT Kananga Babakan | 106.8050 | -6.5906 | Jl. Lodaya Rt 03 Rw 01 | Babakan |

*Source: Authors'data processing (2022)*

Here are the names of KWT in the Bogor Selatan Subdistrict

**Table 4.** Coordinate KWT in Bogor Selatan Subdistrict

| No. | KWT Name | X | Y | Address | Village |
|---|---|---|---|---|---|
| 1 | KWT Ciharashas | -6.6503 | 106.7843 | ciharashas RT/RW 06/01 mulyaharja, Bogor Selatan | Mulyaharja |
| 2 | KWT Lembur Sawah | -6.6509 | 106.7908 | RT.02/RW.02, Kelurahan Mulyaharja, Kecamatan Bogor Selatan | Mulyaharja |
| 3 | KWT Saluyu | -6.6375 | 106.7780 | Cibeureum RT/RW 03/01 | Mulyaharja |
| 4 | KWT Bidara | -6.6454 | 106.8065 | jl. R.E SOEMANTA DIREJA PAMOYANAN rt 01/12, nagrog, bogor selatan | Pamoyanan |
| 5 | KWT Kartini Berbudi | -6.6355 | 106.8052 | Kp.pamoyanan RT/02 RW/08 ,Kec. Bogor Selatan, Kota Bogor | Pamoyanan |
| 6 | KWT Bougenvile | -6.6247 | 106.7945 | Rt/9 Rangga Mekar Bogor Selatan | Ranggamekar |
| 7 | KWT Sereh Wangi | -6.6484 | 106.8182 | Kp. Antawis Rt.01 / Rw.10 | Genteng |
| 8 | KWT Kertamulya | -6.6504 | 106.8245 | Kp. Marga Bhakti RT/01 RW/09 ,Kec. Bogor Selatan, Kota Bogor | Kertamaya |
| 9 | KWT Tulip | -6.6694 | 106.8291 | jl. Rancamaya rt 04 rw 07 Kec Rancamaya Bogor Selatan | Rancamaya |
| 10 | KWT Sekar Wangi | -6.6653 | 106.8414 | kp. Bakom rt 03/06 Kel. Bojongkerta Bogor selatan | Bojongkerta |
| 11 | KWT MuliaSari | -6.6630 | 106.8439 | bakomsari rt 01/09 harjasari, bogor selatan, kota bogor | Harjasari |
| 12 | KWT Bina Tani | -6.6466 | 106.8290 | Kp Buntar rt 04/08, kecamatan bogor selatan, kota bogor | Muarasari |
| 13 | KWT Mitra Tani | -6.6461 | 106.8329 | kp. Hegar sari Rt 03/01, kel. Muarasari, Kec. Bogor Selata, Kota Bogor | Muarasari |
| 14 | KWT Cempaka Pakuan | -6.6326 | 106.8214 | | |
| 15 | KWT Bunga Bakung | -6.6326 | 106.8149 | Jln. Cimanggu Rt 05/05 Cipaku Bogor Selatan | Cipaku |
| 16 | KWT Wijaya Kusuma | -6.6402 | 106.8089 | Kp. Legok Muncang RT 02 RW 15, Kec. Bogor Selatan, Kota Bogor 13633 | Cipaku |
| 17 | KWT KARTINI | -6.6326 | 106.8149 | | Batutulis |
| 18 | KWT Sekar Arum | -6.6237 | 106.8068 | | Batutulis |
| 19 | KWT Pitaloka | -6.6237 | 106.8002 | jl, warung bandrek rt 2 rw 4, kecamatan bogor selatan, kota bogor | Bondongan |
| 20 | KWT Flamboyan | -6.5807 | 106.8025 | Jl. Pahlawan Rt.03/09 | Empang |
| 21 | KWT Kemboja Sari | -6.6136 | 106.8009 | | Empang |
| 22 | KWT Mentari | -6.6230 | 106.7844 | Cikaret Jl. Baru no. 54 Rt02/10, bogor selatan, bogor | Cikaret |
| 23 | KWT Merah Delima | -6.6312 | 106.7989 | | Pamoyanan |
| 24 | KWT Ciriwis | -6.6315 | 106.8100 | Jl. Raya Cipaku Buniasih Kel. Cipaku, Kec. Bogor Selatan | Cipaku |
| 25 | KWT Flamboyan | -6.5807 | 106.8026 | Jl. Pahlawan Rt.03/09 Kel. Empang, Kec. Bogor Selatan | Bantarjati |
| 26 | kwt kertajaya | -6.6709 | 106.8400 | kp nojong pesantren rt 04/03, kecamatan bojong selatan, kota bogor | bojong kerta |

*Source: Authors'data processing (2022)*

Here are the names of KWT in the Bogor Barat Subdistrict

**Table 5.** Coordinat KWT in Bogor Tengah Subdistrict

| No. | KWT Name | X | Y | Address | Village |
|---|---|---|---|---|---|
| 1 | KWT Sekar Mulya | 106.7752 | -6.6005 | Pasir Mulya RT 01/07 Bogor Barat | Pasirmulya |
| 2 | KWT Mekar Saluyu | 106.7757 | -6.6054 | Jl. Rimba Baru, RT 5/11, Bojong Menteng, Pasir Kuda, Bogor Barat | Pasirkuda |
| 3 | KWT Sriwijaya | 106.7872 | -6.5990 | taman cibalagung jl. DAHLIA 2 Blok K NO 2 RT 4/5 kel.pasir jaya. Bogor Barat | Pasirjaya |
| 4 | KWT Violetta | 106.7723 | -6.5910 | | Gunungbatu |
| 5 | KWT Rose Mekar | 106.7732 | -6.5834 | komplek. pertanian logi, Rt 03, Rw 0/0. No. 278 | Loji |
| 6 | KWT Mawar | 106.7684 | -6.5761 | | Menteng |
| 7 | KWT Abinaya Satya Lestari | 106.7715 | -6.5794 | Rt 02/09 Kel. Menteng, Kec. Bogor Barat | Menteng |
| 8 | KWT Zaitun | 106.7749 | -6.5785 | | Menteng |
| 9 | KWT Cempaka | 106.7750 | -6.5761 | Jl. Abdul majid Rt03/Rw10 kel. cilendek timur kec. bogor barat | Cilendek Timur |
| 10 | KWT Anggrek | 106.7684 | -6.5761 | | Cilendek Timur |
| 11 | KWT Berkarya | 106.7670 | -6.5769 | Kp. Karya Bhakti Rt 03/04 Cilendek Barat Kota Bogor | Cilendek Barat |
| 12 | | 106.7649 | -6.5757 | | |
| 13 | KWT Kamboja Mandiri | 106.7684 | -6.5761 | | Cilendek Barat |
| 14 | KWT Tapak Dara | 106.7615 | -6.5779 | Jl. Kavling Panorama Rt.03/05 Kel. Sindang Barang, Kec. Bogor Barat, Kota Bogor | Sindangbarang |
| 15 | KWT Caringin | 106.7396 | -6.5714 | Dramaga Caringin rt01/06 | Margajaya |
| 16 | KWT Jayadewata Lestari | 106.7396 | -6.5600 | | Balungbangjaya |
| 17 | KWT Lestari alam | 106.7450 | -6.5617 | Kp. Batu Hulung RT 02/02 Kel. Balumbung Jaya Kec. Bogor Barat | Balungbangjaya |
| 18 | KWT Dalima | 106.7394 | -6.5510 | Kp. cilubang mekar Rt 02 Rw 08 kec. Bogor Barat | Situgede |
| 19 | KWT Sawargi | 106.7470 | -6.5507 | Jl. cifor komplek lph no5 Rt02/Rw05 kel.situ gede kec.bogor barat | Situgede |
| 20 | KWT Mahkota Dewa | 106.7454 | -6.5631 | Jl Batuhulung Cifor Rt 02/06 Kel. Bubulak Bogor Barat | Bubulak |
| 21 | KWT Asri GWKP | 106.7582 | -6.5535 | Griya Wanakarya Permai Blok D rt 003 rw 012, kel.Bubulak Kecamatan Bogor Barat, Kota Bogor | Bubulak |
| 22 | KWT Melati | 106.7330 | -6.5600 | | Semplak |
| 23 | KWT Tunas Mekar | 106.7068 | -6.5600 | | Curugmekar |
| 24 | KWT Sehati | 106.7675 | -6.5509 | kel. curug Rt 3/03, kec. Bogor Barat | Curug |
| 25 | KWT Anggrek Bulan | 106.7663 | -6.5477 | kel. curug Rt02/Rw 06 | Curug |
| 26 | KWT Glowing Berseri | 106.7681 | -6.5442 | Kp. Bojong Neros RT 01 RW 007, Kelurahan Curug Kecamatan Bogor Barat Kota Bogor | Curug |

*Source: Authors'data processing (2022)*

Here are the names of KWT in the Bogor Utara Subdistrict

**Table 6.** Coordinate KWT in Bogor Utara Subdistrict

| No. | KWT Name | X | Y | Address | Village |
|---|---|---|---|---|---|
| 1 | KWT Bunga Mekar | 106.8060 | -6.5773 | Bantarjati kalibata RT 01 RW 03 (https://maps.app.goo.gl/8C8rqG1rXK3ChyrX9) | Bantarjati |
| 2 | KWT Sauyunan | 106.7886 | -6.5637 | Jl. Ceremai Ujung Rt.03 Rw. 10 Bantarjati | Bantarjati |
| 3 | KWT Nusa Indah | 106.8119 | -6.5808 | Jl. Artzimar II Gang Pelita Rt.04/Rw.18,Kel Tegal gundil, Kec Bogor Utara, Kota Bogor | Tegal gundil |
| 4 | KWT Ceger Asri | 106.8156 | -6.5753 | Kp. Ceger, RT 3/11, Kel. Tegal Gundil, Bogor Utara | Tegal Gundil |
| 5 | KWT Ceger Berbudi | 106.8060 | -6.5773 | | Tegal Gundil |
| 6 | Kwt Kawung Luwuk Kita Berkah | 106.8038 | -6.5808 | Jl. Artzimar II, kawyng Luwuk RT 1/1, Tegal gundil, Bogor utara | Tegal Gundil |
| 7 | KWT Cempaka | 106.7772 | -6.5761 | Kampung Sawah RT.01 RW.07 Tanah Baru Bogor | Tanah baru |
| 8 | KWT Ketara | 106.8038 | -6.5808 | | Tanah Baru |
| 9 | KWT Melati | 106.8018 | -6.6006 | | Tanah Baru |
| 10 | KWT Tanjung | 106.7956 | -6.5498 | | Tanah Baru |
| 11 | KWT Dewi Guava | 106.8012 | -6.5790 | | Tanah Baru |
| 12 | KWT BOUGENVILLE | 106.7938 | -6.5952 | Rangga Mekar, Bogor Selatan | Tanah Baru |
| 13 | KWT Kayu Manis Ceria Mandiri | 106.7586 | -6.5608 | RT 02 RW 12 Kelurahan Kayumanis | Cimahpar |
| 14 | KWT Gempita | 106.7793 | -6.5335 | | Cimahpar |
| 15 | KWT Anggrek | 106.7938 | -6.5952 | | Cimahpar |
| 16 | KWT Akasia | 106.7863 | -6.5379 | | Ciluar |
| 17 | KWT GRIYA AMANAH | 106.7819 | -6.5269 | Perum Taman Griya Kencana RT 01/ Rw.08 Kel, Kencana, Kec Tanah Sereal, jawa Barat, 16167 | Ciluar |
| 18 | KWT Kentagor Mandiri | 106.7880 | -6.5455 | Jl. Mahoni IV Blok 6 no.01, Perum Darmais Rt. 03/13 | Ciluar |

*Source: Authors'data processing (2022)*

Four round tables were set up during FGD, and for each table, a student and a lecturer from UIKA functioned as assistants to help each KWT member to fill in the required data as mentioned in Figure 3. In the first morning session, KWT from three sub-districts, namely East, South, and Central Bogor attended the Meeting. While in the noon session, representatives from KWTs from three sub-districts attended the session.

During FGD, several problems were found when KWT representatives needed to input their garden layouts in form of sketches. Hence, facilitating teams needed to inform them to revise their sketches. Examples of uncomplete garden layout drawings can be observed in Figure 5(A), while complete garden layout drawings in Figure 5(B). The FGD ended when every representative from KWTs has finished their data filling.

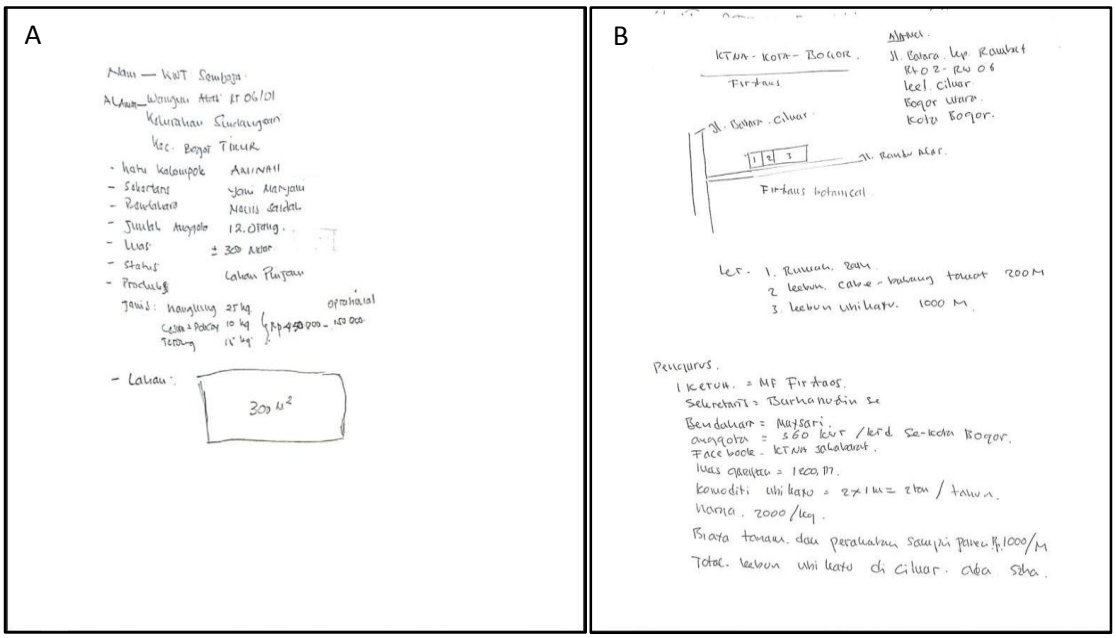


**Figure 5**. (A) not complete garden layout sketched by a KWT representative; (B) a garden layout sketched by a KWT representative with complete requirement

*Source: Authors 2022*

**Future Development**

The development of an urban farming spatial database was still underway when this article was written. To sum up, the next step of SDGs monitoring and evaluation in Bogor Municipality will be emphasized in analyzing the role of KWT locations in reducing poverty within a certain radius of each KWT garden location. This can be an indication that an urban farming spatial database can be used to evaluate SDGs 1 (No Poverty) and 2 (No Hunger). However, the maintenance of the urban farming spatial database remains a key question on whose responsible to update the database. This will be a challenge for the Government of Bogor Municipality to coordinate its agencies for sustainable urban farming spatial database related to SDGs monitoring and evaluation.

In the next study, the economic valuation of the crop x KWT can be more detailed according to the type of commodity. Thus, economic solutions for efforts to achieve SDG's targets No. 1 and 2 can be further highlighted.

## 4. CONCLUSION

Some of the conclusions of this study can be conveyed as follows:

(1) The initial steps of developing spatial databases of urban agriculture have been carried out through the exploration of KWT and the inventory of its activities.

(2) The results of the KWT exploration can be used as a basis for evaluating the achievement of SDGs targets (especially SDGs 1 and 2) as well as the formulation of SDG's Regional Action Plan in Bogor City.

**ACKNOWLEDGEMENT.**

THE AUTHORS WOULD LIKE TO EXPRESS SINCERE GRATITUDE TO THE GOVERNMENT OF BOGOR MUNICIPALITY FOR GIVING DATA FOR THIS PAPER.

**REFERENCES**

[1] Golay, C. No One Will Be Left Behind: The Role of United Nations Human Rights Mechanisms in Monitoring the Sustainable Development Goals that Seek to Realize Economic, Social and Cultural Rights. Academy Briefing No. 11. Geneva Academy, January 2018.

[2] Fraisl, Dilek, See, Linda. (2020). We Observe D4.6/Monitoring of SDGs by COs: Recommendations and priorities, IIASA, Laxenburg, Austria.

[3] Wahyuningsih (2017). Millenium Develompent Goals (MDGS) dan Sustainable Development Goals (SDGS) Dalam Kesejahteraan Sosial. Bisma Jurnal Bisnis dan Manajemen, Vol. 11, No. 3 September 2017, Hal. 390 – 399.

[4] WHO. (2017). Regional Action Agenda on Achieving the Sustainable Development Goals in the Western Pacific. WHO Report.

[5] Jennifer Blesh, Lesli Hoey, Andrew D. Jones, Harriet Friedmann, Ivette Perfecto. (2019). Development pathways toward "zero hunger". World Development, Volume 118, June 2019, Pages 1-14. https://doi.org/10.1016/j.worlddev.2019.02.004.

[6] Pratama, N.B., E.P. Purnomo2 dan Agustiyara. (2020). Sustainable Development Goals (SDGs) dan Pengentasan Kemiskinan Di Daerah Istimewa Yogyakarta. SOSIOHUMANIORA: Jurnal Ilmiah Ilmu Sosial dan Humaniora, http://jurnal.ustjogja.ac.id/index.php/sosio, Volume 6 (2), Agustus 2020 | LP3M Universitas Sarjanawiyata Tamansiswa Yogyakarta.

[7] Akbar, A., Flacke, J., Martinez, J., Aguilar, R., & van Maarseveen, M. (2020). Knowing My Village from the Sky: A Collaborative Spatial Learning Framework to Integrate Spatial Knowledge of Stakeholders in Achieving Sustainable Development Goals. ISPRS International Journal of Geo-Information, 9(9), 515. MDPI AG. Retrieved from http://dx.doi.org/10.3390/ijgi9090515.

[8] Kelly-Fair, M., Gopal, S., Koch, M., Pancasakti Kusumaningrum, H., Helmi, M., Khairunnisa, D., & Kaufman, L. (2022). Analysis of Land Use and Land Cover Changes through the Lens of SDGs in Semarang, Indonesia. Sustainability, 14(13), 7592. MDPI AG. Retrieved from http://dx.doi.org/10.3390/su14137592.

[9] Leire Iriarte1 & Laura Musikanski (2019). Bridging the Gap between the Sustainable Development Goals and Happiness Metrics. International Journal of Community Well-Being, https://doi.org/10.1007/s42413-018-0012-2.

[10] Setianingtias, R., M. Baiquni, A. Kurniawan. (2019). Pemodelan Indikator Tujuan Pembangunan Berkelanjutan di Indonesia. Jurnal Ekonomi dan Pembangunan Vol 27, No. 2, 2019.

[11] UN Environment (2019) Measuring Progress: Towards Achieving the Environmental Dimension of the SDGs. Available at: https://wedocs.unep.org/handle/20.500.11822/27627.

[12] Pietro Gennari and Dorian Kalamvrezos Navarro. (2019). Validation of methods and data for SDG indicators. Statistical Journal of the IAOS 35 (2019) 735–741. DOI 10.3233/SJI-190519. IOS Press.

[13] Kemen PPN RI/Bappenas. 2017. Ringkasan Metadata Indikator Tujuan Pembangunan Berkelanjutan (TPB)/Sustainable Development Goals (SDGs) Indonesia.

[14] Kemen PPN RI/Bappenas. 2020. Pedoman Teknis Penyusunan Rencana Aksi Tujuan Pembangunan Berkelanjutan (TPB)/Sustainable Development Goals (SDGs) Indonesia.

[15] Jalaali, B. (2021). Implementasi Visi Sustainable Development Goals(Sdgs) pada Program Berbasis Masyarakat di Era Pandemi. KACANEGARA Jurnal Pengabdian pada Masyarakat. DOI: 10.28989/kacanegara.v4i1.711. http://ejournals.stta.ac.id/index.php/KACANEGARA.

[16] Ignacio Marcovecchio, Mamello Thinyane, Elsa Estevez. (2019). Digital Government as Implementation Means for Sustainable Development Goals. International Journal of Public Administration in the Digital Age, Volume 6, Is13sue 3, July-Sept 2019.

[17] Nechita, E., Manea, C. L., Irimescu, A. M., & Nichita, E. M. (2020). The content analysis of reporting on sustainable development goals. Audit. Finance, 4, 704-728.

[18] Osgood-Zimmerman, A., Millear, A., Stubbs, R. et al. Mapping child growth failure in Africa between 2000 and 2015. Nature 555, 41–47 (2018). https://doi.org/10.1038/nature25760.

[19] Mudau, N., Mwaniki, D., Tsoeleng, L., Mashalane, M., Beguy, D., & Ndugwa, R. (2020). Assessment of SDG Indicator 11.3.1 and Urban Growth Trends of Major and Small Cities in South Africa. Sustainability, 12(17), 7063. MDPI AG. Retrieved from http://dx.doi.org/10.3390/su12177063.