GLOBAL JOURNAL OF BIO-SCIENCE AND BIOTECHNOLOGY

www.scienceandnature.org

ASSESSMENT OF SMALL SCALE PRIVATE PLANT NURSERY ENTERPRISE IN PORT HARCOURT, RIVERS STATE

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ABSTRACT
Small scale private plant nursery enterprise is a self-employment business that can contribute to income generation and socio-economic development of a state, but it has not been embraced because little or no information exist on costs and return from investment. The cost of establishing a small scale private plant enterprise was evaluated in this study. Small scale private plant nursery along the four major roads in Port Harcourt (East-West, NTA-Choba, Port Harcourt-Aba and Ikwere roads) were purposively sampled through administration of structured questionnaire. Parameters evaluated include socio-economic characteristics of nursery owners, plant species raised, costs and return, cash flow of the enterprise, rate of return on investment (RORI) and cost- benefit ratio. Data obtained were subjected to descriptive analysis. The plant raised in the nursery includes ornamental (23.4%), agricultural (23.4%), horticultural (22.8%), medicinal (16.4%) and forestry (14%). Male (78.9%) are dominant in the age bracket of 21-40years in the business. The total cost of establishing a small scale nursery was evaluated to be N133, 850 excluding cost of water supply and labour (this is because majority of the nursery owners locate their enterprise near streams/rivers and used family labour). The average profit of small scale nursery was evaluated to be N123, 000 per annum and the rate of return was 355.56%, while the Benefit-cost ratio was 2.76. The main dominant of production cost is land. Land availability, water shortage, pest and diseases as well as inadequate fund affected the output per unit area.

KEY WORDS: Small scale enterprise, Plant nursery, Cost and Return, Profitability.

INTRODUCTION

A plant nursery is a managed site, designed to produce seedlings, grown under favorable conditions until they are ready for final planting. Plant nurseries are key success factor in many forestry and agricultural development programs. A plant nursery can be an informal, small-scaled arrangement or a large commercial enterprise. Nurseries vary in size, facilities (supplies, tools, equipment, *etc*.), types of seedlings produced, and operations (World Agro forestry Centre 2010). They also differ significantly in quantity and quality of planting stocks produced. Nursery establishments can generally be grouped into private and public depending on the ownership, size and ultimate goal of their establishments (Adebanjo *et al.,* 1996). One major distinction between the private and public nursery is priority on profit maximization (Mailumo *et al.,* 2006). The motive and goal of any private business enterprise is to make as much profit as possible while the public enterprise has the ultimate motive of catering for the welfare of the masses (Sargent, 1993). Plant nurseries may often provide income generating opportunities for the operators and enhance the social capital, technical capacity and leadership skills of communities. For the past decade, there has been an emerging interest in small-scale (or small holder) forestry, Nigeria inclusive. Small- scale enterprises certainly play an important role in the production of goods and services and in the generation of substantial employment and income in almost all countries, both developing and developed. Income generated in small-scale enterprises would depend largely on the nature of local demand and the overall state of the local economy (Moodley, 2003). In a country with a high percentage of active adult with employment problem, there is need for studies that create awareness for people in prospecting the hidden opportunities in the economy in order to ease the pressure on the government for the provision of jobs and create awareness on how people could become self-employed. The plant nursery enterprise is a form of self-employment opportunity that generates income with relatively low investment expenditure, and thereby possesses the potential of enhancing the socio-economic aspects of the economy. According to Sullivan *et al.* (2003) an enterprise is an organization involved in the selling of goods or services, or both to consumers. Also, an enterprise is the activity of providing goods and services involving financial and commercial and industrial aspects; (the free dictionary, 2011). While a small scale enterprise is a business that is privately owned and operated, with a small number of employees and relatively low volume of sales (Wikipedia, 2011). Abdulahi (1993) as cited by Ayozie (2006) in the role of small-scale industry in national development in Nigeria stated that small-scale business, small industries and small-scale entrepreneurship are used interchangeably to mean a small-scale industry firm. In Nigeria, the Third National Development plan defined a small-scale business as a manufacturing establishment employing less than ten people, or whose investment in machinery and equipment does not exceed six hundred thousand naira (Adegbite, 1995). David and Nyong (1992) noted that between small and medium-scale enterprises there is no clear-cut definition that distinguished a purely

small-scale enterprise from a medium-scale enterprise. Ayozie (2006) noted that small scale enterprise generate employment for a lot of Nigerians. A lot of unemployed people and youths have found employment in small scale enterprises. The entrepreneurs (in these small-scale enterprises) have in turn provided jobs for other Nigerians who serve as support, technical and administrative staff for them. This has reduced the dependence on government and large firms on salaried employment. Small-scale enterprise has stimulated rural development and the achievement of a meaningful level of broad economic and rural development. Babalola (2008) in assessment of small-scale private nursery enterprises in Ibadan stated that small-scale enterprises has significant potentials of providing reliable job opportunities for young graduate and other people in the society. Shokan (2000) as cited by Ayozie and Latinwo (2010) highlighted some of the role of small-scale enterprise in economic development as follows: The provision of employment, marketing for goods and services which are offered for sales. A lot of youths, retired workers and out of school graduates are gainfully employed, thereby reducing the unemployment rate and its attendant's social complication such as armed robbery and white collar crimes. It helps to bring about new goods and services and supply the needs of large enterprises and (or industries), which have to rely on small-scale operators for business success. Small-scale enterprise checks the effect of polarization by a planned and systematic development of rural areas. The much talked about urban migration is reduced by the introduction of small-scale enterprises in rural area. The activities of small enterprise firms have resulted in the mobilization of the resources of the environment and thereby improving on the standard of living of the population. They have accounted for a large percentage of all business and a favorable percentage of the nation's gross national product. This fact is more relevant in the developed countries such as United Kingdom where proper accounting system is kept. Other noticeable impacts are its contribution to the development of indigenous entrepreneurship. Its contribution to the mobilization of domestic savings and utilization of industrial products and some services and have contributed immensely to the production of raw materials in form of semi-processed goods for use by bigger industries. It is a base for the development of appropriate technology and provides a veritable ground for skilled, unskilled and semi-skilled workers. It has provided productive self-employment to a number of educated and less educated young men and women coming out of schools, colleges, polytechnic, and universities (Ayozie and Latinwo, 2010). Tijani (2004) according to Ayozie and Latinwo (2010) enumerated that the entrepreneur is most critical factors in the economic development of any nation. Entrepreneur organizes, and utilizes the various factors of production and finally sets productive machinery in action towards overall economic development; consequently, the availability of the small-scale enterprise is therefore the undisputed precondition for economic growth. The contribution of small-scale private plant nursery enterprise (which is a self employment business) in economic development both to the individual and to the nation's economy cannot be overemphasized according to Babalola (2008). Small-scale nursery establishments are highly profitable business ventures in Nigeria due to the short time between production and sale of most of the plants involved (Aiyeloja and Larinde. 2006). Mailumo *et al.* (2006) in their socio-economic analysis of tree seedling production in nurseries in Abuja, Federal Capital Territory (FCT), Nigeria concluded that the business is profitable with the owners realizing an average profit of N277, 108 from an average nursery size of 0.2ha. They also discovered that the nursery owners realized an average profit of N277, 108, or N1.80 per naira (N) invested, of which ornament, shade, fruit and forest seedlings constituted 25%, 21%, 18% and 12% respectively. Hence, if adequately exploited, small-scale private nursery enterprises have the prospect of yielding economic returns to the operators, while also providing environmental benefits. A survey reported by Filani *et al.* (1994) on the business operating in Ibadan revealed that small-scale business enterprise dominates. This then showed the vital role of small-scale business enterprises have on the economy of Ibadan. The contribution of small-scale private nursery enterprise is not exceptional. The main objective of this research was to determine the cost and profitability of establishing a small scale private plant nursery enterprise in Portharcourt city. The specific objectives are to: assess the demographic characteristics of owners; Identify species raised and classify them; Carry out benefit-cost analysis of the enterprise; Determine factors affecting the establishment of small scale private plant nursery in the study area. The study therefore serve as a guide to agricultural and forestry key players on small scale private plant nursery investment decisions in Rivers state and Nigeria as a whole.

METHODOLOGY

STUDY AREA

Port Harcourt is the capital of Rivers State, Nigeria. Port Harcourt lies along the Bonny River and is located in Niger Delta (Encyclopedia Britannica, 2010), 41 miles (66km) upstream from the Gulf of Guinea. The main city of Port Harcourt is the Port Harcourt town in the Port Harcourt city Local Government Area, consisting of the former European quarters now called Old Government reservation area (GRA) and the new layout areas. Port Harcourt has an estimated population of 1,230,000 (city population, 2010). The Port Harcourt city area (Port Harcourt metropolis) is made up of the city itself and parts of Obio/Akpor local government. The Port Harcourt city, which is the capital of Rivers State, is highly congested as it is the only major city in the state. Port Harcourt is known for lengthy and heavy rainy seasons with very short dry season with average temperature of 25^{o}C-28 ^{o}C **.**

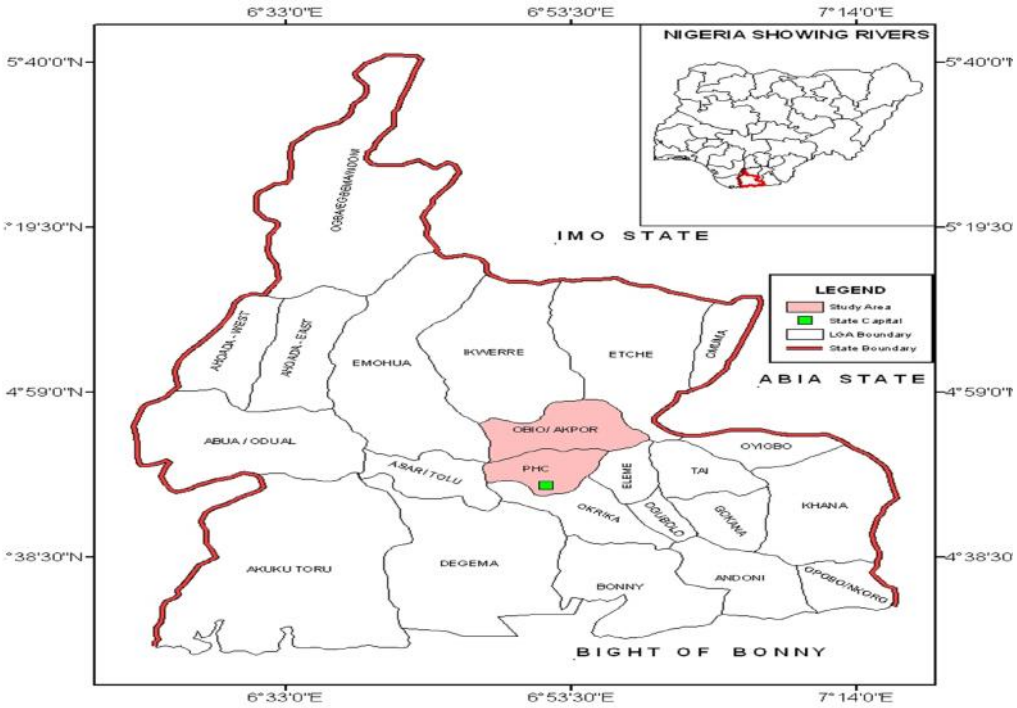

FIGURE 1: Map of Rivers State indicating the study Area
Source: Ministry of Land and Survey, Rivers State

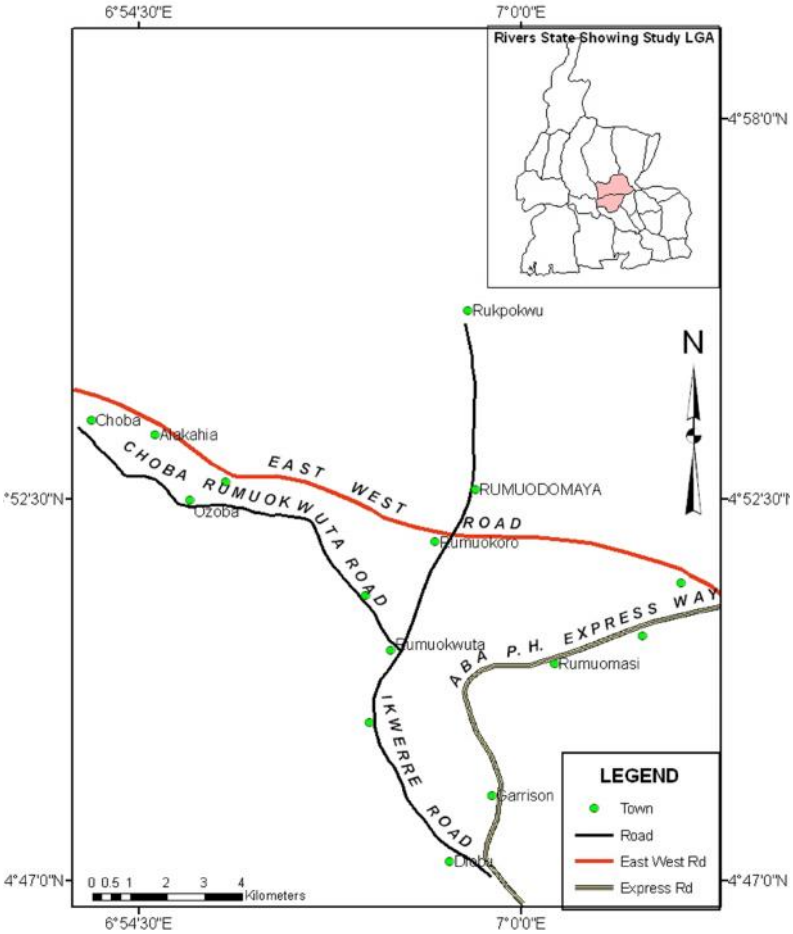

FIGURE 2: Map showing the four major roads network purposefully sampled in the study area
Source: Ministry of Land and Survey, Rivers State

DATA COLLECTION

Small scale private plant nursery site along the four major roads in Port Harcourt were purposively sampled; these are: Aba/Port Harcourt Road, East/West Road, Ikwere Road and Choba/NTA Road. A total of forty (40) nurseries were visited within the four (4) major roads, the number of respondents in each sampled area shows a proportion of 90% of the total nurseries in the area. Most of the information was gathered through primary sources (questionnaire survey, personal observations and interviews) as well as secondary sources. A structured questionnaire was administered to the nursery operators which contained questions on the demographic characteristics of the nursery owners, the capital used in starting the business, the equipment and materials they use and the cost of purchasing them and their weekly, monthly and yearly income. Information on the yearly cost of production and income of ornamental, horticultural, forestry, medicinal and agricultural seedlings were obtained through this questionnaire. Also, secondary data was collected on the cost of production of all seedlings and the income generated within the past five years (i.e. from 2006 to 2010)

DATA ANALYSIS

The analytical tools that were employed for the study comprises of descriptive statistical tool which include frequency, mean, tables and graph. The profitability of the enterprise was calculated using the formula below

Profitability analysis:

Profit = TR - TC ----------Equation 1

$$RORI = \frac{TR-TC}{TC} \times \frac{100}{1}$$ ----------Equation 2

Where: TR is the Total Revenue

TC is the Total Cost

RORI is the rate of return

Benefit/ cost ratio: The cost benefit ratio of the enterprise was evaluated using the formula shown below.

$$B/C = \frac{\sum_{t=0}^{t=n} \frac{B_t}{(1+r)^t}}{\sum_{t=0}^{t=n} \frac{C_r}{(1+r)^t}}$$ ----------Equation 3

Where B = benefit, C = cost, t = time, r = interest rate

The cost-benefit ratio (B/C R) is determined by dividing the revenue generated in the plant nursery by the costs incurred. If B/C R is > 1, then the enterprise is operating at a profit but if B/CR < 1, it is a non-profitable venture.

Discount rate

Discount rate of 14% was use in the analysis because the lend rate for Agricultural loan in Nigeria is pegged at this rate by Central Bank of Nigeria.

RESULTS & DISCUSSION

Demographic characteristics of nursery owners

Out of the 40 nursery sampled, about 78.9% of the operators were males and 21.1% were females. Most of the nursery owners were between the age ranges of 21-40 which resulted to 55.3% of the sampled population, 36.8% were between the age range of 41-60 and 7.9% were within the age range of 60 and above (Table 1). In terms of educational qualification, 2.6% of the nursery owners had undergone only primary school level of education, 60.5% had gone a little further in attaining secondary school level of education while 36.8% of the population had tertiary education from post-secondary institutions like colleges of education, poly-techniques and the universities. The dominant household size was 1-5 with a percentage of 71.1% of the population, 26.3% of the sampled populations were between the range of 6-10 in household size and 2.6% were between 16 and above.

The population of the nursery owners that were married was 68.4% and those that were not married were 31.6%.

TABLE 1: Demographic characteristics of respondents in the study area

	Demographic characteristic	Frequency (%)
Sex	Male	78.9
	Female	21.1
Age	21-40	55.3
	41-60	36.8
	> 60	7.9
Marital status	Single	31.6
	Married	68.4
Educational qualification	Primary	2.6
	Secondary	60.5
	Tertiary	36.8
Household size	1-5	71.1
	6-10	26.3
	11-15	-
	>16	2.6

High percentage of male plant nursery operators (78.9%) could be as a result of the nature of the plant nursery enterprise which is highly labour intensive in requirement for the operators. This is supported by Fakayode *et al.* (2008) in their study carried out in Kwara State, Nigeria, it was discovered that 85.2% were male and 14.8% were female due to the high labour requirement of the ornamental business. The dominant age range recorded was between 21 and 40 years and this age bracket is composed of youths implying that plant nursery enterprise can greatly empower and create jobs for the able body youths. This is corroborated by Fakayode *et al.* (2008) which reported the dominant age range of 21-50 years for a similar study in Kwara State, Nigeria. It was observed during the survey that the nursery operators that had undergone tertiary education were able to manage their enterprises properly, they kept adequate record of income and expenditure, they were able to raise their seedlings through seeds, budding, grafting and some other methods. Whereas, many of those that had primary and secondary

educational qualification were used to a particular method of raising their plants (*i.e*. through seeds) except for those who have been in the enterprise for a long time. The plant nursery enterprise seems to be very popular among married people compared to the unmarried and this suggests availability of family labour. Large household size of some of the nursery operators make them to engaged in other kinds of business apart from the plant enterprise. They were engaged in businesses like transportation, carpentry, poultry farming, tailoring, and security jobs at night in other to generate extra income to sustain their families.

CATEGORIES OF SEEDLING PRODUCED

The category of seedlings produced by the plant nursery operators ranges from ornamental, horticultural, forestry, agricultural, medicinal etc. This category of seedlings produced is shown in Table 2 and their frequency of occurrence.

TABLE 2: Categories of seedling produced by sampled nurseries

Type of seedling produced	Number of Nurseries	Frequency (%)
Ornamental	40	23.4
Horticultural	39	22.8
Forestry	24	14.0
Medicinal	28	16.4
Agricultural	40	23.4
Total	171	100

The categories of seedlings produced by the nursery operators include ornamental (23.4%), horticultural (22.8%), forestry (14%), medicinal (16.4%) and agricultural (23.4%) seedlings. The ornamental, horticultural and agricultural seedlings were raised more than others because they are mostly bought by consumers who use it for landscaping or beautification purposes and for food substances and condiments. The medicinal seedlings are mostly bought by individuals that use it for herbal or as traditional healing of ailments. The forestry seedlings that were raised in some of the plant nurseries were mostly shade trees. The horticultural seedlings were bought by consumers who use them for home gardens. Babalola (2008) in his study in Ibadan categorized the seedlings produced by the nursery operators as ornamental, horticultural and forestry seedlings. The seedlings were categorized by the nursery operators according to the usefulness of the plant.

CLASSIFICATION OF SPECIES RAISED IN THE PLANT NURSERIES

TABLE 3: Classification of species found in the private nursery in the study area

S/N	Seedling Categories	Botanical Name	Common Name	Family
1	**Ornamental**	*Bougainvillea spp*	Bongovilla	Nyctaginaceae
2		*Livistonia chinensis*	Livistona palm	Arecaceae
3		*Areca catechu*	Queens palm	Arecaceae
4		*Equisetum arvense*	Horse tail	Equisetaceae
5		*Crytomium falcatum*	Fish tail fern	Polypodiaceae
6		*Rhoeo discolor*	Rhoeo or boat lily	Crassulaceae
7		*Hibiscus rosa-sinensis*	Hibiscus	Malvaceae
8		*Dieffenbachia spp*	Dumb cane	Araceae
9		*Strelitzia reginae*	Bird of paradise	Strelitziaceae
10		*Adiantum capillus-veneris*	*Maiden hair fair*	Adiantaceae
11		*Pachystachis intea*	*Lollipop plant*	Euphorbiaceae
12		*Centaurea cyanus L*	*Bachelor's button*	Asteraceae
13		*Caladium hybrids*	*Caladium*	Araceae
14		*Euphorbia milii*	*Crown of thorns*	Euphorbiaceae
15		*Thuja orientates*	*Thuja pine*	Anacardiaceae
16		*Cycas circinalis*	*Ferm palm*	Cycadaceae
17		*Cycas revolute*	*Cycas plam*	Cycadaceae
18		*Agave bitterii*	*Agave*	Agavaceae
19		*Agave sissalina*	*Agave*	Agavaceae
20		*Sanseviera trifasciata-laurentii*	*Mother-inlaw tongue*	Agavaceae
21		*Acalypha wikesiana*	*Acalypha plant*	Euphorbiaceae
22		*Guzmania monostachya*	*Bromaliade*	Bromeliaceae
23		*Hedera helix*	*English vine*	Araliaceae
24		*Dracaena godseffiana*		Dracanenaceae
25		*Spathyphyllum wallisii*	Peace lily	Araceae
26		*Portulaca spp*	Morning rose	Portulacaceae
27		*Helianthus annuus*	Sunflower	Asteraceae
28		*Begonia haageana*	Begonia	Begoniaceae
29		*Artemisia arbrotanum*	African never die	Asteraceae
30		*Cuphia spp*	Match plant	Lythiaceae
31		*Strophanthus gratus*	Almanola	Apocynaceae
32		*Peperomia sandersii*	Pileas	Piperaceae
33		*Ficus elastic*	Rubber palm	Moraceae
34		*Jatropha curcas*	Jatropha	Euphorbiaceae

35		*Ficus beaghalensis*	Ficus	Moraceae
36		*Yucca gloriosa*	Palm lily	Agavaceae
37		*Plumbago capensis*	Plumbago	Plumbagnaceae
38		*Philodendron bipinnatifidum*	Philos	Araceae
39		*Gardenia augusta*	Gardenia	Rubiaceae
40		*Anthurium and reanum*	Anthurium	Araceae
41		*Zygocactus trancatus*	Christmas cactus	Cactaceae
42		*Arau caria excels*	Norfolk island pine	Araucariaceae
43		*Aglonema commutatum*	Aglonema	Araceae
44		*Rosa gallica*	Roses	Rosaceae
45		*Cannalily canna indica*	Blue lily	Liliaceae
46		*Cannalily cana hortensis*	Ghana lily	Liliaceae
47		*Ipomoea alba*	Noon flower	Convolvulaceae
48		*Hydrangea macrophylla*	Hydrangea	Hydrageaceae
49		*Duranta repens*	Green bush	Verbenaceae
50	**Medicinal**	*Ocimum tenuiflorum*	Scent leaf	Labiatae
51		*A. barbadensis*	Aloe vera	Aloaceae
52		*Ziriger officinale roscoe*	Ginger	Zingiberaceae
53		*Allium sativum L.*	Garlic	Zingiberaceae
54		*Vinca rosea*	Periwinkle roses	Apocynaceae
55		*Aframomum melequeta*	Alligator	Zingiberaceae
56		*Nicotiana tabacum L.*	Tobacco	Solanaceae
57		*Centella asiatica*	Goutu kola	Apiaceae
58		*Starchytapheta indica*	Vervain	Verbenaceae
59		*Moringa oleifera*	Morringa	Moringaceae
60		*Jasminum sambae*	Jasminoids	Oleaceae
61		*Murraya koenigii*	Curry leaf	Rutaceae
62		*Gongronema latifolium*	Utazi	Asclepiadaceae
63		*Piper guineensis*	Uziza	Pipaceae
64	**Agricultural**	*Persea Americana*	Avocado pear	Lauraceae
65		*Elaesis guineensis*	Palm fruit	Arecaceae
66		*Citrus reticulate*	Tangerine	Rutaceae
67		*Mangifera indica*	Mango	Anacardiaceae
68		*Citrus paradise*	Grape fruit	Rutaceae
69		*Citrus hystrix*	Shaddock	Rutaceae
70		*Phoenix dactylifera*	Date palm	Palmae
71		*Prunus spp*	Cherry	Rosaceae
72		*Fragaria vesca L.*	Strawberry	Rosaceae
73	**Forestry**	*Delonix regia*	Flame of the forest	Fabaceae
74		*Terminalia cattapa*	Alamond fruit	Combretaceae
75		*Annona muricata L.*	Sour sop	Annonaceae
76		*Chrysophyllum albidium*	African star apple	Sapotaceae
77		*Treculia Africana*	African bread fruit	Moraceae
78		*Microelum martianum*	Dwarf coconut	Arecaceae
79		*Pinus caribea*	Pinus	Pinaceae
80		*Pinus pinaster soland*	Pines	Pinaceae
81		*Pinus palustris*	Pinus	Pinaceae
82		*Spondia spp*	Plum	Anacardiaceae
83	**Horticultural**	*Ophiopogon japonicas*	Chinese grass	Liliaceae
84		*Cynodun dactylodun*	Bahama grass	Poaceae
85		*Axonopus compressus*	Carpet grass	Poaceae
86		*Pennisetum purpureum*	Elephant grass	Poaceae
87		*Cymbopogon citrates*	Lemon grass	Poaceae
88		*Paspalum spp*	Perspalium grass	Poaceae
89		*Sporobolus pyramidalis*	Smut grass	Poaceae

TABLE 4: Frequency of occurrence of different species

S/N	Family Name	Frequency	Percentage (%)
1	Nyctaginaceae	1	1.12
2	Arecaceae	4	4.49
3	Equisetaceae	1	1.12
4	Polypodicaeae	1	1.12
5	Crassulaceae	1	1.12
6	Malvaceae	1	1.12
7	Araceae	6	6.74
8	Strelitziaceae	1	1.12
9	Adiantaceae	1	1.12
10	Euphorbiaceae	4	4.49
11	Asteraceae	3	3.37
12	Anacardiaceae	3	3.37

13	Cycadaceae	2	2.20
14	Agavaceae	4	4.49
15	Bromeliaceae	1	1.12
16	Araliaceae	1	1.12
17	Dracanenaceae	1	1.12
18	Portulacaceae	1	1.12
19	Begoniaceae	1	1.12
20	Lythiaceae	1	1.12
21	Apocynaceae	2	2.20
22	Piperaceae	1	1.12
23	Moraceae	3	3.37
24	Plumbagnaceae	1	1.12
25	Rubiaceae	1	1.12
26	Cactaceae	1	1.12
27	Araucariaceae	1	1.12
28	Rosaceae	1	1.12
29	Liliaceae	3	3.37
30	Convolvulaceae	1	1.12
31	Hydrageaceae	1	1.12
32	Verbenaceae	2	2.20
33	Labiatea	1	1.12
34	Aloaceae	1	1.12
35	Zingiberaceae	3	3.37
36	Solanaciae	1	1.12
37	Apiaceae	1	1.12
38	Moringaceae	1	1.12
39	Oleaceae	1	1.12
40	Lauraceae	1	1.12
41	Rutaceae	4	4.49
42	Asclepiadaceae	1	1.12
43	Pipaceae	1	1.12
44	Palmae	1	1.12
45	Rosaceae	2	2.24
46	Fabaceae	1	1.12
47	Combretaceae	1	1.12
48	Annonaceae	1	1.12
49	Sapataceae	1	1.12
50	Pinaceae	3	3.37
51	Poaceae	6	7.00
Total		89	100

The Table above shows the frequency of occurrence of various families of the species that were raised in the plant nurseries. The dominant family is the Poaceae with 7.00% followed by Araceae 6.74%, Euphorbiaceae 4.49%, Agavaceae 4.49%.

CHARACTERISTICS OF NURSERY OWNERS

TABLE 5: Socio-economic characteristics of small scale nursery enterprise in the study area

Characteristic		Percentages (%)
Mode of land acquisition	Purchase	5.3
	Family land	2.6
	Leased from government	34.2
	Others (lease from individual and community)	57.9
Service render by nursery men	Landscaping	32.74
	Seedling supply	34.52
	Maintenance of private gardens	30.97
	Others (indoor banqueting and fumigation)	1.77
Years in the business	1-5	42.1
	6-10	23.7
	11-15	15.8
	16-20	7.9
	> 20	10.5

The mode of land acquisition ranges from purchase of land, inheritance of family land, lease from either government individuals and communities with a percentage of 5.3%, 2.6%, 34.2%, and 57.9% respectively out of the total population. Most of the nursery operators acquired their land from individuals and communities. This is due to the fact that some of the lands along the major roads owned by the government were not given out for lease. Most of the lands were located along the major road and this is a good site for nursery establishment because they are easily accessed by consumers. Due to the high cost of land in the study area, most nursery operators prefer leasing of lands to outright purchase because they feel they can afford the renter value. More than half of the nursery operators established their enterprise on land area that was less than one hectare. This is supported by Fakayode *et al*. (2008) where he found out 59.25% of the owners of ornamental business established their nurseries

in 0.01-0.50 hectare of land. Services rendered by the nursery operators include landscaping with a percentage of 32.74, seedling supply 34.52%, maintenance of private gardens 30.97% and other services like indoor/Banqueting and indoor fumigation constituted 1.77%. Majority of the nursery operators supply seedlings to consumers as their major service rendered this is because it is the easiest service to do and it confines them to their business place. They sometimes do landscaping and maintenance of private gardens for people who need those services. Some nursery operators also carry out other services like indoor/Banqueting and indoor fumigation and this is as a result of their additional knowledge about these services. For the past five years, many people have been engaged in this plant nursery business and this is in line with "Green River's Project" of the Rivers state government. The longer the nursery operators get engaged in the enterprise, the more experienced they become. About 42.1% of the nursery operators have been in this enterprise for the past one-five years, this indicates that there are new entrants in the business. 23.7% have been in the enterprise for the past six-ten years, 15.8% have been in the enterprise for the past eleven-fifteen years, 7.9% have been running this enterprise for the past sixteen-twenty years while 10.5% have stayed for about twenty years and above. The reasons for engaging in the plant nursery enterprise as indicated by operators includes, as a means of profit making (37%), 36% gave theirs as a means of self employment opportunity, 18% saw it as a hobby, 6% saw it as a means of carrying research and 3% gave their reason as love for nature and as a way of preserving nature. The major reason why many of the nursery operators were engaged in this enterprise is for profit making (*i.e.* income generation) and as a means of self employment.

COST OF ESTABLISHING A SMALL SCALE NURSERY

Nursery Equipment and Materials

In the establishment and production of seedlings in a small scale nursery, some equipment and materials are needed the quantity and unit price of each item is shown in Table 6. The quantity, unit cost (market value as at the time of the study) and the total cost of each equipment and material is shown in the table.

TABLE 6: Cost of nursery equipments

Equipment/Materials	Qty	Unit cost (₦)	Total cost(₦)
Cutlass	1	1,000	1,000
Shovel	1	1,000	1,000
Hoe	2	700	1,400
Digging fork	1	1,000	1,000
Rake	1	800	800
Hand fork	1	500	500
Trowel	2	500	1,000
Wheelbarrows	1	10,000	10,000
Watering can	2	1,500	3,000
Polythene bags	1000	10	10,000
Nursery Bench	1	3,000	3,000
Plastic bucket	2	500	1,000
Insecticide	1 litre	2,500	2,500
Fungicide	1 litre	2,500	2,500
Herbicide	1 litre	2,500	2,500
Fertilizer	1 bag	2,500	2,500
	Total		48,700

The expected life (year) and the annual depreciation of the fixed cost item using straight line method of depreciation is shown in Table 7

TABLE 7: Average cost values of fixed cost items

S/n	Item	Qty	Unit cost(₦)	Total cost(₦)	Expected life	Annual depreciation (₦)
1	Cutlass	1	1000	1000	2	500
2	Shovel	1	1000	1000	2	500
3	Hoe	2	700	1400	2	700
4	Digging fork	1	1000	1000	2	500
5	Rake	1	800	800	2	400
6	Hand fork	1	500	500	2	250
7	Trowel	2	500	1000	2	500
8	Wheelbarrow	1	10000	10000	2	5000
9	Watering can	2	1500	3000	2	1500
10	Nursery bench	2	3000	6000	2	3000
11	Plastic bucket	2	500	1000	1	1000
	TOTAL					13850

Land Requirement: It is assumed that the land to be used will be rented and less than a plot will be used which is about ₦10, 000 per month making it a total of ₦120, 000 annually. It is also assumed that the labor to be used is self labour and the water source is free (i.e can be from stream or well)

Total Cost of Nursery Establishment

= A + B

Where

(A) = Cost of land

(B) = Depreciated cost of nursery equipment and materials

Therefore the total cost of nursery establishment is = ₦120, 000 + N13, 850 = ₦133, 850

PROFITABILITY OF SMALL SCALE PRIVATE PLANT NURSERY ENTERPRISE

TABLE 8: Cash flow of seedlings in small scale nursery

Year	Cost (₦)	Revenue (₦)	Discounted Cost (₦)	Discounted Revenue (₦)	Net present value (₦)
1	351000	390,000	307,897.20	342,108.00	34,210.80
2	176000	500,200	135,432.00	384,903.00	249,471.90
3	210000	750,000	141,750.00	506,250.00	364,500.00
4	256000	980,000	151,577.60	580,258.00	428,680.40
5	270000	1,230,000	140,238.00	638,862.00	498,624.00
TOTAL	1,263,000	3,850,200	876,894.80	2,452,381.00	1,575,487.10

Seedling category	Total cost ₦	Total revenue ₦	Profit ₦	RORI (%)
Ornamental	84500	450,000	365,500	432.54
Horticultural	67500	322,900	255,400	378.37
Forestry	35100	102,000	66,900	190.59
Medicinal	38900	146,000	107,100	275.32
Agricultural	44000	209,100	165,100	375.22
TOTAL	270,000	1,230,000	960,000	355.56

Table 8 above shows the result on the cash flow of small scale private plant nursery enterprise. This result showed that ornamental seedlings had profit of ₦365, 500 and the rate of return was 432.54%, horticultural seedlings had profit of ₦255, 400 and the rate of return was 378.37%, forestry seedlings had profit of ₦66, 900 and the rate of return was 190.59%, medicinal seedlings had profit of ₦107, 100 and the rate of return was 275.32%, agricultural seedlings had profit of ₦165, 100 and the rate of return was 375.22%. From the survey it was observed that all the nurseries visited produced ornamental seedlings, this is because of the profitability of these ornamental seedlings. Horticultural seedlings were produced in thirty nine nurseries (39) because it is also profitable, followed by agricultural and medicinal. Forestry seedlings were the least profitable and that might be the reason why only twenty four nurseries produced these seedlings. The total cost of production of various categories of seedlings was ₦270, 000 the total revenue generated was ₦1, 230,000, the profit was ₦960, 000 and the rate of return for the enterprise was 355.56% for a year. From the profitability analysis, it can be concluded that small scale plant nursery enterprise is profitable.

BENEFIT- COST ANALYSIS OF THE ENTERPRISE

The cost- benefit ratio of the enterprise was done for five years starting form year 2006 to 2010. The cost benefit ratio of the enterprise is shown below.

TABLE 9: Cost benefit analysis for small scale nursery @ 14%

Year	Cost (₦)	Revenue (₦)	Discounted Cost (₦)	Discounted Revenue(₦)	Net present value (₦)
1	351000	390,000	307,897.20	342,108.00	34,210.80
2	176000	500,200	135,432.00	384,903.00	249,471.90
3	210000	750,000	141,750.00	506,250.00	364,500.00
4	256000	980,000	151,577.60	580,258.00	428,680.40
5	270000	1,230,000	140,238.00	638,862.00	498,624.00
TOTAL	1,263,000	3,850,200	876,894.80	2,452,381.00	1,575,487.10

NPV @ 14% = 1,575,487.10

B/C = $\frac{2,452,381.00}{876,894.80} = 2.79$

In the first year, the cost of production was ₦351000 (the highest) and this is because of the cost incurred on the purchase of equipments. But in the second year it reduced to ₦176000 and started increasing in the third year, fourth and fifth year. This increment is due to the yearly increase in the cost of labor. The cost benefit ratio of the enterprise increased as the year goes by. The discount rate used was 14%, this is in accordance to the Government discount rate for any Agro-based venture (CBN, 2011). The total benefit-cost ratio of the enterprise was 2.79 and this was derived by dividing the discounted revenue gotten within the past five year by the discounted cost for this same number of years. Since the cost benefit ratio for the past five years is above 1, this means that small scale private plant nursery enterprise is a viable venture that one can engage in.

CONSTRAINTS TO ESTABLISHMENT OF PRIVATE PLANT NURSERY

Factors affecting the establishment of small scale private plant nursery in the study area were outlined by the nursery operators and these factors are shown in the Table 10. Inadequate funding of the enterprise was a major factor that affected the establishment of 26.2% of the nursery operators, 25.5% indicated that poor marketing is an affecting factor, those who pointed out the issue of pest and diseases constituted 23.5% while those that had the

problem of water shortage constituted 25.5 %. The most prevalent factor that affected the establishment of the plant nursery enterprise is the inability of the operators to access funds necessary to capitalize their enterprise.

TABLE 10: Major factors affecting establishment of small scale private plant nursery in study area

Factors affecting establishment of small scale nursery	Number of respondent	Frequency (%)
Inadequate fund	38	26.2
Water shortage	37	25.5
Pests and diseases	34	23.5
Poor market	36	24.8

This is due to the fact that the enterprise is not really supported by the government or other loaning organization financially. This phenomenon was also reported by Fakayode *et al*. (2008) where 92.8% of the nursery operators were affected by inadequate funding of their enterprise in Kwara State. The poor marketing of the enterprise is due to the fact that plant nursery enterprise is a seasonal business; there tend to be more purchase of seedling during the rainy season than the dry season. Another possible reason is that majority of the people in the study area are not fully exposed to the use of plants in beautifying the environment. Rosina and Krystyna (2004) in a discussion paper of small and medium forest enterprises in Uganda found that finances and financial management represent one of the greatest constraints to effective operations. He also added that for many small and medium enterprises, an inability to undertake effective budgeting, cash flow projections, preparation of business plans, maintaining solvency and liquidity, to manage accounts and to provide accurate financial records for external investors or tax authorities remains a major problem. Fakayode *et al.* (2008) also pointed out that inadequate funds necessary to capitalize their farms are a major problem among the nursery operator in Kwara State, Nigeria.

CONCLUSION

Small scale private plant nursery enterprise is a viable venture that one can engage in as a form of self employment instead of been idle or seeking for white collar jobs. Apart from income generation, it is another means of conservation of plant species and it has a great role in the control of environmental problem like climate change. This business can be managed by male and female; therefore more females are encouraged to engage in this business. The enterprise can be established with less than two hundred thousand naira and this money can be raised through loan, making it possible for unemployed and poor to start as an enterprise. The major challenge of most small scale nursery operators was inadequate funding of the enterprise, therefore the funding agency (government or private organization) need to assist the operators with loan to start up the business. Also employment seeking youths are also advised to raise capital and start up this venture.

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