International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2013): 6.14 | Impact Factor (2013): 4.438

# Challenges and Opportunities of Small Scale Forest Nursery Operators of Diadi, Nueva Vizcaya

**Nelson S. Latap**[1]

[1]Ifugao State University, Potia Campus, Alfonso Lista, Ifugao, 3605 Philippines

**Abstract:** ***This study was carried to ascertain demographic, socio-economic, biological, gender and development of nursery operators in Diadi, Nueva Vizcaya. The survey method was adopted to generate data using a semi-structured questionnaire floated to 38 respondents. Descriptive statistics like means and percentages were utilized in analyzing the socio-economic variables, production and sales of seedlings, biological and technical information's. About 114 persons were employed in this enterprise. The result revealed that there is an average of P 3,333 (pesos) as an additional income/month derived by nursery operators is P3,333 or an annual income of P40,000 by operating a small scale forest nursery. The socio-economic contributions of this small scale nursery enterprise included source of income, employment and revenue generation to the government. Other benefits were environmental protection, beautification and decorative services. Five major species were grown by nursery operators. These includes: indigenous, dipterocarp, premium, fast growing, and Fruit trees. Regardless of its specie classification, all were for sale. Major buyers were Department of Environment and Natural Resources (DENR), Local Government Units (LGU) and private individuals. DENR prefers reforestation species while LGU and private individuals prefers fruit trees to enhance their orchard. Sales are high during months of May to November and sales fluctuate during rest of the months. Observations showed that private nursery operators tended to produce few species. Few nursery operators were willing to take chances with alternative species, unless they knew that a demand existed for those species. Women's groups appeared to be more active in nursery management.***

**Keywords:** small scale nursery, indigenous species, premium species, dipterocarp species and fast growing species

## 1. Introduction

A tree nursery is a managed site, designed to produce tree seedlings grown under favorable conditions until they are ready for planting (2). It can be an informal, small-scale arrangement or a large commercial enterprise. Nurseries vary in size, facilities (supplies, tools, equipment, etc), types of seedlings produced, and operations. They also differ significantly in quality and quantity of planting stocks produced. However, all nurseries primarily aim to produce sufficient quantities of high quality seedlings to satisfy the needs of seedling users. Users include the nursery operator themselves, individuals, community organizations, farmer groups, government agencies, non-government organizations, corporate or private customers. Nurseries may often provide income generating opportunities for the operators and enhance the social capital, technical capacity and leadership skills of communities. Smallholder tree nurseries also serve as important training and research ground for many smallholder farmers. In the Philippines and Indonesia, exposure to nurseries helped smallholder farmers develops those capabilities and the confidence to improve and conserve their landholdings through small-scale tree farming. Various agriculture and forestry projects undertaken in both countries include the development of nurseries. Often, these projects spawn the establishment of self-help and self-sustaining local nurseries, which remain functional after project termination. These local nurseries may be linked in a network to meet project, community or market needs. They may also function independently to address operators' needs or serve a combination of outside and private needs.

The objective of this study is to provide information about the existence of nursery as livelihood from among the community of Diadi, Nueva Vizcaya. Specifically, the objectives of this study were: (a) to assess the demographic, socio-economic, biological, gender and development of the nursery operators from among the community in Diadi, Nueva Vizcaya, and to determine the major objectives of nursery owners in the establishment of small scale nursery.

## 2. Methodology

### 2.1. Place of the Study

This social research about demographic, socio-economic, biological, gender and development of the nursery operators from among the community nursery operators was done in San Luis of Diadi, Nueva Vizcaya (Figure 1)

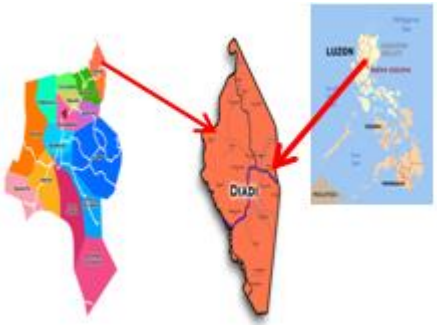


**Figure 1:** Map showing the study area, San Luis, Diadi, Nueva Vizcaya

### 2.2 Data Collection

Both primary and secondary data was required in the fulfillment of this study. Primary data was gathered through a guided questionnaire that was floated in the study area. While

secondary data useful for this study was downloaded through literature searching.

### 2.3 Data Analysis

Descriptive statistics such as frequency count, percentages, means, ranges, and standard deviations was used to describe the demographic, socio-economic characteristics, biological, gender and development from among the nursery operators in Diadi, Nueva Vizcaya.

## 3. Findings and Discussion

### 3.1 Demographic profile of private nursery owners

The demographic characteristics of the nursery owners revealed that majority (73%) of the owners were Ilocano who have stayed in the area for more than 7 years (87%). This findings jibe with the history of this place that after its discovery by the missionaries in 1740, wide tract of pasture areas of Diadi was given to Ilocano migrants and finally settled in this area. Since then, the Ilocano's converted the grasslands into rice fields and other land uses. Century after, people from different places come together and settled in the area and presently, Diadi has a mixture of wonderful people. Based on an interview, owners of nursery comprised of Tagalog (15%), Gaddangs (2%), Yogani (2%), Ifugao (2%) and Igorot 5%) and majority (50%) of them were Roman Catholics.

An established beautiful town of Nueva Viscaya, Diadi has a mixture of people intermarried with each other. Nursery owners showed to have an average family size of 5 which was more or less similar to the national average of 5 people per family (1). In this study, majority of the nursery owners has a household size of 5 (75%), 6-10 (23%) and least were those family of having 11 household members (2%). The study further revealed that majority (71%) of the nursery owners were married and the most active (32%) participants were those ageing 50 and above followed by the middle ages of 26-35, below 25 and aging 36-50 years old with percentage participation of 26%, 22% and 20% respectively with shocking findings that female dominates the nursery management. In this study management means, women or the female nursery owners do potting, seedbed preparation, maintenance of the nursery and stay along their nursery while waiting for buyers. Further, the women or female nursery operators are responsible in negotiating with the price of the seedlings, buy seeds for those who come to sell theirs seeds, contact other buyers and register their nursery. Women do these activities (nursery operators) as it explained based on the finding of this study because it is them who have attained a higher education, i.e., high school level (18%), College level (23%) and College graduate (23%). It revealed that women attained a higher degree of educational attainment were interested on enterprise works. Previous research suggest (5) that less educated groups of people who do not have high school degrees are more likely to be engage in occupational physical (labor) activity.

### 3.2 Biological Information

Table 1 showed the species raised and found in the area from among the nursery operators were grouped into 3 major classifications. They were: (a) indigenous species to include dipterocarp and premium species, (b) fast growing species, and (c) Fruit trees. Species not included among the major groups falls as other species. Regardless of its specie classification, all species were for sale.

**Table 1:** Species that are propagated in their nursery

| Indigenous Species | Dipterocarp Species | Premium Species | Fast growing | Fruit tree Species |
|---|---|---|---|---|
| Anahaw | Apitong | Almaciga | Eucalyptus | Durian, Mango |
| Ilang-ilang | Guijo | Dao | Fire tree | Lanzones |
| Kalumpit | Red lauan | Ipil | Gmelina | Duhat |
| Bignai | W. lauan | Kamagong | Gshower | Santol |
| Bitaog | Yakal | Molave | Mahogany | Cacao, Guyabano |
| Rattan | | Narra | Mangium | Nangka |
| Tuai | | Teak | | Pomelo |
| | | Tindalo | | Ponkan |
| **Others** | | | | Rambutan |
| Coffee | | | | Avocado |
| Neem tree | | | | Lychee |

Results showed that indigenous tree species (group 1) and grouped 3 (fruit tree species) were the most numbered species grown in their individual nurseries. This showed that people, the nursery operators and the buyers who are the planters of their own tree farm or forest plantation come to realize the importance and values of indigenous species. Indigenous tree species specifically the dipterocarp and premium species where good source of first class lumber for construction and potential raw material for furniture when grown into maturity. Aside, native vegetation evolved to live with local climate, soil types and animals. This long process brings us several advantages like: it saves water, low maintenance, pesticide freedom, wildlife viewing and support to local ecology. This affirms that buyers recognized the importance of indigenous tree species (ITS) as cited by the respondents. The findings also indicate that ITS have tremendous potentials source of livelihood having good sales among the nursery operators. Nursery operators have also expressed their willingness to plant ITS integrating to their farm forming an agroforestry should they have wider area of land to cultivate. Same study found out that nursery operators got interest and are continuously willing to raise ITS in their individual nurseries until there is demand for ITS seedlings. However, their interest and willingness hinge on several factors with the availability of good germplasm as source of nursery stock.

Additionally, nursery operators have difficulties in identifying ITS seedlings; hence, they come to think of raising alternative seedlings that were later found to be in-demand. The study found out that fruit tree seedlings were the most preferred (46%) by buyers. It commands better market over other species grown by nursery operators. Fruit trees were most often bought by buyers. They are sold in small quantities but when added, it summed-up a greater sale over the other nursery seedlings by 44%. These findings affirmed that fruit trees are commonly planted in home gardens and found to have typically been mixed with field crops and vegetables. Observation showed that species found from home gardens include mango (*Mangifera indica*), jackfruit (*Arthocarpus heterophyllus*), tamarind (*Tamarindus indica*) and pomelo (*Citrus maxima*).

### 3.3 Size of seedlings that are offered for sale

Data provides that, the diameter of raised seedlings of various species were of pencil size. Seedlings were disposed at sizes mostly from 3mm to7mm. Seedlings were grown in a small scale and so, seedlings were disposed at the early stages. Likewise, the height of seedlings disposed is above 12 inches tall. The numbers of leaves were also considered as a basis of higher surviving percentage. Hence, it ranges from 6 to 15 leaves per seedling. The standard sizes reveals that the standard diameter is 5mm or larger while the height should range from 20cm to 250cm (4). Depending on the demand, the growers attain the sizes in terms of diameter, height and number of leaves depending on the order or choices of the buyers.

### 3.4 Choice of species

Accordingly, stakeholders happily said that, establishing nursery was their part time job. These were their reasons why they establish and choose this species because of sales as their basis where they only propagate this species if there were orders from the buyers. They propagate more if there are orders from contractors and DENR for reforestation in private and public lands. During the interview, we observed that most of the stakeholders choose this species because of income and some of them depend only in their nursery. Macroflora studies also revealed that communities along Magat Watershed and adjuscent areas were planting various tree species as source of timber and conservation (3)

### 3.5 Plant Material

Propagation is a challenged from among the nursery operators. Everything is bought and it involves input of time and money. Seeds are bought including top soil as basic needs in nursery operation. In this area of study, nursery operators buy their seed materials at the various part within and outside the province. Lucky when someone comes to offer for sale an indigenous seeds. Some nursery operators collect during the seed months of the year. This requires the morphological knowledge such that they can timely collect seeds. They go as far as Cordon of Isabela and Bagabag and Diadi of Nueva Vizcaya.

Aside, top soils are bought from their neighbors. Others hire laborers to get top soil in the forest to be mixed with garden or composed soil following soil ratio mixtures. Polyethylene bags for potting are bought in Santiago City.

### 3.6 Economics of Nursery Operation

#### 3.6.1 Production and Sales

This study, grouped the seedlings into 5 major classifications. These were the indigenous, dipterocarp, premium, fast growing and fruit trees. Each of these groups has listing of different species falling under each category. To determine the economic returns of each specie group, the production and sales was tabulated as shown in Table 2. Sales showed to be high (47%) for DENR followed by Local Government Offices (LGU) and Private individuals with 38% and 15% percentage sales. Figure 2 illustrated the distribution of buyers and Figure 3 shows the distribution of sales per species category. Members of the LGU and Private individuals preferred fruit trees while DENR preferred species like: indigenous, dipterocarp, premium and fast growing species. Private individuals and LGU buy seedling to enhance their orchard and DENR buy for reforestation purposes. Accordingly, sales are high during the months of May to November of the year. Sales fluctuate during December to May of the year.

**Table 2:** Production and sales of seedlings by the nursery operators

| | Production | | |
|---|---|---|---|
| **Species** | **No. of seedlings** | **Sales (Pesos)** | **Buyers** |
| **Indigenous** | **46,000** | **194,000.00** | DENR, Local Government Units (LGU) and private Individuals |
| **Dipterocarp** | **56,000** | **382,000.00** | |
| **Premium** | **61,000** | **P147,000** | |
| **Fast Growing** | **58,000** | **P157,000** | |
| **Fruit Trees** | **149,000** | **P927,500** | |
| **Other Species** | **23,000** | **140,000.00** | |
| **Total** | | **2,026,000.00** | |

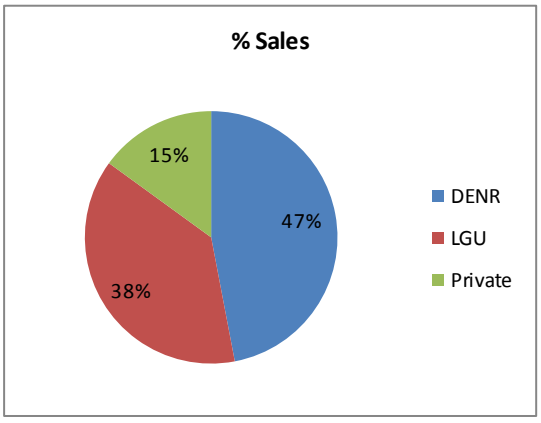


**Figure 2:** Sales distribution by different groups of buyers

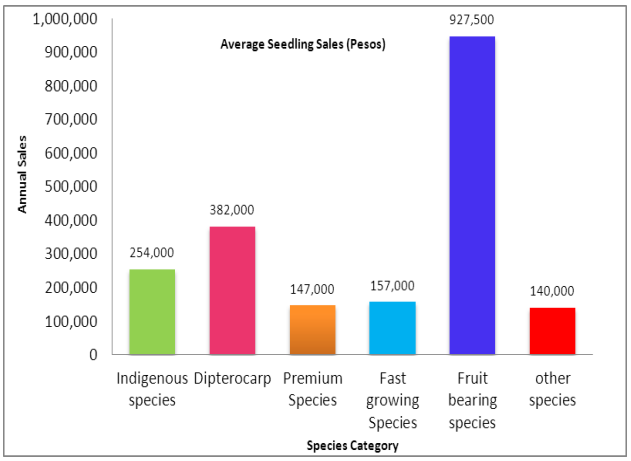


**Figure 3:** Graph showing the sales based on the production of seedlings

### 3.6.2 Sales of Indigenous Species

For indigenous species like: kalumpit,(*Terminalia microcarpa*) rattan( *Calamus rotang*) and tuai (*Bischofia javanica*) were the highest (22%) in each species in terms of production. Nursery operators were able to produce 10,000 seedlings each of the 3 species. The second (11%) highest production was species of bignay (*Antidesma bunuis*) and bitaog (*Calophyllum inophyllum*). The nursery operators were able to produce 5,000 seedlings per specie of bignay and bitaog. While species of anahaw (*Livistona rotundifolia*) and ilang-ilang (*Cananga odorata*) got the lowest (6%) production. Nursery operators only produce 3,000 seedlings for anahaw and ilang-ilang summing-up to 46,000 seedlings. The percentages of production as well as the sales were determined.

This study showed to have a reverse scenario. Species of low production appeared to be the most (31%) saleable and had earned an income of P60, 000. Ilang-ilang was sold at P20/seedling. Rattan rank second (26%) in terms of sales and contributed an income of P50,000. Rattan was sold at P5/seedling. Bignay comes third (13%) of the total sales. This has been followed by other indigenous species, kalumpit and tuai (10%). The lowest sales (5%) showed to be the species bitaog and anahaw.

### 3.6.3 Sales of Dipterocarp Species

Red Lauan (*Shorea negronensis*) appeared to be the highest (36%) production with a total of 20,000 seedlings with gross income of P60, 000 comprising 16% from the total sales. Red lauan is sold at P3 each/seedling. Guijo (*Shorea guiso*) comes next after red lauan with a total of 15,000 seedlings comprising 27% from the total production. It generates P225, 000 or 59% from the total sales. Guijo are sold at P15/seedling. Third is the apitong (*Dipterocarpus grandiflorus*) with a total of 10,000 seedlings or 18% of the total production. It generates P70, 000 or 18% contribution to the total sales. Apitong is sold at P7/seedling. Fourth is the yakal (*Shorea astylosa*) with a total of 6,000 seedlings or 10% of the total production. It generated a total income of P12, 000 or contributes 3% from the total sales. Yakal is sold at P2/seedling. Dipterocarp species contributed a total of P147, 000 from the total sales.

### 3.6.4 Sales of Premium Species

This study showed that the nursery operators were able to produce 20,000 seedlings. Narra (*Pterocarpus indicus*) ranks first (33%) in terms of seedling production. It generated P30,000 from the total sales. Narra is sold at P3/seedling. Dao (*Dracontomelon dao*) ranks second. It has a total sales of P45,000 out of 15,000 seedlings produced by the nursery operators. This comprised 31% from the total sales or 20% from the total production. Dao is sold at P3/seedling. Third, are the almaciga (*Agathis philippinensis*), ipil (*Intsia bijuga*), kamagong (*Diospyros blancoi*) and molave (*Vitex parviflora*) having 5,000 seedlings or 8% from the total production. On this group, almaciga contributed P15,000 or 10% from the total sales. Almaciga is sold at P3/seedling. While ipil and kamagong contributed an income of P10,000 each and molave, P25,000 pesos. Among the premium species, teak (*Tectona grandis*) and tinadalo (*Afzelia rhomboidea*) only contributed an income of P6,000. It appeared to be the lowest in terms of production (5%) and income (4%). Premium species contributed a total income of P147,000 from the total sales.

### 3.6.5 Sales of Fast Growing Species

Gmelina (*Gmelina arborea*) and mahogany (*Swietenia macrophylla*) appeared to be the highest (17%) in terms of production. Nursery owners produced 10,000 seedlings and contributed an income of P20,000 or 13% from the total sales. Gmelina and mahogany were sold at P2 and P3/seedling. Eucalyptus (*Eucalyptus globulus*) and mangium (*Acacia mangium*) rank second highest with total production of 8,000 seedlings or 13% from the production. It contributed P24,000 or15% from the total sales. Eucalyptus and mangium were sold at P3/seedling. Golden shower (*Cassia fistula*) ranks third with a total of 7,000 seedling or 12% from the total production. It contributed P14,000 or 9% from the total sales. Golden shower are sold at P2/seedling. Pine tree ranks last with a 5,000 seedling or9% form the total production. It contributed P25,000 or 16% from the total sales. Pine (*Pinus palustris*) seedlings are sold at P5/piece. Fast growing species contributed a total of 58,000 seedlings and earned an income of P157,000

### 3.6.6 Sales of Fruit Trees

Combined with, species of durian (*Durio zibethinus*), lansones (*Lansium domesticum*), sankis (*Caridina propinqua*),pomelo (*Citrus maxima*), rambutan (*Nephelium lappaceum*) and duhat (*Syzygium cumini*), ranks first. It produced 10,000 seedlings each or 7% from the total production. Durian, lansones, sankis, pomelo contributed an income of P50, 000 or 5% from the total sales. Seedlings, sold at P5/piece. While rambutan and duhat contributed P30, 000 or 3% from the total sales. They are sold at P3/seedling. Nangka (*Artocarpus heterophyllus*), lychee (*Litchi chinensis*) and cacao (*Theobroma cacao*) ranks second. It has 8,000 seedlings or 6% from the total production. Of this group, nangka contributed P16,000 (2%), lychee contributed P24,000 (3%) and cacao contributed P40,000 (4%) from the total sales. Seedling was sold at P2; P3 and P5/seedling respectively. Avocado (*Persea Americana*) and calamansi (*Citrofortunella microcarpa*) ranks third. Nursery operators produce 7,000 seedl-

ings each or 5% from the total production. Avocado contributed an income of P21,000 (2%) and calamansi contributed P35,000 or 5%) from the total sales. Santol (*Sandoricum koetjape*), ponkan (*Citrus reticulata*), mandarin (*Mandarin Satsuma)*, mango (*Mangifera indica*), guava (*Psidium guajava*) and guyabano (*Annona muricata*) ranks fourth. They produced 5,000 seedlings each. Ponkan and mandarin contributed an income of P25,000, santol, mango and guyabano contributed an income of P10,000. Atis (*Annona squamosal*) ranks fifth. It contributed P20,000 (2%) out of 4,000 seedling (3%). Longgan (*Dimocarpus longan*) ranks sixth. It produced 3,000 seedlings (2%) and contributed P15,000 (2%) from the total sales. Dragon fruit (*Hylocereus undatus*) ranks seventh. It produced 2,000 seedlings (1%) and contributed P20,000 (2%) from the total sales. It appeared in this study that mangosteen (*Garcinia mangostana*) and kiat-kiat (*Citrus spp*) ranks last in terms production but highest in terms of sales among this group. It produced 1,000 seedlings (1%) for each species. Mongosteen contributed an income of P300,000 and kiat-kiat contributed P99,000 from the total sales. This study showed that this fruit tree group produced 145,000 seedlings (97%) from the total production and contributed an income of P946,500 (100%) from the total sales.

### 3.6.7 Sales of Other Species

There were other species that were produced by the nursery owners. One is the kape (*Coffea arabica*) which ranks high. They raised 10,000 seedlings or 43% from the total production. It contributed P20, 000 or 14% from the total sales. Kape were sold at P2/seedling. Neem tree (*Azadirachta indica*) and betel nut(*Areca catechu*) ranks second. It has 5,000 seedlings or 21% from the total production. It contributed P10,000 or 7% from the total sales. They are sold at P2/seedling. Rubber tree (*Hevea brasiliensis*) seedlings appeared to be the lowest (13%) in terms of production but highest in sales. It contributed an amount of P100, 000 or 71% from the total sales. This group (other species) contributed P140, 000 or 99% from the total sales 98% from the total production. Seedlings of this specie were sold at P50/piece.

### 3.7 Technical aspects of Nursery management

#### 3.7.1 Nursery type and ownership

The study revealed that all (100%) nursery owners have just established a temporary nursery. It revealed that nursery operations in this area where made as source of additional income to the family. Each family has other major source of income other than selling of seedlings. Little investment to infrastructure was allotted. Hence, temporary structures just to accommodate and shed the seedlings. Though temporary and in small scale (69%), nursery owners established their own nursery having all the full rights since it is privately owned (94%) and are established in their own lots (92%) along and nearby the highway of Diadi, Nueva Vizcaya. Aside, majority of the nursery operators operates legally as it revealed that (58%) of their nursery were registered in the Office of the Department of Environment and Natural Resources (DENR). This further revealed that it is the DENR Office assisting those nursery operators. DENR personnel offers technical services like establishment of nursery, care and maintenance of nursery seedlings to solve minor problems on health of seedlings like the attack of grasshoppers and occurrences of fungus and dumping-off. Aside, an entrepreneurial seminar is conducted by the DENR to assist nursery operators in marketing of their seedlings.

#### 3.7.2 Gender and Development

Findings of this study showed that nursery establishment like selection of nursery site, preparation of the nursery beds, seed collection are primarily done (40%) by male, while further works like potting, nursery maintenance, watering and the entrepreneurial work like buying of polyethylene bags, sale of seedlings including price determination and other market negotiations were done by female (45%). Other important work components like: air drying of collected seeds, soil packing, selection of species to grow, and control of pest and diseases were both done by male and female. Most often, watering activity is considered a light work and done by women because there is an abundant water supply in the area. This forms part as another challenge and opportunities from among the nursery operators. A challenge since both men and women can partner for a successful small scale enterprise. An opportunity since, rich resources like: water availability, accessibility for buyers, topography and climate for growing quality seedlings were present in the area.

## 4. Conclusion, Recommendation and Summary

### 4.1 Conclusion

The finding of the study reveals that the majority (73%) of the nursery owners were Ilocano's who have been in the area for almost a decade. Majority (75%) of them has an average household size of 5, married (71%), and the most (32%) active participants were ageing 50 years old. They are knowledgeable in nursery management since, the study showed that their products (seedlings) were disposed within the standard sizes.

Fruit-bearing trees were more saleable by 49% as compared to other species like indigenous species, fast growing species, premium, and dipterocarp species. Seedlings grown by the nursery owners were of good quality and are properly disposed at an average size of 12 inches tall, 5mm diameter and 10 leaves. Nursery owners establish their nursery because seedlings were in demand and are lucrative as income generation for the family much so that they knew the techniques in the nursery operations. It forms part as a self-employment and income source for the owners.

The study revealed that nursery owners have a temporary (100%) in a small scale (69%) but privately owned (94%) nursery and registered (58%) in the office of the Department of Environment and Natural Resources (DENR).

### 4.2 Recommendation

The survey of tree nurseries in San Luis, Diadi, Nueva Vizcaya suggests a number of recommendations like: (a) Nursery Structure, and (b) selling strategies.

#### 4.2.1 In terms of Nursery structure

Semi-permanent or permanent nursery structure with installed water system should be established. Findings of the study showed that all were temporary nursery. Permanent nursery provides more advantages over their present temporary structures. Varieties of stock supply with a root-shoot cuttings, grafted plants, layering, polypot seedlings, among others can be offered to buyers of seedlings.

The study recommended that nursery operators should expand their production frontiers and particularly of the native seedling species, which were undersupplied. This will improve their profit margins and also create more employments for the people; the environment will also be protected.

This study further recommended that populace be encouraged towards increased involvement in the establishment of more nursery enterprises to supply the demand.

#### 4.2.2 In terms of selling strategies sustainability of the nursery

Bill boards should be put-up along their nursery establishment showing important information's stating the owner of the nursery, types of seedlings grown, price of seedlings and contact numbers. This would facilitate buyers to buy, schedule of buying, delivery of seedlings and cancelling of pick-up schedules. Much so that successful tree planting is dependent on three important factors like: careful packaging of quality seedlings by the nursery operators, prompt planting by the customer and adequate rainfall.

Private nurseries like the case of this study must be registered in the DENR. This would be one way that DENR could intervene in their nursery enterprise by introducing nursery techniques through seminar workshops, trainings and scientific nursery techniques. Further, the nursery should also be accredited. It is a common idea now a day those ISO-accredited activities would level-up the operations and magnetized buyers.

### 4.3 Summary

There are many socio-economic challenges as well as biological, gender and development of nursery operators which are being addressed by the project. To obtain higher yields and income, farmers need more than more productive trees. They need better access to fertilize and other inputs. This economic development also needs to happen in a way that does not generate social cost. The nursery is therefore working with communities to help them manage the social developmental challenges that can be expected from increase economic performance. Nursery operators face difficulties in accessing investment capital, relevant technical support and market information and links. These factors hinder their production and further development.

They use simple production techniques. Farmer's nursery provides income for operators and enhances the social capital, technical capacity and leadership skills of communities. This study found out that the community nursery at Diadi, Nueva Vizcaya serve as important training and research venues for forestry students and related sciences. Because of their location and commercial orientation, farmers' nurseries often produce seedlings of the species desired by local communities. Sourcing quality seedlings from the local farmer nurseries like in this study which is along the highway, accessible and reachable saved money and effort and can increase post-planting survival.

## 5. Acknowledgment

The author wishes to acknowledge the Ifugao State University (IFSU) at Potia Campus, Alfonso Lista, Ifugao whom I am presently working as a Professor for allowing the conduct of this research and submission for publication to any Scientific Journal.

## References

[1] BBS (1996) Bangladesh Bureau of Statistics. Statistical Yearbook of Bangladesh. Ministry of Planning, Government of Bangladesh.

[2] Roshetko, James M., Enrique L. Tolentino, Jr., Wilfredo M. Carandang, Manuel Bertomeu, Alexander Tabbada, Gerhard E.S. Manurung, Calixto E. Yao (2010) Tree Nursery Sourcebook - Options in Support of Sustainable Development. World Agroforestry Centre Winrock International and University of Philippines Los Baños. Web: http://www.winrock.org/

[3] Taguiling, Napoleon K. (2013) Macrofloral Biodiversity Conservation in Ifugao. European Scientific Journal. December 2013/ edition Volume 4, ISSN 1857 – 7881.

[4] Thornhayes Nursery (undated) Guide to Tree Sizes.

[5] www.thornhayes-nursery.co.uk/index.php%3Fpage%3Dguide-to-tree-sizes

[6] www.medicalnewstory.com/articles/281117.php. Educational attainment influences level of physical activity