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Submission date: 29-Apr-2023 05:34PM (UTC+0700)

Submission ID: 2079106773

File name: Edible_2021_IOP_Conf._Ser._Earth_Environ._Sci._940_012093.pdf (791.42K)

Word count: 3120

Character count: 17541

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To cite this article: F B Saroinsong ¹³ et al 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **940** 012093

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Utilization of Home Gardens as a Community Empowerment-Based Edible Landscape to Combat Stunting

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Abstract. Home gardens as a community empowerment-based edible landscape can be used as a strategy for sustainable and resilient urban development. The objective of this research is to identify (a) benefits and challenges of home gardens as community empowerment-based edible landscape, and (b) the socio-cultural, economic, and environmental factors in the utilization of home gardens in Tomohon, Denpasar and Solo. The researchers conduct literature reviews and observation for one month. The benefits of a home garden are a source of various food and traditional medicine, a place of worship, supporting conservation, ameliorating the microclimate, improve health, education, recreational and aesthetic functions, strengthen social status, increase income and ties. The challenges are to overcome constraints such as (a) lack of knowledge, skill, advisory services, (b) limited access to farming inputs, and so on ; and to take advantage of opportunities such as easy access, easy control of composition, products quality and quantity, and so on. Some strategies are proposed. Socio-cultural, economic and environmental factors that influence the home garden are grouped as internal factors (i.e. size, owner's economic condition, perception, knowledge, skill, hobby, preference and consumption pattern, allocated time and energy) and external factors (i.e. regulation, culture and agreement, and environmental conditions).

1. Introduction

Based on the results of the Indonesian Toddler Nutrition Status Survey (SSGBI), 2019, stunting rate decreased to 27.67%, although this Figure is still high, considering that WHO targets a stunting rate of less than 20% [1]. Based on World Bank, WHO data, the prevalence of stunting, height for age, of boys (% of children under 5) in Indonesia is 31.7%, while the girls' was 29.7% in 2018. Indonesia's government decided to accelerate the decrease of stunting to 14% by 2024, and placing the National Population and Family Planning Agency (BKKBN) in charge of the plan.

Stunting prevention efforts can be made by providing food locally. Optimizing home gardens as edible landscapes is the right choice for food supply and community food security. They also have a positive impact and additional benefits of ecosystem service [2]. The study in Bangladesh showed that home gardens fulfilled the daily requirements of vegetables in most parts of the year [3]. Facing the global challenges of environmental degradation and food demand, edible landscapes, one of them being home gardens, can play an important role in improving the urban environmental quality while



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strengthening food security [4]. Access to home garden for land less households negatively associated with food insecurity and positively associated with higher dietary diversity [5]. Utilization of home garden as a community empowerment-based edible landscape is helpful to connect the community with nature and food production system, improve food access, quantity, quality, and safety, also increase people's awareness of nutrition improvement and stunting prevention programs [4][6][7][8]. This research would like to get more overview of utilization of home garden in different socio-cultural, economic and environmental conditions. We set the observation location in 3 cities on 3 different islands in Indonesia, namely Tomohon City (Sulawesi Island), Solo City (Java Island), and Denpasar City (Bali Island) in order to add value to previous studies.

The objective of this research is to identify (a) benefits and challenges of home gardens as community empowerment-based edible landscape, and (b) the socio-cultural, economic, and environmental factors in the utilization of home gardens in Tomohon, Denpasar and Solo.

2. Method

The research was carried out for one month, from August to the beginning of September 2021. The research method used was qualitative, and the data analysis method used a descriptive method. Data collection method used documentation method through collecting the literature study on those are related to community empowerment-based edible landscape especially home garden, and home garden utilization (published above 2011, but mainly above 2016), and observation in 3 cities, namely Tomohon, Solo, and Denpasar.

The literature review was conducted to explore all the keywords of this study. The three cities' observations were carried out to study home gardens in their respective socio-cultural-economic and environmental situations.

3. Results and discussion

3.1 Home garden benefits

Hakim (4) defined home gardens as the land around the house which are managed intensively/semi-intensively to fulfill the various needs of the homeowner. As multifunctional land use, home garden is directly linked with food security, giving additional nutrition and even can act as a safety-net for a community in bad situations [9] (economic, weather, pandemic, etc.). Access to home garden statistically associate significantly with enhancing dietary diversity and food security in rural Myanmar with a probability of 6.6 points lower of a household having to change their diet and a 7.9 point lower of being in hunger [5].

This reseach conclude the benefits of a home garden are as a source of various forms of food and traditional medicine, a place of worship, supporting biodiversity, water and soil conservation, ameliorating the microclimate, improve health, education, recreational and aesthetic functions, strengthen social status, increase income and ties or communication in the family and around [2][4][5][7][8][9][10][11].

3.2 Challenges of home gardens as a community empowerment-based edible landscape

Otherwise, home gardening could positively impact household dietary, but the participation of household to home gardening was low at Gauteng Province, South Africa [11]. Factors that were negatively correlated with home gardening included land tenure and poor health condition. This research identify the challenges in using a home garden based on community empowerment in various experiences.

The challenges of using a home garden as an edible landscape based on community empowerment are to overcome constraints and take advantage of opportunities. We identify some constraints based on previous studies are as follows [2][7][11][12]: (a) lack of knowledge, skill, and advisory services on home garden management and its utilization, (b) lack of access to cultivation and or farming inputs such as seeds, livestock breed, water, fertilizer, tools, and capital and livestock breeds, (c) products loss because of insect pests, diseases, animals, theft, and natural disasters, (d) environmental characteristics limitations, (e) shortage of labor or time, (f) socio-cultural barriers, (g) lack of land (especially in cities),

and (h) land tenure problems. However, there are several important opportunities to support the utilization of home garden as an edible landscape based on community empowerment such as follows. The home garden is built close to the residence so that it enables the community to (a) easily access, manage, (b) determine its composition and utilization, and (c) control food quantity, quality, and safety. (d) Another opportunity relevant to the current COVID-19 pandemic is that people tend to spend more time at home and are aware of the importance of nutrition.

This research identifies some strategies to improve community empowerment in utilizing the home garden as an edible landscape to improve nutrition and prevent stunting, as follows [2][7][8][12][14][15][16]:

1. Enhance knowledge, information, skill, and advisory services on utilizing and nutritional benefit of the home garden through :
 - a. Socialization activities, face-to-face meetings (online or onsite), or using media such as pamphlets, posters, flyers, or posted videos on social media or modules that allow for more detailed explanations though for certain conditions, assistance is still recommended.
 - b. Training which not only improves knowledge, but also abilities and skills.
 - c. Advisory services that allow interaction between advisor(s) and targeted community, in groups/individuals, to be carried on the spot is recommended.
 - d. Socialization, training and advisory services that support two-way communication and evaluation during activities are better.
2. Provide good access to agricultural and or farm inputs.
3. Aligning while evaluating existing programs related to the use of home gardens.
4. Provide a model or plot demonstration of proposed home gardens that supports community nutrition improvement and stunting prevention. Model is effective in educating, motivating, and encouraging the community to make their own in their home garden. The best results can be obtained if community engagement is applied initially and local socio-economic and environmental conditions, including the community's needs, problems, and potential, are considered during the model planning and design process.

3.3 The socio-cultural, economic, and environmental factors that influence home gardens in Tomohon City, Denpasar City, and Solo City

Tomohon City local regulation (*Perda*) No. 7 2008, namely Tomohon as The City of Flowers, along with city programs and outreach by women's community organization (PKK) influence the use of the home garden in Tomohon City. The local regulation is in line with local community custom and culture (Minahasa ethnic) to manage the front of the home garden by considering aesthetic aspects such as flowering ornamental plants, not only for the family but also for guests and surrounding people pleasure (Figure 1). Further, the custom and culture have implications for selecting and planting in the back and middle zones of the home garden with food, medicine, herb, spice, etc.. Livestock is considered more appropriate to be placed in the back zone. Middle zone has a transitional function.

Tri Hita Karana's philosophy in Hindu religion, which means three sources of goodness, is daily life guidance for the Hindus, including those who live in Denpasar City. This philosophy is also reflected in the space division in Balinese landscape, including home garden known as the *Tri Mandala* concept, *ulu/utama-madya-nista mandala* [10] as shown in Figure 2. The application of the philosophy has implications for the zonation of space, a number of plant species for ceremonies more than for other uses (including those as food), and the planting of edible plants are generally done in the middle zone (*madya*), and some of them are planted together with livestock in the profane zone (*nista*) [10].

House as a residence for the people of Java, especially Solo, is often referred to as *griya*, *omah*, *ndalem*, and guesthouse. In the broadest sense, *griya* is interpreted as a building. The front yard/the front of the home garden in Javanese society is the first level. The second to fifth level is the inside of the house. The home gardens called *Karang Kitri* are usually planted by various plants such as fruit trees (such as durian, duku, rambutan, papaya), industrial plants (such as kapok, cloves, cinnamon), traditional medicine, vegetables, and also fishery. However, this research found some changes in the utilization of home gardens (Figure 3), for example, the pavement and vertical gardens with various hydroponic

plants, especially in narrowed space of the home garden. This research compile socio-cultural, economic, and environmental factors which relate to the home garden composition, function, appearance, and or utilization as follows:

- a. Internal factors: home garden size/area, owner's economic condition, perception, knowledge and skill, hobby and interest, preference and consumption pattern, allocated time and energy.
- b. External factors: religious concepts, regulation, community custom, culture, and agreement, and environmental conditions (climate, soil type, etc.).

Those factors have implications in the form of (a) zonation and management, (b) selection and placement of landscape elements, including plants and animals, and (c) products harvesting and use. Utilization of the home garden as an edible landscape based on community empowerment needs to be harmonized with local socio-cultural, economic and environmental conditions, and engage the community since model planning and design process.

According to our observation in the three cities, external factors shape the specific general characteristic, especially when the factors are obeyed or give a strong influence (i.e., *Tri Mandala* in Denpasar and local regulation for Tomohon). The strong characteristic can be a part of city branding, makes the city easily identified, distinguished from others, and remembered. Different internal factors cause variations between home gardens of a region, although still connected with the same general characteristic.



Figure 1. One of the home garden in Tomohon City.



Figure 2. One of the home garden in Denpasar City.



Figure 3. One of the home garden in Solo City.

4. Conclusion

The benefits of a home garden are as a source of various forms of food and traditional medicine, a place of worship, supporting biodiversity and water and soil conservation, ameliorating the microclimate, improve health, education, recreational and aesthetic functions, strengthen social status, increase income and ties or communication. The challenges to optimize the utilization of the home garden as an edible landscape based on community empowerment are to overcome constraints and take advantage of opportunities using suitable strategies. The constraints can be in the form of (a) lack of knowledge, skill, and or advisory services on home garden management and its utilization, (b) limited access to cultivation and or farming inputs, and so on, and the opportunities such as easy access, convenience in manage and determining the composition and utilization, easy control of products quality, quantity and security, and more time at home and awareness of the importance of nutrition during pandemic Covid-19. Socio-cultural, economic and environmental factors that influence the home garden utilization are grouped as internal factors (i.e. home garden size, owner's economic condition, perception, knowledge and skill, hobby, preference and consumption pattern, allocated time and energy) and external factors (i.e. regulation, community custom, culture and agreement, and environmental conditions).

We suggest doing further research on model of community empowerment-based home garden for optimizing its utilization for stunting prevention while considering local socio-cultural, economic and environmental condition.

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Acknowledgments

We acknowledge the support received from the Indonesia Ministry of education and culture research and technology (Kemendikbudristek), in particular Directorate of Resources, Directorate General of Higher Education, Research and Technology through the 2021 National Research Priority (PRN) Funding No. 2463/E4/RA.00/2021.

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References

- [1] Sudikno, Irawan I R, Setyawati B, Wiryawan Y, Puspitasari D S, Widodo Y, Ahmadi F and Amaliah N 2019 *Laporan Akhir Penelitian Studi Status Gizi Balita Di Indonesia Tahun 2019*
- [2] Galhena D H, Freed R and Maredia K M 2013 Promising Approach Agriculture Food Secur. **2** 1–13
- [3] Ferdous Z, Datta A, Anal A K, Anwar M and Khan A S M M R 2016 Development of home garden model for year round production and consumption for improving resource-poor household food security in Bangladesh *NJAS - Wageningen J. Life Sci.* **78** 103–10
- [4] Hakim. L 2014 *Etnobotani dan Manajemen Kebun-Pekarangan Rumah: Etnobotani dan Manajemen Kebun-Pekarangan Rumah: Ketahanan Pangan, Kesehatan dan Agrowisata* (Malang: Penerbit Selaras)
- [5] Rammohan A, Pritchard B and Dibley M 2019 Home gardens as a predictor of enhanced dietary diversity and food security in rural Myanmar *BMC Public Health* **19** 1–13
- [6] Çelik F 2017 The Importance of Edible Landscape in the Cities *Turkish J. Agric. - Food Sci.*

- Technol.* **5** 118–24
- [7] Kadir R, Lantowa J, Sastra F, Gorontalo U N, Jend J and No S 2019 Strategi Pencegahan Stunting melalui Rumah Desa Sehat dan Pemanfaatan Lahan Pekarangan Rumah di Desa Karya Indah *J. Sibermas (Sinergi Pemberdaya. Masy.)* **8** 73–86
 - [8] Hakim A, Kurnia E P, Lasmini N, Dinata A N P, Idmayanti I, Irawanti I, Rosida R, Rosmini R and Sakina N 2021 Pemanfaatan Pekarangan sebagai Upaya Peningkatan Ketahanan Pangan *J. Pengabd. Masy. Sains Indones.* **3** 226–334
 - [9] Mattsson E, Ostwald M and Nissanka S P 2018 What is good about Sri Lankan homegardens with regards to food security? A synthesis of the current scientific knowledge of a multifunctional land-use system *Agrofor. Syst.* **92** 1469–84
 - [10] Darma I D P, Sutomo, Hanum S F and Iryadi R 2020 Plant Conservation Based on Tri Mandala Concept on Homegarden at Pakraman Penge Village, Baru Village, Marga District, Tabanan Regency, Bali *J. Trop. Biodivers. Biotechnol.* **5** 189–200
 - [11] Oguttu J W, Mbombo-Dweba T P and Ncayiyana J R 2021 Factors correlated with home gardening in Gauteng Province, South Africa *Int. J. Environ. Res. Public Health* **18** 1–16
 - [12] Manoppo C N 2019 Penyuluhan pemanfaatan pekarangan di Sulawesi Utara *J. Penyul. Pertan.* **14** 19–25
 - [13] Kadir R, Lantowa J, Sastra F, Gorontalo U N, Jend J and No S Strategi Pencegahan Stunting melalui Rumah Desa Sehat dan Pemanfaatan Lahan Pekarangan Rumah di Desa Karya Indah *J. Sibermas (Sinergi Pemberdaya. Masy.)*
 - [14] Manoppo C N, Amanah S, Asngari P S and Tjitropranoto P 2017 Persepsi Perempuan terhadap Pemanfaatan Pekarangan Mendukung Diversifikasi Pangan di Sulawesi Utara *J. Penyul.* **13** 40–9
 - [15] Lukito Y N, Lukito Y N, Kusuma N R, Arvanda E and Zafira R 2021 Designing with Users: A Participatory Design as a Community Engagement Program in the City Zoo ASEAN *J. Community Engagem.* **5** 49–70
 - [16] Saroinsong F B and Kalangi J I 2018 Diseminasi pengelolaan RTH pemukiman untuk meningkatkan biodiversitas flora *Edupreneurur* **1** 54–70

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