Information Needs of Kampala Urban Vegetable Farmers

A Unique Information Gap for University Libraries to Embrace

Ruth Nsibirano[1]

Makerere University

Kisa Agatha Nsibirano[2]

Ministry of Defence

Abstract

A university library is a fountain of information to all its traditional users: students and faculty, plus affiliated users and researchers who are granted user rights for stipulated periods on payment of a user fee. In the face of new realities, it is important to appreciate that university libraries, compared to public or community libraries, are conveniently located, bigger, open for longer hours, better funded and offer more and better services. Unfortunately, they have remained conservative to the colonial exclusive setup instead of accommodating the need to transform and meet local needs. If knowledge is indeed to be for everybody, then university libraries should reconnect and embrace change to benefit more users.

Focusing on agriculture, which is the backbone of many economies, this paper seeks to answer three questions: What information needs do urban vegetable farmers have? What information sources are available and used? And whether university libraries are priority information sources for urban vegetable farmers in Kampala. A qualitative study was conducted, using thirty in-depth interviews and six focus group discussions. Data were collected and later thematically analysed. Findings revealed that urban vegetable farmers needed information on sources of clean seeds, inputs and markets. Libraries seemed unwelcoming to and passively excluded "non-educated" community members. Thus, farmer teams and not university libraries were the most efficient and used sources of information for urban farmers. We recommend that university libraries should transform from an only elitist

1 Ruth Nsibirano, Makerere University, Kampala, Uganda; rnsibirano2015@gmail.com

2 Kisa Agatha Nsibirano, Jinja, Uganda; agatakisher@yahoo.com

campus discourse to integrate service to the community through library outreaches, open days, and capacity-building to benefit urban farmer groups. This chapter further recommends that different community categories within the university neighbourhood deserve personalised information packages to propel the country's efforts to attain middle-income status, modernise agriculture, the backbone of its economy, and contribute to attaining the United Nations' Sustainable Development Goals 1, 2, 11 and 12.

Keywords: urban farming, vegetable and mushroom growing, agricultural information sources, Kampala urban farmers, academic libraries and unique user communities, library outreach

Introduction

Globally, urban farming is on the increase in many cities (Yan, Liu, Liu & Zhang, 2022) and in Uganda (David *et al.*, 2010; Hemerijckx *et al.*, 2023). A number of factors explain the growth of this livelihood strategy. Urban farming makes huge contributions, especially lifting standards of living and promoting food security amongst the urban poor (FAO, 1996; Sangwan & Tasciotti, 2023). Thus, urban farmers require support as all farmers do. Unfortunately, urban farmers are excluded when such support is offered, including the provision of information and inputs. Y*et al*l farmers, regardless of the geographical location, should be supported to meet their information needs so that they are able to enhance their farming enterprises. Government or private support services extended to farmers unintentionally exclude urban vegetable and mushroom farmers. Public libraries would have played this role since they were established to freely provide information resources and services to interested users (Abdurrahman, 2023). Uganda has over 22 public libraries mandated to serve cities and towns by providing resources and services to equally meet the needs of individuals and groups.

Furthermore, public libraries can be effective in bridging the gap between information providers and trainers and information users such as farmers (EIFL, 2023). Unfortunately, the current reality in Uganda is that partly due to limited space for personal reading in homes and in some schools, access to and use of public libraries has been taken over and is now dominated by school children (The Monitor, 2021). Over time, other potential public library users have been edged out. The displacement of other users from public libraries justifies a need to rethink how transformation in academic libraries can happen to allow such libraries to embrace the new role of an "intellectual commons" (Fagbola, Uzoigwe & Ajegbomogun, 2011).

On 13 July 2018, the Makerere University Library joined the rest of the world to celebrate World Library Day. The theme of the day in Makerere University Library celebrations was "Remodelled Library Services: Informed

Societies". The theme aligned with the International Federation of Library Associations and Institutions (IFLA) annual theme: "Transforming Libraries, Transforming Societies: Reaching Out to the Hard to Reach". The two themes motivated the reflection on the role of the university in general through its vision statement: "... a thought leader of knowledge generation for societal transformation and development" (Makerere University, 2020), but also libraries in general and university libraries in particular in supporting efforts to transform the Ugandan society, from peasantry to a middle-income economy (Museveni, 2013).

If Makerere University and the university library can assume the role of effective players in social transformation and open alternative gates to include the otherwise excluded population through information provision, all Sustainable Development Goals (SDGs), especially 1, 2, 11 and 12, can be impacted. Undoubtedly, agriculture continues to be the backbone of many growing economies (Diao, 2010; Schoonraad, 2016; Stilwell, Bats & Lor, 2016). It is also true that agriculture is a livelihood option for many (Lwoga, Ngulube & Stilwell, 2010). Through agriculture, populations find employment to earn a living (World Bank, 2017), and it is a source of food supply for the ever-increasing number of urban dwellers (Matuschke, 2009).

Although previously, the countryside was a key source of food supplies for urban dwellers (Matuschke, 2009), the increasing levels of rural-urban migration mean that more people abandon farming for better opportunities in towns (Da Silva, 2017). The effect of rural-urban migration has not only changed the urban-rural population balance to 54% in urban, but it has also created an ever-increasing demand for food supplies and has impacted food consumption patterns. Urban income increases make people demand processed foods, fruits and vegetables (Da Silva, 2017). Thus, urban agriculture comes in handy as a survival strategy (Byamugisha, Ikoja-Odongo & Nasinyama, 2010).

Yet, urban residents experience rapid changes that affect their ability to access food (Mackay, Tusabe & Mugagga, 2022). And with more people to feed in the urban areas and fewer producers in the countryside, there are fewer food supplies and, as such, escalating food prices. Amidst such realities, a new trend of urban farming is unavoidable. Urban dwellers have to find ways of coping with increasing food prices resulting from an imbalance between supply and demand. Due to the food imbalance, urban dwellers, particularly the under-privileged, are more likely to have a small garden in the backyard as a cheap alternative food source (Byamugisha *et al.*, 2010; Garrett & Ruel, 2000; Siegner, Sowerwine & Acey, 2018). In the spirit of taking advantage of new opportunities, the increasing food market opportunities in towns are push factors fuelling urban farming. Urban farmers grow a variety

of crops and practice numerous agricultural activities. About three years ago, Kampala had a total population of 1.86 million people; of these, about 40% were engaged in urban farming (UBOS, 2015). Owing to the fact that urban agriculture is practised on a limited land base, it has not been easy to establish actual percentages of those participating in this form of agriculture. Nonetheless, vegetable production is amongst the dominating practices (Sabiiti & Katongole, 2014; Sabiiti *et al.*, 2014).

Successful agricultural practices require information so that farmers can be guided (Rao *et al.*, 2019). A study conducted in 2010 on information needs and use amongst urban farmers documented the need to provide information to farmers within their respective groups of practice (Byamugisha, Ikoja-Odongo & Nasinyama, 2010; Byamugisha *et al.*, 2008). This study emphasised that in order to ensure enhanced productivity, farms need information. Globally, libraries take the upper hand as sources of information (Onuoha & Awoniyi, 2011). It is also expected that libraries will always be an information hub and meet the information needs of the communities. Unfortunately, most (university) libraries provide information to only those directly registered with them, including students, academic staff and researchers. It is time for university libraries, such as the Makerere University Library, to extend these useful services to new categories of users, which is critical for social transformation.

Libraries cannot plan for and provide required information to new categories of users, such as urban farmers, if their information needs and information-seeking behaviours are not known. The majority of the urban farmers are men and women from the community who perhaps have never been to the university. It is not known for sure if academic libraries consider this category as patrons. It is also not explicitly known if urban farmers are interested in the information that the academic library provides. A number of possible questions can be posed: "Will urban farmers even know that university libraries exist for the sole purpose of meeting information needs?" "Do urban farmers have access to rich university library resources?" "Are university libraries aware or even prepared with the kind of information to serve the information needs of this category of the community?" If the answer to all the posed questions is a "no", then it is certainly right for a study to seek to establish the following:

1. What information needs do urban farmers have?
2. What information sources are available and used by urban farmers?
3. University libraries exist in urban communities; however, do urban farmers in Kampala consider them as priority options for meeting their information needs?

The key thesis for this chapter is that university libraries have a missed opportunity to serve a unique user group of urban farmers simply because urban farmers and the academic library possibly do not know about each other. Thus, a study was conducted amongst urban farmers, specifically those engaged in vegetable and mushroom growing to answer the questions above to explore information needs and information sources used and assess if libraries are priority sources of information for urban vegetable and mushroom farmers in Kampala.

Justification for such a study was formed out of a conviction that identifying information needs and the sources people use gives the information provider an indication of the content or potential information that users need. This will go a long way to facilitate university libraries to approach the communities that increasingly have unique information needs that should not be ignored. This new trend is even more urgent now that elite communities are accessing electronic resources more than physical ones. Libraries approaching this otherwise new category will guarantee their essential role, justifying continued existence and visibility in addressing an information gap. This is in sync with the feminist theory and the politics of inclusion (Fisher, 1990), a theoretical perspective that guides the discussions.

Methods and tools

This qualitative study was conducted in the Rubaga division, Kampala district. A sample of thirty vegetable and mushroom growers was purposively selected. To be included in the study as an in-depth interviewee, one had to be involved in urban farming and growing vegetables or mushrooms. The in-depth interviews with vegetable farmers were held in their homes where the gardening too place. This was also conducted to enable observations to be made. In-depth interviews were conducted in Luganda, the widely understood and spoken local language in the area, using an interview guide. In addition, six focus group discussions were made, with an average of eight farmers selected from different associations that bring vegetable farms together. Only association members who had not participated in the in-depth interviews were selected to triangulate and solicit qualitative data regarding the role farmer associations play. Focus group discussion guides were used to collect data during the focus group discussions. Permission was requested from participants, so all interviews were recorded and later transcribed verbatim by two independent researchers. The transcripts were compared for completeness before coding and analysis was undertaken using thematic analysis. Data collection was performed from September to November 2016.

Study Results

Social demographic characteristics

A total of twenty female and ten male urban farmers were interviewed. The higher number of females can be explained by two factors: one of the factors is that more women are participating in urban agriculture, and this is consistent with a study that was conducted in the United States (US), which reported that males are less likely to participate in urban agriculture (Chenarides, Grebitus, Lusk & Printezis, 2020). The second factor was the fact that sample selection was purposively done, and, therefore, more females than males were found participating in urban vegetable and mushroom growing and were selected. Further, in this study, the average age for females was 31.1 years and 32.8 years for males. Thirteen (65% of the females) were single, four (20%) were married, and three (15%) were separated, while amongst the males, nine of them (90%) were married.

Information needs of urban vegetable and mushroom farmers

Interviewees were asked to mention all information needed in the urban vegetable and mushroom farming practice. The major issues identified and listed in the order of urgency included sources of the right seeds for vegetable farmers. The interviewees commented that vegetable seeds purchased from agribusiness shops often have no labels to indicate expiry dates. Once planted, the seeds, often old, do not germinate. While mushroom growers needed information on sources of quality spawns, cotton cake was used as a substrate. Alternative material was used since cotton was not readily available. Furthermore, mushroom growers needed skills and knowledge on how to add value to mushrooms because they are perishable. This finding points to an information gap that university libraries could fill. This assertion is premised on the view that universities are also research institutions and, therefore, can and should have information on improved seeds and spawns, as well as provide information on processing to add value. The libraries have neither collected nor repackaged such information from university faculties and researchers for dissemination to the usually poor, semi-literate or illiterate urban farmers, as summarised in the words of some farmers:

> *… we know that in Makerere and Kawanda, research is done, but for us, we cannot go there. We even cannot speak English; maybe the seeds are quite expensive; we do not know (Female FGD participant).*

Information sources used

When respondents were asked to indicate how they received information, a number of information sources were mentioned, and the mentioned agricultural information sources accessed and used included fellow farmers; urban farmers in the same areas knew each other and could thus share information on what they know as a way of supporting each other as friends in the same venture. Another source was listening to radio programmes targeting farmers.

Interviewees also said that farmer demonstrations on the farms were another source of information that was important, as quoted by one mushroom grower:

> *For me, I get the spawns from a farmers' association to which I am a member. Once you register with a membership fee of sixty thousand shillings (approximately 17 USD) you are able to buy prepared gardens of planted spawns … (Female, in-depth interviewee).*

> *… a good source of agricultural information on the price of mushrooms and marketing is if you join in farmer groups. For me, I am a member of the Kiti Kyamuwogo Mushroom Association and I have gained a lot of knowledge from the group. We meet every first Saturday of the month and learn many things. We also bring our harvests for sale (Female, in-depth interviewee).*

Another interviewee said:

> *… we get a lot of information from those farmers who are growing the same crops as we are. It is important to make friends with and visit big farmers (Male, 30 years).*

University libraries strategically reconnect with communities

There is an unmet need amongst urban farmers since services open to benefit farmers mainly target rural areas, indirectly excluding urban farmers. University libraries could strategically reconnect with urban communities, be involved in farming to meet changing information needs and help deliver SDGs 1, 2, 11 and 12. In this study, participants were asked if they had access to extension services from research institutions for information. Those who participated in the in-depth interviews and the focus group discussions said these extension services were unavailable. This alludes to the need for the university library to extend its services to close this information gap. This finding was also different from the earlier finding, which indicated

that agricultural researchers and extension workers were the other sources of agricultural information for the urban farmers (Byamugisha*et al.*, 2010; Byamugisha *et al.*, 2008). This finding can probably be explained by the fact that the Rubaga division does not have an agricultural research station. The second plausible explanation could be the fact that urban farms are scattered in small clusters, possibly not easily identifiable by information service providers such as extension workers attached to urban authorities.

Furthermore, the study participants considered were not highly educated and thus could have limited their choice of information sources to only the informal ones. It is also possible that, at the moment, vegetable and mushroom growing in urban areas is not considered a category deserving of support. Thus, such actors are missed when sending out extension workers attached to the urban authority. A male participant who had at one time benefited from urban authority support to poultry farmers, a more established livelihood option in urban areas, commented that:

> *There is a radio programme called "Olutindo" [literal meaning 'bridge'] on Central Broadcasting Service (CBS), which runs a programme on agriculture once a week, usually transmitting information related to poultry farming. Furthermore, as Kampala City Council, we are privileged to have a programme called "Agaffa ewa Mayor" [literal meaning 'news from the office of the town mayor'] on CBS every week on Tuesdays at nine pm. We are also privileged that we have been given more airtime to talk about urban agriculture and urban agricultural ordinances (Male, 28 years).*

Study participants shared the view that radio talk shows support urban farmers. It was revealed that more radio stations air agricultural information. For example, Top Radio provides information every Saturday from 14:00. In addition, a number of television programmes support urban farmers, such as *Omulimi Asinga* ("best farmer") and *Enkumbi Telimba* ("the hand who cannot tell lies"). The *New Vision* and *Daily Monitor* dailies both have articles to provide information to farmers. However, the information shared in both these print media as well as on radio and television talk shows is not categorically for vegetable and mushroom growers. There is room for the university library to partner with or repackage appropriate information for the less-known and less-provided livelihood options such as urban vegetable and mushroom growing. University libraries can take advantage of the existing avenues by making use of these channels to support urban vegetable farmers. The results show that a number of strategies have been devised to address the need for information on mushroom growing. However, this has been an initiative by the mushroom-growing farmers, not the university

libraries. Yet, universities and their libraries are information fountains mandated to conduct research and support the scientific generation of knowledge that should support local needs and interest groups such as urban vegetable and mushroom growers.

This finding paints a contradictory picture of university libraries as fountains of information because the information held is selectively controlled. Scholars have argued that libraries are part of the fabric of society and that libraries have gradually moved from being elite institutions to promoting reading amongst the general population (Stilwell *et al*., 2016). The current study findings show the contrary. There is no single fresh development in the library in general but also in university libraries that indicates a deliberate intention of moving out of the comfort zone to assist mushroom and vegetable urban farmers. It is quite unfortunate that the assertion made by Ranganthan over nine decades ago in the five laws of library science, particularly Law 5, that the library is a growing organism (Gorman, 1998; Shadrach, 2016) is threatened by the lack of flexibility to include new categories of users. University libraries are failing to grow beyond the colonial elitist mentality. Transformation should be driven by the university libraries as authoritative information sources to provide the information that meets the particular needs of individual urban vegetable farmers (Moore, 2002).

Discussion

The social demographic characteristics show that there were more women than men engaged in urban agriculture. Most of the women who participated in the study were younger than the men. They were mostly single women, while most of the men who participated in this study were married. This could be due to the purposive sampling strategy that was used for selection or an indication of the realities about who is engaged in urban vegetable farming. The current study findings indicate that sources of information on agriculture for farmers are still through fellow farmer networks. The argument by Semwanga (2007) that the majority of urban farmers in Kampala use networks as the major source of information is still true. Our findings differ from an earlier study conducted in 2010 by Byamugisha *et al*., that revealed several sources for agricultural information. As these scholars mentioned sources that included neighbours (67.1%), personal experience (57.2%) and friends (56.4%) and which were location- and gender-specific, our findings only found fellow farmers, associations and radio talk shows as key sources of information available for urban vegetable and mushroom farmers. Despite the slight difference in sources of information, both studies allude to a situation characterised by situated experiences and context-specific variations that leaves a vacuum that libraries could fill. A case in point is the urban farmers

not in groups, those in private housing arrangements with limited interaction with neighbours.

One result of urbanisation has been the erosion of collective preference for individualistic value systems (Chen, 2015). For such farmers, the university library could be an empowering institution. In its absence, some farmers use farmer-to-farmer sources of information when available. Unfortunately, such informal information source alternatives have some limitations (Adio, Abu, Yusuf & Nansoh, 2016). Therefore, the information-seeking behaviours of urban farmers can be limited by the extent and effectiveness of the awareness of others with an interest in the choice of vegetables to grow. Shared interest in the choice of vegetables to grow is the only guarantee to access any information, regardless of its correctness. Sharing information is performed for social support. Thus, urban vegetable and mushroom growers have confidence in the information received through these informal networks. The finding is consistent with and is a confirmation that where formal information structures are absent, farmers will try to fill the information gap by resorting to informal sources such as relations of fellow farmers as peers and radio talk shows (Adio *et al.*, 2016). To transform university libraries from elitism, strategies such as redefining library users' categories and university faculty working and mobilising themselves to rally with the university libraries would be winning strategies. It would equally drive success in the university's responsibility to share working innovations and information that can address local issues and improve communities.

Are libraries priority information sources?

There is an insignificant use of libraries quoted at a rate of 1.1% even when some urban farmers have formal education (Byamugisha *et al.*, 2010). The reason for less value attached to the library as a source of agricultural information was due to limited awareness of the library offering the needed information. The university libraries have chosen to play the game of exclusionary politics (Fisher, 1990) and, as such, remain alienated from urban farmers. This university library culture that focuses on the elite formal category of users condemns the farmers to remain users of informal information sources that are sometimes limited in scope, extend to only close peers and possibly lack updated science facts. This is a new reality that should offer an opportunity for university libraries to consider and revise arguments put out by earlier scholars. For example, although Atherton (1977) noted that interpersonal sources of information are now better suited to handle special individual needs and questions and offer immediate feedback than formal sources, the current realities of urbanisation make this argument difficult. Wilson and Walsh (1996) also observed that the phenomenon of informal sources of information is better. As informal sources of information can co-

exist with formal information sources, university libraries should appreciate that the historical appreciation accorded to informal sources of information in the information science literature is challenged by new goals like attaining the SDGs, middle-income status, which will require the university libraries to adjust their original scope of practice.

Conclusion

To improve the practices of university libraries and how the urban farming actors perceive these libraries for their information needs, we revisit the words of one scholar of information science, Ikoja-Odongo (2002). He once observed that the information sources most preferred by farmers in a country or a section of the country are a function of how the farmers have been sensitised to the usage of the other options. The university libraries should therefore take on the role of supporting the transformation of urban vegetable farmers' information-seeking and guide them to embrace libraries as new information sources. This can be performed through a number of ways, including outreaches, open days or even capacity-building for the existing informal information seekers to equip them with authentic and accurate information. Libraries can also repackage otherwise inaccessible information from researchers and scientists into easy-to-access formats for the level of agricultural information users.

References

Adio EO, Abu Y, Yusuf SK & Nansoh S. (2016). Use of agricultural information sources and services by farmers for improve productivity in Kwara State. *Library Philosophy and Practice (e-journal)*, 1456. https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=4044&context=libphilprac [Accessed 18th May 2023].

Abdurrahman J. (2023). Public libraries and the librarians: making a difference in information and communication technology (ICT)era. *Samaru Journal of Information Studies*, 13(1 & 2):15.

Atherton, P. (1977). Handbook for information systems and services: Paris: UNESCO.

Byamugisha HM, Ikoja-Odongo R & Nasinyama GW. (2010). Information needs and use amongst urban farmers in Kampala. *Library and Information Research*, 34(108):16. https://doi.org/10.29173/lirg235

Byamugisha HM, Ikoja-Odongo R, Nasinyama GW & Lwasa S. (2008). Information seeking and use amongst urban farmers in Kampala District, Uganda. *Library and Information Research*, 1(108):94-101.

Chen X. (2015). Exploring the implications of social change for human development: perspectives, issues and future directions. *International Journal of Psychology*, 50(1):4. https://doi.org/10.1002/ijop.12128

Chenarides L, Grebitus C, Lusk JL & Printezis I. (2020). Who practices urban agriculture? An empirical analysis of participation before and during the COVID-19 Pandemic. *Agribusiness*, 2021(37):142-159. https://doi.org/10.1002/agr.21675

Da Silva JG. (2017). The future of food and agriculture: trends and challenges. Rome, Italy: Food and Agriculture Organization (FAO). 180. https://www.fao.org/3/i6583e/i6583e.pdf [Accessed 12th May 2023].

David S, Lee-Smith D, Kyaligonza J, Mangeni W, Kimeze S, Aliguma L, Lubowa A & Nasinyama GW. (2010). Changing trends in urban agriculture in Kampala. In: G Prain, N Karanja & D Lee-Smith (eds). *African Urban Harvest: Agriculture in the Cities of Cameroon, Kenya and Uganda*. Londen: Springer. 97-122. https://doi.org/10.1007/978-1-4419-6250-8_6

Diao X. (2010). Economic importance of agriculture for sustainable development and poverty reduction: findings from a case study of Ghana. Paper presented at Working Party on Agricultural Policy and Markets, Global Forum on Agriculture, Organisation for Economic Co-operation and Development Headquarters, Paris, November 15-17. 88.

Fagbola O, Uzoigwe C & Ajegbomogun VO. (2011). Libraries driving access to knowledge in the 21st century in developing countries: an overview. *Library Philosophy and Practice (e-journal)*, August:566.

Fisher, L. (1990). Feminist theory and the politics of inclusion. Retrieved from: https://doi.org/10.1111/j.1467-9833.1990.tb00289.x

Food and Agriculture Organization (FAO). (1996). Urban agriculture: an oxymoron. The State of food and agriculture. In: Agriculture and Economic Development Analysis Division (ed). *The State of Food and Agriculture, 1996: Food Security: Some Macroeconomic Dimensions*. Rome, Italy: FAO. https://www.fao.org/3/w1358e/w1358e07.htm [Accessed 24th February 2023].

Garrett JL & Ruel M. (2000). Achieving urban food and nutrition security in the developing world. Washington DC: International Food Policy Research Institute (IFPRI). 20.

Gorman M. (1998). The five laws of library science: then and now. *School Library Journal*, 44(7):5. Retrieved from https://www.researchgate.net/publication/234616032_The_Five_Laws_of_Library_Science_Then_Now/link/561bbd6e08aea80367242cfd/download [Accessed 18th May 2023].

Hemerijckx L.-M., Nakyagaba GN, Sseviiri H, Janusz K, Eichinger M, Lwasa S, May J, Verburg PH & Rompaey AV. (2023). Mapping the consumer foodshed of the Kampala city region shows the importance of urban agriculture. *Urban Sustainability*, 3(11):10. https://doi.org/10.1038/s42949-023-00093-1

Ikoja-Odongo JR. (2002). Mapping information systems and services in Uganda: an overview. *International Information & Library Review*, 34(4):309-334. https://doi.org/10.1006/iilr.2002.0218

Lwoga ET, Ngulube P & Stilwell C. (2010). Information needs and information seeking behaviours of small scale farmers in Tanzania. *Innovation*, 40(1):22. https://doi.org/10.4314/innovation.v40i1.60088

Mackay H, Tusabe R & Mugagga F. (2022). Similar, yet different! Comparing Ugandan secondary cities' food system and nutritional transformations to findings from African primary cities. *Urban Transformations*, 4(16):25. https://doi.org/10.1186/s42854-022-00047-3

Makerere University (2020). Unlocking the knowledge hub in the heart of Africa, *Strategic plan 2020-2030. https://www.mak.ac.ug/sites/default/files/downloads/Makerere-University-Strategic-Plan-2020-2030.pdf* [Accessed 20th May 2023]

Matuschke I. (2009). *Rapid urbanisation and food security: Using food density maps to identify future food security hotspots*. Paper presented at the International Association of Agricultural Economists Conference, Beijing, China. https://www.fao.org/fileadmin/user_upload/esag/docs/RapidUrbanizationFoodSecurity.pdf [Accessed 3rd October 2016].

The Monitor. 2021. The sad story about public library in Uganda. The Monitor, March 4. https://www.monitor.co.ug/uganda/lifestyle/reviews-profiles/the-sad-story-about-public-library-in-uganda-1567100 Electronic Information for Libraries (EIFL). (2023). *Public libraries supporting farmers*. Vilnius, Lithuania: Electronic Information for Libraries (EIFL). https://www.eifl.net/programme/public-library-innovation-programme/public-libraries-supporting-farmers

Moore, N. (2002). A model of social information need. Journal of Information Science. Vol. 28(4): 297-304. https://doi.org/10.1177/016555102320387453

Museveni YK. (2013). Uganda Vision 2040. Kampala, Uganda: Government of Uganda. https://www.greengrowthknowledge.org/sites/default/files/downloads/policy-database/UGANDA%29%20Vision%202040.pdf [Accessed 20th March 2023].

Onuoha U D & Awoniyi A A. (2011). Comparative analysis of students information seeking behaviour in adventist universities: a survey of Babcock and Solusi Universities. *Library Philosophy and Practice. http://unllib.unl/edu/lpp*

Rao KPC, Dakshina KM, Dhulipala R, Byashree SD, Gupta MD, Sreepada S & Whitbread AM. (2019). Delivering climate risk information to farmers at scale: the Intelligent Agricultural Systems Advisory Tool (ISAT). In: *Climate Change, Agriculture and Food Security (CCAFS) Working Paper*. Wageningen, The Netherlands: CGIAR Research Program on CCAFS.

Sabiiti EN & Katongole CB. (2014). Urban agriculture: a response to the food supply crisis in Kampala city, Uganda. In: B Maheshwari, R Purohit, H Malano, V Singh & P Amerasinghe (eds). *The security of water, food, energy and liveability of cities: challenges and opportunities for peri-urban futures*. Dordrecht: Springer. 10.

Sabiiti EN, Katongole CB, Katuromunda S, Sengendo H, Basalirwa CPK, Atukunda G & Nambuubi SK. (2014). Assessing urban and peri-urban agriculture in Kampala, Uganda. In: J Padhgam & J Jabbour (eds). *Building urban resilience*. New York: United Nations Environment Programme (UNEP) (pp. 61). https://doi.org/10.1007/978-94-017-8878-6_17

Sangwan N & Tasciotti L. (2023). Losing the plot: the impact of urban agriculture on household food expenditure and dietary diversity in Sub-Saharan African countries. *Agriculture*, 13(284):20. https://doi.org/10.3390/agriculture13020284

Schoonraad S. (2016). *Agriculture, the backbone of the country's economy*. https://gadi.dalrrd.gov.za/news/strydom.htm [Accessed 3rd October 2016].

Semwanga, A.M. (2007). Urban agriculture in Uganda: a rapid appraisal of the characterization, opportunities and challenges that would influence policy formulation. Environmental Alert. Unpublished report: Kampala- Uganda.

Shadrach B. (2016). *Dr. S R Ranganthan's five laws of library science: a foundation for democratising knowledge*. Paper presented at the M S Swaminathan Research Foundation on the occasion of Dr Ranganathan's birth anniversary, Chennai, India, August 12. https://www.academia.edu/34467607/Dr_S_R_Ranganthans_five_laws_of_library_science_a_foundation_for_democratising_knowledge [Accessed 18th May 2023].

Siegner A, Sowerwine J & Acey C. (2018). Does Urban Agriculture Improve Food Security? Examining the Nexus of Food Access and Distribution of Urban Produced Foods in the United States: A Systematic Review. Sustainability, 10(9):a2988. https://doi.org/10.3390/su10092988

Stilwell C, Bats R & Lor PJ. (2016). Introduction: Redefining the role of libraries in the political process and in conflict situations. *Library Trends*, 65(2):93–107. https://doi.org/10.1353/lib.2016.0024

UBOS. (2015). Statistical abstract(pp. 353). Retrieved from http://www.ubos.org/onlinefiles/uploads/ubos/statistical_abstracts/Statistical%20Abstract%202015.pdf

Wilson TD & Walsh C. (1996) Information behaviour: an interdisciplinary perspective. Sheffield: University of Sheffield, Department of Information Studies. https://www.academia.edu/3086444/Information_behaviour_an_interdisciplinary_perspective [Accessed 24th February 2023].

World Bank. (2017). Future of food: shaping the food system to deliver jobs. Retrieved from: https://www.worldbank.org/en/topic/agriculture/publication/the-future-of-food-shaping-the-food-system-to-deliver-jobs [Accessed 18th May 2023].

Yan, D., Liu, L., Liu, X., & Zhang, M. (2022). Global trends in urban agriculture research: a pathway toward urban resilience and sustainability. *Land*, 17. https://doi.org/10.3390/land11010117