

Burgeoning of Commercial Ornamental Plant Nurseries in Dar es Salaam City: Challenge and Future Prosperity

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Abstract

Commercial ornamental nurseries are popping up everywhere in the city of Dar es Salaam. However, as the city urbanizes, the commercial ornamental nurseries are confronted by several challenges of which are inadequately explored and documented. This research examines challenges, problems and explains the future prospects of commercial ornamental nurseries in the city of Dar es Salaam. The study adopted the case study design where the method for data collection relied on in-depth interviews and observation. Results revealed that ornamental plant dealers face several challenges such as; unsecured land tenure, which threaten the prosperity of the commercial ornamental nursery practices. Problems encountered are those related to plant pests, diseases management and inaccessibility of water for irrigation. On the other hand, commercial ornamental dealers get little support from the responsible city authorities in access land and management of pest and diseases. The study recommends that success of commercial ornamental nursery industry needs more support from different actors and policies together with capacity building among the commercial ornamental dealers.

Index terms— commercial ornamental nurseries, challenges, future prosperity.

1 Introduction

Commercial ornamental nurseries are one among the informal growing sector in the urban areas of developing countries and it employs the youth who hardly access formal employment. A study by EPOA (2007), reported that more than 50% of the youth in Tanzanian urban are employed in the informal sector. According to Magigi (2013) more than 40% of people in the Dar es Salaam city undertake their activities in the informal sector including urban agriculture. The commercial ornamental nurseries are one of the informal sector activities widely practiced in Tanzanian cities and urban areas including Dar es Salaam City (Liljestrom & Persson, 2014).

Despite commercial ornamental plants nurseries taking being place in the informal sector, they play a vital role in greening the city (Hassan & Mombo, 2016). The dealers of ornamental nurseries provide flowers which are used for aesthetical purposes (Akintoye et al, 2011). Furthermore, those dealers provide fruit trees which have motivated people in the peri-urban areas to grow fruit trees (Hassan & Mombo, 2016& Lau, 2013). The fruits trees are important for food security and greening and beautifying the city environment (Osawaru et al, 2015).

Commercial ornamental nurseries do not only support the green urban environment and food security but also provide employment opportunities to youth and needy women in the urban areas. Ornamental tree nurseries offer employment opportunity to urban residents around the world and trends forecast show a promising market for this business (Di Vita, 2015). As a considerable number of youths have been employed in this sector, youth unemployment and income generation challenges have somehow been reduced (Abreu et al, 2009& Bishoge, 2018).

Despite the roles played by commercial ornamental being diverse, problem associated with it have been reported not only in developing countries but also in developed nations. For instance, in the United States of America, management of ornamental plants is less institutionalized compared to the rest of food crop production industry

44 (Daughtrey & Benson, 2005). It is reported that the ornamental plant growers do not enjoy the same governmental
45 subsidies in comparison to nonornamental plant (Ibid). In Africa, several challenges have been noted. In Nigeria,
46 the study by Adeduntan (2015) show that there is inadequate access to land by ornamental nursery dealers
47 growers. In Kenya, the development activities such as the expansion of roads interfere with the existing nurseries
48 along the major road reserves (Otiso, 2018).

49 In Tanzania, most of the government officials are not committed to support local ornamental plant nurseries
50 simply because the accrued value of the enterprise cannot easily be expressed in monetary values which have an
51 impact to city or national economy (Mg'ong'o, 2004 & Mombo, 2016). In the similar note, Bishoge et
52 al. (2017) noted that there is less recognition of the ornamental plant dealers by the government authority. Such
53 inadequate recognition has hampered ornamental nursery dealers from accessing basic services as well as land.
54 Furthermore, Bishonge and others noted that the ornamental dealers have a limited knowledge in managing the
55 whole activities related to nurseries and growth of ornamental plants.

56 However, the argument by Bishonge et al based from scientific research, some of the ornamental nurseries still
57 exist and are rapidly emerging in the cities.

58 There has been substantial policy development and implementation toward managing urban issues such as;
59 green spaces, human settlements, flooding and other many issues. United Nations in the new urban agenda
60 advocates the nations to integrate policies that support green space in urban areas (United Nations, 2017). The
61 UN Habitat encourages the development of policies that take into consideration the green spaces (Andersson,
62 2016). These international agencies believe that habitats or settlement without greening is hardly habitable. In
63 1990s, the Sustainable City Programme (SCP) gained acceptance globally as it encouraged collective efforts of
64 different actors in addressing pertinent urban issues including solid wastes, urban renewal, open spaces mentioning
65 but a few. In Tanzanian context, from SCP the Urban Environment Management (EPM) was established in order
66 to identify, sensitize and work on these issues to enhance environmental sustainability (Kasala, 2015). One the
67 highlighted issues by EPM are the management of open space. However, open space includes the green processes
68 by using plants that are produced in the ornamental nurseries; ornamental nurseries were not given much priority
69 (Hassan & Mombo, 2016). As the result, they emerged everywhere in the city wherever there was a space and
70 the possibility to operate informally.

71 Dar es Salaam city is one among cities adopted EPM process so as to solve environmental problems in urban
72 areas. Other initiatives adopted and implemented by Tanzania government include the enactment of the National
73 Environmental Act, 2004; National Land Policy of 1995 and the Urban Land Act No.4 of 1999 and The Urban
74 Planning (Urban Farming) Regulations of 2018. In line with these policy and legal frameworks, the Tanzanian
75 government is taking initiative to formalize informal settlements of urban areas and offering informal business
76 card for people engaging in informal activities. However, such initiatives seem to overlook land for commercial
77 ornamental enterprise which provides green materials greening urban environment.

78 Despite less legal and policy document in Tanzania context, commercial ornamental nurseries are mushrooming
79 everywhere within the CBD and in the peri-urban areas of the city. Yet, there is a limited formal information
80 platform for discussing the future prosperity of these commercial ornamental nurseries. Then, what is the future
81 prosperity of commercial ornamental dealers? Therefore, this paper examines the challenges, problems and future
82 prosperity of ornamental dealers in Dar es Salaam city.

83 2 II.

84 3 Methodology

85 The study adopted a qualitative research approach in order to unveil the feelings, understanding, thoughts
86 and opinions regarding the challenges and problems encountered by commercial ornamental dealers. Moreover, it
87 employed a case study because five cases were studied including, Mlimani city along Makongo-Juu Road; Temboni
88 along Morogoro Road and Magari Saba along Mbezi to Kibamba Road both in Ubungo Municipality. Others
89 include sites besides Tumaini University College and GMS industrial area along Mwenge to Coca-Cola Road in
90 Kinondoni Municipality.

91 Thirty ornamental plants dealers were purposively selected particularly those who could provide first-hand
92 information. Moreover, five Mtaa chairpersons, one agrovet dealer, one town planner, one environmental officer
93 and one agricultural officer were interviewed using checklists.

94 Data were collected from the primary sources through the in-depth interview with ornamental plant dealers,
95 Mtaa chairpersons and the officials. Secondary sources of data, particularly published papers were reviewed
96 firstly to widen the understanding of the researchers on the topic and secondly to cite important information in
97 order to enrich the discussion.

98 **4 III.**

99 **5 Results and Discussion**

100 **6 a) Access to land for commercial ornamental nurseries**

101 Land is the requisite factor for the existence and flourishing of ornamental plant nurseries in the city of Dar
102 es Salaam. Commercial ornamental dealers follow number of steps to acquire land depending on the existing
103 ownership over the land they are interested for their activity. In the visited sites for instance, some of the land is
104 owned by institutions while others by individuals. One of the respondents along Mlimani City nursery declared
105 that places used for ornamental plant nursery are not accessed freely, one has to see the owner or responsible
106 institution in order to request for the permission. However, before establishing the business, they first write a
107 letter which presents their request and send it the owner of the land. Their request can be either accepted or
108 rejected. When it is accepted, they are given conditions which they are obliged to adhere.

109 In the similar note, one of the respondents quoted saying that:

110 **7 We wrote a letter to the University of Dar es Salaam**
111 **management requesting a permission to use the two road**
112 **reserves thinking that the University is the owner, instead the**
113 **University directed us to the management of Mlimani City**
114 **Shopping Mall who currently do manage the area, eventually**
115 **permitted us but with some conditions”.**

116 One among the conditions was to ensure the general cleanness of the site used for such activity. Another
117 condition given was that, they should be ready at any time to vacate the site wherever the area is needed by the
118 management.

119 Similar conditions were given to Magari Saba ornamental dealers along Mbezi-Kibamba Road; although, this is
120 a different site and owned by Tanzania National Roads Agency (TANROAD) The TANROAD told the ornamental
121 nursery dealers to observe environmental cleanliness while undertaking their activities. The findings reveals that
122 despite, land for ornamental nurseries being owned by different institutions, conditions given to the ornamental
123 plant dealers and procedures to access such land are almost the same.

124 The most challenge encountered by the ornamental plant nursery dealers is the lack of security of tenure to
125 support their existence in the site. Wherever owners need to use the area for other planned or emerging activities
126 the nursery project ends up instantly. These findings reflect the study by Berry (2014) who points out that
127 access to land by ornamental nursery dealers is not an easy task in rapidly urbanized cities. However frankly,
128 ornamental plants are having more roles to play especially the green of urban environment. In other country like
129 Nigeria also, access to land for ornamental activities is in adequate (Adeduntan, 2015), implying that there is no
130 effort taken by the city authority to designate and allocate land for ornamental nurseries. When the ornamental
131 dealers at Mbezi site were interrupted due to expansion of Ubungo-Kibamba road, they attempted to seek land
132 elsewhere in the city. The squatted on un-built up public land while are keep on searching the land for their
133 ornamental plants.

134 For instance, ornamental plant dealers located nearby the Tumaini University College along the Mwenge-Coca
135 Cola Road were given a place by the Tanzania Rural and Urban Road Agency (TARURA) but condition that
136 should be ready to vacate whenever the area is in need without any compensation. The condition of instant
137 vacating given is tedious because it is not Start up the business easy to secure area for short period of time.
138 Some gardeners who suffered during the Ubungo-Mbezi road expansion squatted in the public land but three
139 months later their nurseries were destroyed without a pre notice in-favour of government water project. What
140 happens along Ubungo-Mbezi in Dar es Salaam is not a new story in East Africa context, in Nairobi for example,
141 the expansion of intra city roads involved the evictions of road reserve commercial ornamental dealers without any
142 excuse and compensations (Otiso, 2018). In contrary, Franco et al. (2006) argued that commercial ornamental
143 needs to be recognized in urban land use development projects in order to support the future of ornamental
144 nursery projects. In some countries like Cuba and China, city authorities recognize the importance of ornamental
145 nurseries and landscaping projects hence it area has been included in the design of detailed plan (Zeeuw et
146 al., 2000& Lau, 2013). However, the city environmental officer acknowledged that in Tanzania little attention
147 has been paid by urban authority to support ornamental nursery because it is thought that it is an enterprise
148 which can operate privately. Despite ornamental nursery being the primary components for greening the city
149 environment, its operation and management is not heartily supported and it seems to be not a city authority
150 priority like health, water services, education and infrastructure development. All these have retarded efforts
151 behind its prosperity.

152 **8 b) High urban land price**

153 The land value in Dar es Salaam city has increased because of increased population and high demand for residential
154 and commercial plots. As a result urban land use with higher economic merits are given priority in land use
155 planning. Access to land by low income groups in urban areas remain uncertain due to high prices which do not
156 reflect low income earners' budget like ornamental commercial dealers.

157 With this reason, few commercial ornamentals do rely on road reserved land to undertake such activity.
158 Scholars Dearbornet & Kark (2010) argue expensive land price in cities have discouraged majority land owners
159 to put interest to commercial cultivars rather prefer other land uses like residential and commercial activities.
160 Apart from high land price and lack of security of tenure, ornamental plant nursery requires good location free
161 from interferences from other anthropogenic activities. However, this condition did not prevail to the ornamental
162 nursery nearby Mwenge Minibus Stand because of the interferences from petty traders. In the discussion with
163 some of the respondents who formally used area that area reported that because of interference of petty traders,
164 they had to struggle searching for another site which destined them to the road reserve opposite GSM industrial
165 area along Mwenge-Coca Cola Road.

166 **9 c) Access to water by commercial ornamental nursery dealers**

167 Water is very necessary for the growth of plants as well as in the manufacturing of food via photosynthesis and
168 also in the transportation of minerals and food for the plant. Ornamental plant nursery dealers from the visited
169 sites access water from different sources to supplement rain water during dry season as shown in table 1. One of
170 the respondents in the discussion had this to say:

171 We had to leave the area because petty traders were not respecting our project they use to step on our
172 seedlings, destroying them and even sometimes stealing them that made us find another place". nearby industries
173 and waste water from nearby residential areas. Although some commercial ornament dealers use dirty water
174 discharged from the industry and nearby residential houses, none have complained on the negative effects of such
175 water to the garden plants. The use of reclaimed water is however, not a new phenomenon as it is also used in
176 the United States of America for irrigation purposes (Haering et al., 2009); however, it is recommended that such
177 water have to be

178 **10 d) Access to seeds and plant material for propagation**

179 Seeds and other propagating materials such as flower and shrubs cuttings and suckers are important for the
180 sustainability of ornamental plant nurseries (Dehnen et al, 2007). Seeds used by gardeners are both exotic and
181 native species collected from various parts of the country. According to the interview, the gardeners collect
182 the ornamental plant seeds and propagating materials within and outside the city and multiplied them through
183 propagation techniques by some experienced gardeners. However, the findings revealed that people who used
184 work as gardeners in foreign embassies and catholic churches located in Dar es Salaam are the ones who brought
185 exotic species of ornamental materials to nursery dealers. Some seeds of turf grass species like Brazilian are
186 rarely sold in some shops at Kariakoo but most of them are locally collected. In order to ensure the supply
187 of diverse ornamental plant species, some of the commercial ornamental plant gardeners have established the
188 gardening network with commercial other ornamental dealers from other Tanzanian regions including; Tanga,
189 Iringa, Morogoro, Mbeya and Arusha. However, not all plants from Tanzanian those regions perform better in
190 the hot climate of Dar es Salaam and most of them already contain pest and diseases infestations. According
191 to one of the ornamental dealer adjacent Tumaini University argued that their interaction with other dealers
192 outside Dar es Salaam help them share gardening experience, challenges and opportunities though mobile phones
193 and sometime through face to face conversation. This implies that there is no formal arrangement and ways for
194 gardeners to access improved seed for their nurseries (Magigi, 2013).

195 **11 e) Management of insect pest and disease**

196 Management of insect pest and diseases are essential aspect for the success of commercial ornamental nursery
197 particularly in tropical countries like Tanzania as they have considerable effects in reducing quality and quantity
198 of produce. This normally happen when choosing pest and disease resistant species as a preventive measure.
199 Sometimes ornamental dealers spray pesticides as a control measure for the affected plants, thus, timely
200 availability of inputs is very crucial (Magigi 2013). At Mlimani city nursery, the pests and diseases were not
201 common, however, gardeners reported that, usually use to consult agricultural extension officers wherever they
202 notice signs of insect pest and diseases. One of the agrovet-dealers interviewed said that; normally offer them with
203 pyrethroids pesticide which is not effective for all types of insect pests. The study also revealed that, at Tumaini
204 University College nursery site, the most common pest reported was aphid. Gardeners attempt to control it
205 using Malathion pesticide. Nevertheless, respondents further reported that such pesticide is sold at higher price
206 almost 30,000TZS per 100ml which is less effective for a single application, unless it is applied twice or thrice in
207 a month.

208 At the GSM site, the nursery is affected by various pests and diseases. However, the gardeners do not know
209 the type of the disease in English; rather According to one of the respondents around Tumaini University,
210 ornamental dealers manage to name the pesticides in Swahili language as Digo, Carret, Ninja, Vitashield and

211 Booster. The respondents further reported that normally booster is used to improve the health of the plant as
212 well as making them greener. However, it is reported that, pest and diseases to plants are serious problem noted
213 during the discussion with youth at Temboni site. Yet, youth undertaking commercial ornament activities are
214 not knowledgeable with pests and diseases, they normally observe changes and physical abnormalities that affect
215 normal plant growth and thereafter take the affected part of the plant to the agrovet dealers seek for advice and
216 how to deal with such problem. The most common diseases mentioned include fungal and bacterial disease with
217 no specification of a particular disease. The commonly used chemicals and pesticides include Dasfarm, Profecron
218 720 EC and Farmguard 344SE as shown in plate 2. These findings are in contrary with the study carried out in
219 Nigeria by Akintoye et al. (2011) pointed out the common insect pests of ornamental nursery including termites,
220 white flies, stem bore and aphids while the diseases are root rot, powdery mildew, swollen shoot, leaf blight and
221 stem bore.

222 Source: Respondents interview, 2019.

223 **12 f) Marketing for ornamental plants**

224 Marketing is a very crucial aspect of any business. Market always sustains any business including production
225 and selling of ornamental plants (Hsieh, 2001). Despite market being important, findings of this study show that
226 commercial ornamental nurseries have no permanent customers of their nursery products, customers are coming
227 from different places of the city. According to one of the respondents at Mlimani city, common buyers are the
228 road passersby, those in car driving, owners of big hotels, commercial buildings and residential houses. Other
229 customers include primary and secondary school as well as university management, who buy and planting them
230 in the outdoor environment within their residences or campuses. Currently, some ornament dealers have started
231 to propagate fruit trees such as mango, guava, pawpaws and citrus, all these are sold to different customers. The
232 fruit trees are highly sold to customers compared to typical ornamental plants because of its possibility to offer
233 double rewards such as food and ornamentation (Bishoge, 2018).

234 Commercial ornamental dealers generally have no reliable market as may stay for some days or a week or more
235 without selling any plants, but when customers come do compensate those days stayed without Volume XX Issue
236 I Version I

237 **13 h) Challenges**

238 Table 2 presents summary of the problems and challenges encountered by commercial ornamental dealers in
239 the studied areas of Dar es Salaam city. Results from the discussion and in-depth interview show that the most
240 pressing problem is lack of security of tenure followed by diseases and pests and lastly almost 5 interviewed persons
241 claimed to have unreliable market. i) Prospects Despite challenges facing commercial ornamental gardening, still
242 there is hope and confidence of success among dealers (see table 3). In all interviews, respondents were free
243 to mention their possible optimisms with regard to commercial ornamental nurseries; thus, the analysis and
244 discussion of their claims are still vital. Table 3 present participants view and their future prosperity which
245 may become true if some of the problems discussed can be resolved. In particular, the issue access to land
246 for ornamental nurseries which scored 44% in challenge raking table. Temporally lease utilize idle land, gives
247 gardeners income and can be surrender when need by the owners 2.

248 Expanding their business Commercial ornamental gardening provides them a means of earning income.

249 **14 3.**

250 Diversify their activity Strive to diversity ornamental garden activities as per wishes of their customers.

251 **15 4.**

252 Seeking technical/financial support Visit city office and nation farmers exhibition day (Nane-nane day) for
253 learning more the management practice of their garden and secure fund where wherever there is a possibility of
254 doing that. 5.

255 Possession of informal business card The national business card granted for every year by the city authority
256 will make them more recognizable as private business people. 6.

257 **16 Grow ornamental plants adoptive to local environment**

258 Grow ornamental resistance to drought or pest/disease subject to the advice provided by consulting experts
259 (whenever possible).

260 Source: Respondents interview, 2019.

261 The survival and the success of ornamental plants depend on the hopefulness of gardeners from the city
262 authority. Therefore the information from Table 3 provides base information during debating and making
263 decisions of urban land use and supporting ornamental plants nurseries in the cities.

264 IV.

17 Conclusion

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The commercial ornamental nurseries are the main suppliers of ornamental and edible plants in the urban areas. Its values and importance are not restricted to income generation but also in beautifying and greening the urban built-up environment. Apart from these few mentioned values, the enterprise is confronted by number of problem and challenges such as; inaccessibility of land for establishment of nurseries and difficulties in their management practices. The possibility of gardeners to access to land lies within the capacity of city and urban authorities, but the decision in-favour of land for ornamental nurseries establishment seems to be expostulated in land use development decisions; hence, given less attention and priority. The values provided by ornamental nurseries are generalized in some legal and policy documents such as land policy, environmental policy and urban planning act but practically, ornamental gardening practices seem to take place in their absence. Agricultural extension services are mostly confined on food crops production and management; in a very rarely case such services are extended to ornamental plant gardeners. Moreover, limited source for water for irrigating the ornamental garden has exacerbated garden management problems particularly during the dry seasons. All these challenges and problems hamper the future prosperity of commercial ornamental gardens. Hence, subsequently the enterprise is likely to disappear and the values gained from it will nowhere be found and accommodated in our cities.



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Figure 1: Figure 1 :

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Figure 2:

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S/n	Commercial nursery sites	Sources of water
1	Mlimani city	-Waste water discharged from road side drains. -Water discharged from the leakage of city water supply authority (DAWASA). -Waste water discharged in road side drains from the nearby residences.
2	Beside Tumaini University Collage	-Sometimes do buy water from water vendors.
3	Along GMS Industrial area	-Waste water discharged in road side drains from the industrial area and nearby residences.

Figure 3: Table 1 :

Future Prosperity
2,280 TZS). One of the respondents along Tumaini

University College road reserve argued that the amount

he earned is not enough to meet all his needs but he considers himself with better life in comparison to others with no any income generating activity. Another respondent at Temboni site reported to earn 600,000TZS a week. Out of this amount earned per month, he saves one third of the earning as operational costs. The gardeners at this site work as a group while documenting the cost incurred in running the nursery and recording the amount earned as the group per month. The amount earned by garden how it is small; it justifies the finding by Barbe et al (2017) who reported that an enterprise has a possibility of reducing income and unemployment challenges.

g) Knowledge acquaintance by commercial ornamental gardeners

Knowledge and experience are among major factors behind success in any project. Likewise, ornamental plant production and management requires people with adequate knowledge obtained from formally recognized institution or practices (Barbe et al., 2017). In this study it was revealed that about 80% (n=30) receive no formal training in the ornamental nursery establishment and management. Most of them learn through practical and experiences. However, 10% (n=30) of the respondents attended a special training on plant propagation at Sokoine University of Agriculture while 10% (n=30) were informally working to individual persons (foreigners) who hired them, coached and

Plate 2: Pesticides used in ornamental plant nurseries

instructed them on how to handle ornamental nurseries.

As one respondent Mr. Abdala quoted saying that:

making any sell. The gardeners mostly sell the nursery products during rainy season. According to one of the respondents at the Mlimani city the amount earned per month ranges from 600,000TZS to 900,000TZ with an average of

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S/n	Challenge	Frequency	Percentage (%)
1.	Insecurity to land occupancy right	30	44
2.	Difficulties to access to water sources	9	13
3.	Inadequate assistance (technical/fund)	7	10
4.	Difficulties in marketing ornamental plants	5	7
5.	Diseases and pest management	15	22
6.	Plant materials and seeds inaccessibility	2	3
	Total	68	100

[Note: Source: Respondents interview, 2019.]

Figure 5: Table 2 :

3

S/n.	Prospects	Remarks
1.	Short term lease of vacant public land located close to water sources and road junctions.	

Figure 6: Table 3 :

280 .1 Acknowledgement

281 The data of this study was collected from different commercial ornamental dealers in Dar es Salaam city and
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283 and provide us with information necessary for study. Authors contributed some amount of money to finance the
284 whole process of conducting the study including field trips and interviews.

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17 CONCLUSION

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