



Afghanistan National Nursery Growers Organization (ANNGO)

FINAL PROJECT REPORT

(July 2012 to October 2015)

Nursery Industry Development Transition Project



Badakhshan NGA Chairman, Sayed Karamatullah presents achievement of PHDP & ANNGO projects in Badakhshan province to H.E. Mr. Ashraf Ghani, President of Afghanistan during Ag-Fair 2015



October 2015



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LIST OF ACRONYM AND ABBREVIATIONS:

- NGAs; Nursery Growers Associations
- MSNs; Mother Stock nurseries
- DAIL; Director Agriculture Irrigation & Livestock
- PBTL; Plant Biotechnology Laboratory
- MoJ; Ministry of Justice
- MoE; Ministry of Economy
- NGOs; Non Governmental Organization
- CPNs; Certified Production Nurseries
- NHLP National Horticulture and livestock project
- RI; Relief International
- TLO; A Swiss peace Pilot Project-Tribal Liaison office (Afghanistan)
- MTs Mother Trees
- BG Babur Garden
- KM Kabul Municipality
- BoD Board of Directors
- PHDCs Perennial Horticulture Development Centers
- NC National Collection
- CA Certification Authority
- DHD Directorate of Horticulture Development
- CPGM Citrus Promotion Group Meeting
- SO4 Sub Objective 4
- CHA Coordination of Humanitarian Assistance
- TA Technical assistance
- ADA Afghanistan Development Association
- WB World Bank
- MC Mercy Corps
- UNODC United Nations organization for Drug control
- NVDA Nangarhar Valley Development Authority
- APPRO Afghanistan Public Policy Research Organization
- ICARDA International Agriculture Research Center in Dry Areas
- ARIA Agriculture Research Institute of Afghanistan
- SPCD Seed & Planting Material Certification Directorate
- MAIL Ministry of Agriculture, Irrigation & Livestock
- CTV Citrus tristiza virus
- GFLV Grapevine fan leaf virus
- NCA Norwegian committee for Afghanistan
- HVP Horticulture Value Chain Project
- MOU Memorandum of Understanding
- ANDS Afghanistan National Development Strategy
- BoD Board of Directors
- EBOD Executive Board of Directors
- FM Field Managers

1. EXECUTIVE SUMMARY

Nursery Industry is the largest sector producing millions of fruit tree and ornamental saplings to orchard growers in Afghanistan. Before ANNGO was established, the nursery industry used to produce saplings of low quality with no technical information and background. The quality of saplings produced by nursery growers was not guaranteed; as a result poor quality orchards were established. Nursery industry has been supported by EU funded PHDP projects (2006 to 2015).

ANNGO was established on 18th August 2008 with the technical support from PHDP1. ANNGO is officially registered with the Ministry of Economy. Local nursery growers in a targeted province have got together formed associations. Local nursery growers associations from 22 provinces have got together & formally Afghanistan National Nursery Growers Organization (ANNGO). All the associations are legal bodies, registered with the Ministry of Justice. Most of the associations are established on provincial levels. Locally associations are called Nursery Growers Associations (NGAs). According to ANNGO by-law a nursery grower who produces 7,000 certified saplings in his nursery can have membership with NGA and ANNGO. After 5 years each association renews its registration with the MoJ after 5 years. Thus validation of duration of licenses of ANNGO or NGAs is for 5 year with their respective ministries. All the local associations have membership with ANNGO. Annual elections are held in local associations to select board of directors of NGAs. Similarly annual elections are held in ANNGO to select Chairman and board of directors of ANNGO.

During the first transition project (2012-2015), manual of procedures for certification of planting material is developed by ANNGO technical staff and translated it into Pashto and Dari languages. The manual is a guide for ANNGO inspectors and NGA members to follow the standards of fruit tree certification rules in their MSNs and nurseries during certified saplings production. The manual is under review with SPCD for comments and related directorates. In the coming future the manual will be part of seed law. (Annex 1)

Similarly ANNGO with the help of PHDP TA has also developed manual of policies for human resources, procurement and administration & finance of the organization. These manuals will help strengthen the internal policies of the organization and all the staff has to follow the rules and regulations during their daily official activities.

One of the main targets of ANNGO is to implement fruit trees certification scheme. To run the scheme, ANNGO has established more than 69 MSNs in 24 provinces with virus indexed true-to-type planting material coming from the "Afghan National Collection of Fruit Trees Species and Varieties". The scheme is successfully implemented in 24 provinces and all the nursery growers follow the standards set by ANNGO.

National Collection in PHDCs is the main source of planting material for ANNGO member NGAs. Over 15 species which includes 935 different accessions exist in the national collections in 6 different climatic zones in government research stations called PHDCs. During the project life ANNGO technical staff, Field Managers and NGA members used to visit PHDCs and attend field days/open days during fruiting seasons.

Since 2009, the mother trees are produced in PHDCs. The Field Horticulturists had the responsibility to supervise the production of mother trees in PHDCs. During past 8 years, ANNGO technical staff has developed advance plan for the production of mother trees and has submitted the plan to PHDCs responsible during nurseries establishment stages (early winter). Mother trees produced in 6 PHDCs were delivered to NGAs only.

Mother stock nurseries are the source of budwood/cuttings/seeds or rootstocks. ANNGO has established 69 MSNS so far which consists of 11 main species. All the NGA members are supposed to collect budwood/cuttings from a MSNs present in a NGA. Currently 11,258 mother trees of budwood/cuttings are present in 26 NGAs while 12,654 rootstock mother trees exist which produced quality planting material for around 1000 members in 22 provinces of Afghanistan. The sale of planting material from existing MSNs increases each year. Budwood and rootstocks sale have become a profitable business in Afghanistan. Each year mother trees request from NGAs increases because the demand for the budwood from exist MSNs will not be sufficient, so the NGAs are requesting to increase the number of MSN or expand the existing MSNs in order to fulfill the budwood demand of the nursery growers in the area.

Certified production nurseries produced from MSNs because the MSNs are the only source of certification. The budwood from MSNs are purchased to produce certified sapling. Each year the sale of budwood from MSNs are increasing. More members keen to produce only certified saplings. Since the first transition project over 5 millions of certified saplings are marketed. MAIL & NHLP have agreed to purchase only certified saplings from the NGA members. ANNGO issues label for all the certified saplings and the price for labeled saplings are higher in the local market than the non-certified saplings.

Inspection of MSNs and CPNs are compulsory component of fruit tree certification scheme. Each year there are physical inspections involved to inspect the MSNs and CPNs. ANNGO inspectors have regularly inspected the MSNs and CPNs during the transition projects and their results were recorded in the database. During the transition project, all the MSNs were regularly inspected by ANNGO senior inspectors. The MSNs could not follow ANNGO standards are rejected. Only eligible MSNs follow ANNGO standards were allowed to sell budwood from their MSNs.

PBTL has its main role to identify the pest and diseases in the NCs, CPNs and MSNs. ANNGO during the project life has coordinated the sample collections from MSNs. The lab has detected CTV in one of the citrus varieties in the eastern zone and GFLV in grapes in the national collections in Herat province. The lab has also conducted test for soil nematode, bacterial and fungal diseases in MSNs and CPNs. The results of the tests are officially shared with the Field Managers and further with the MSN owners. Regular recommendations and suggestions are also given to the MSN owners.

The tissue culture production of clonal rootstocks run by PBTL is working on experimental bases. The lab produces rootstocks GF 677 for almond, Gisela 5 for cherry and Farold 40 for pears on experimental bases for PHDCs. NHLP has promised to establish a tissue culture laboratory for ANNGO to produce on commercial bases the clonal rootstocks and sell them to NGAs its members.

Fruit trees Catalogue is a marketing tool for ANNGO certified saplings produced during a specific year. So far ANNGO has published 4 different versions of catalogue. Based on market demand of certified saplings, catalogue plays important role in the sale of fruit tree saplings each early planting.

Banner is another marketing tool used to introduce certified saplings to the orchard growers. During the project life ANNGO used to develop large banners and insert them on the main gates of Kabul which has increased the sales of certified saplings in the country.

Radio announcement also is another marketing tools for the marketing and sale of the certified saplings in the area. HPS and ANNGO annually prepared the message and by financial support of

HPS/ANHDO, each year before selling of saplings, these announcements broadcasted by different radios in order to encourage the farmers and others to get their saplings from the NGAs.

During the project life regular trainings of Field Managers and partner NGOs were conducted. Each year there are 4 different seasonal trainings are conducted to Field Managers of NGAs. The subjects for the training were requested by field managers. Each the training had its theoretical and practical portions. For the practical trainings PHDCs are used to train field staff.

Similarly ANNGO technical staff has conducted training to third parties including, AAWP, Concern worldwide, TLO, USAID project and NCA regional staff. The trainings consisted of theoretical and practical portions on the nursery business, certification scheme and orchard management. ANNGO has charged the trained organizations on a reasonable charges based on the agreement. ANNGO and NHLP have agreed that ANNGO technical staff will conduct trainings to NHLP staff. SPCD requested ANNGO train their provincial staff in certification scheme of fruit trees, ANNGO team agreed that in the future will train SPCD staff of MAIL.

ANNGO source of income is increasing gradually. ANNGO had income from trainings to third parties, membership fee, registration fee, label payments, sale of mother trees and sale of budwood from PHDCs.

There are two Ag-fairs arranged by MAIL each year. ANNGO and its member NGAs have participated in all the Ag-fairs in order to introduce their activities and show their product, interest and marketing the certified saplings/ornamentals to the orchard growers, MAIL officials (Minister, Deputy Minister, directors and officers). MAIL minister has appreciated ANNGO activities during Ag-fairs.

ANNGO has signed MoUs with MAIL, TLO, Babur Garden, NVDA, ANHDO and NHLP. According to the MoUs all organizations need to coordinate and cooperate with ANNGO in the fields of horticulture. ANNGO needs to provide planting materials to the partner organizations. Annexes 2, copies of MoUs. (MAIL, ANHDO, TLO, NHLP, Babur Garden)

The first copy business plan is developed with the support of PHDP II TA. ANNGO needs to follow the plan and have to improve its source of income through agreement of the NGAs chairmen. The copy of business plan will be improved during the next grant of ANNGO EU project. Attached will find the business plan narrative part developed with the ANNGO and PHDP II as ANNEX 3

ANNGO is also financially support by HPS of RI/ANHDO and HVP projects. HPS provides administrative supports to NGAs while technical supports to NGAs are provided by ANNGO.

TLO is another Swiss fund organization supporting ANNGO activities in Khost and Paktia provinces. The technical assistance to the nursery growers are provided by ANNGO. ANNGO has established MSNs in Khost province.

ANNGO has strong relations with Kabul DAIL and attends regular sectorial coordination meetings. ANNGO has three NGAs in Kabul province (Paghman & Shakardara and Sorobi NGAs). ANNGO reports about certified nurseries in Kabul province. (Sorobi NGA is established recently by support of ANHDO/HVP).

Citrus Promotion Group (CPG) was established during early PHDP II, to support citrus industry in the eastern zone. ANNGO has played key role to establish citrus budwood mother trees MSNs, seed

MSNs and certified nurseries. ANNGO has also signed MoU with NVDA during 2012 and has established budwood MSN of imported varieties of citrus.

ANNGO activities are expanding each year. More requests for new NGAs are coming from different provinces. At the end of the transition project new NGAs have got membership with ANNGO. More provinces are interested for membership with ANNGO.

ANNGO has a solid database system developed during transition project, which is updated each year. ANNGO inspectors and technical staff regularly insert the field inspections data in the database. The organization has also website & FACEBOOK which has linked the organization with other countries in the world.

2. INTRODUCTION

2.1 Introduction to ANNGO;

The Afghanistan National Nursery Growers Organization is a non-profit organization whose purpose is the development of the nursery industry in Afghanistan, represents 26 Nursery Growers Association (NGAs) in 22 provinces. The organization was established in August 2008. The organization is a legal body registered with the Ministry of Economy. The members' nursery growers associations (NGAs) are also legal bodies registered with the Ministry of Justice. The organization has its by-law. The total number of nursery members of NGAs is presently around one thousand. The activities of ANNGO are expanding to other provinces. It is farmers developed organization.

As per it's by law, ANNGO is currently providing to its associate NGAs a number of services including:

- Business improvement and marketing promotion services.
- Introduction of high value fruit trees as mother trees for propagation.
- Laboratory services for sanitary control.
- Monitoring of the quality of planting material
- Improvement of nursery techniques.
- Certification and inspection services including labeling of certified saplings.
- Technical training and dissemination of innovations
- Ornamental saplings production and landscape designing
- Improvement in production and generation of more income to the members involved the nursery business.

In November 2012, ANNGO signed a MoU with MAIL which endorses the ongoing ANNGO Regulatory System. According to MoU with MAIL, ANNGO is provided space in Badam Bagh cooperative building.

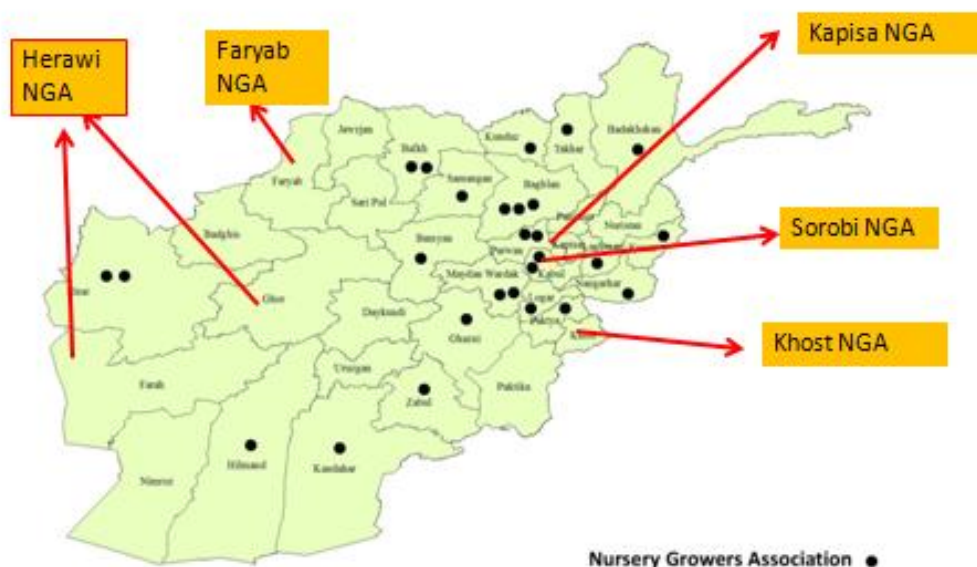
All the nurseries registered with ANNGO have voluntarily accepted the ANNGO regulatory system for planting material. This set of procedures ensures that the saplings are true to type and traceable to the Mother Stock Nurseries originated from the National Collection of fruit species in 6 zone of Afghanistan.

The Mother Stock Nurseries (MSNs) are the key component of the system. The MSNs can be established only from certified material coming from the National Collection and the material for tree propagation (buds or scions or cuttings) can only be taken from the MSNs.

ANNGO being a national NGO is also working with private companies to produce and market high value ornamental flowers and trees. ANNGO has started supporting landscape designing with

registered members, historic old gardens and public parks. With the partnership with other NGOs, ANNGO is expanding its activities to provinces that were not under coverage.

For more details please refer to ANNGO website; www.anngo.org.af



Expansion of ANNGO activities during 2015

Map 1. Current status of ANNGO Member Nursery Growers Associations

The above map shows current status of Nursery Growers Associations in the country. The numbers of associations are increasing each year. At the start of the transition project 26 NGAs were officially registered with ANNGO. At the end of the project 4 new associations are established. Herwia NGA is registered to work in Farah, Ghor and Badghis provinces. The association is supported by ANNGO. ANNGO need to provide trainings and organizational support to the NGAs.

A Swiss NGO (TLO) is working in Khost, Paktia and Paktika provinces. TLO NGO is supporting nursery growers and orchard growers in Khost province. ANNGO has signed MoU with the organization and provides all possible technical supports to the TLO staff and farmers in the targeted province. ANNGO has also provided MSN to the nursery growers. ANNGO has conducted trainings to the newly association members in the province. An office space is provided to the NGA by Khost DAIL.

Kapisa and Sorobi NGAs are to be established by HVP project. ANNGO in the past years have supported the mentioned NGAs.

2.2. ANNGO Fruit Trees Certification Scheme;

Now it is a fact that ANNGO Fruit tree certification is unique in the region. Its main source of planting material is Afghanistan National Collections from PHDCs available in 6 different zones of the country established by PHDP projects of EU. ANNGO through its member NGAs have got the responsibility to improve the saplings production through fruit trees certification scheme in the country. Nursery growers follow the standards set by ANNGO for the production of certified saplings to produce true-to-type, healthy, vigorous fruit tree saplings to commercial orchard growers. NHLP purchases only certified saplings to orchard growers.



Fig. 1 Plantation of certified saplings of ANNGO by Mazar Governmental Officials under NHLP project

According to procurement policy of NHLP, only certified saplings are purchased from ANNGO members NGAs. The demand for certified saplings is increased during first transition project. During the past 3 year (2012 to 2014) over 40 Mother Stock Nurseries (MSNs) are established in more than 22 provinces and over 3 millions of certified saplings are produced and marketed for orchard growers. The production of quality fruit saplings is one of the key factors for the development of the fruit-culture industry. Planting orchards with marketable varieties and improved techniques, increases quality and yields and results in better farm income, more jobs and better livelihood of those involved in horticulture. This will contribute to the general improvement of livelihood and economy of Afghanistan which is the global objective indicated by the Government of Afghanistan and the International Donors that support the economic recovery and development of the Country.

During the past 3 year ANNGO has focused to work with NGAs to introduce marketable species in the MSNs. MSNs improvement is in progress which may take 2 to 4 years more and to screen the varieties according to market demand. Each year, member NGAs have requested either to establish new MSN or expand their existing MSNs or improve the existing MSNs.

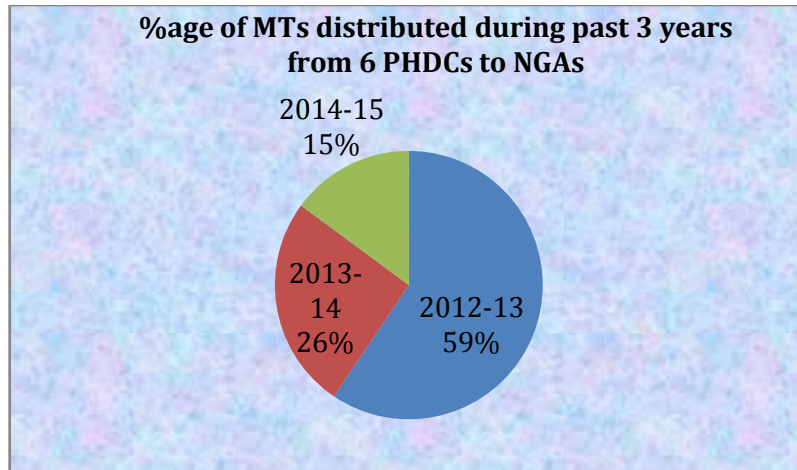


Chart 2. Mother Tree distribution to the NGAs 2012-2014

The above chart shows the distribution of mother trees during past 3 years from 6 PHDCs to the Nursery Growers Associations in 22 provinces of Afghanistan. During early phase of ANNGO transition project over 59% of MTs are distributed. In winter 2014 and then in winter 2015 decrease distribution is seen, while demand for certified budwood was increasing in NGAs.

The budwood for mother trees production were supplied from national collections to the established nursery and were inspected according to the ANNGO standards. It takes 2 years to produce mother trees to NGAs. ANNGO regularly monitor production process of mother trees. PBTL played key role for the health status of the produced material. Based on the request of registered NGAs, the mother trees were distributed to MSN owners in the targeted 24 provinces. ANNGO had the responsibility to manage the allocation and distribution of these planting materials before spring season every year. The produced MSNs were allocated based on the request of NGA members. ANNGO had to coordinate the MSNs establishment programme in some new locations with Field Managers of each NGA. All the newly established and existing MSNs were inspected by ANNGO inspectors each year before budwood sales starts in the country.

ANNGO had very close coordination with the MAIL horticulture extension directorate since the beginning of the project. The national staff of the mentioned directorate was involved in the project activities and field visits/inspection. ANNGO also was the most important member of the Horticulture Coordination Group in the past 3 years while all activities were shared with the directorate.

In 2014 MAIL has established a certification authority. The authority (SPCD) will work in close coordination with ANNGO for the certification of planting material in 22 provinces of Afghanistan. Recently the certification authority is entitled as Seed and Planting Material Certification Directorate (SPCD). The SPCD is willing that ANNGO should work in 34 provinces of Afghanistan. ANNGO have over 8 year experience of planting material certification. ANNGO in the future will help and strengthen the newly born directorate in the future. Below chart shows ANNGO fruit trees certification scheme and movement of true to type certified planting material from National Collections to ANNGO and then to orchard growers. The chart also shows linkage of PBTL with NCs and ANNGO.

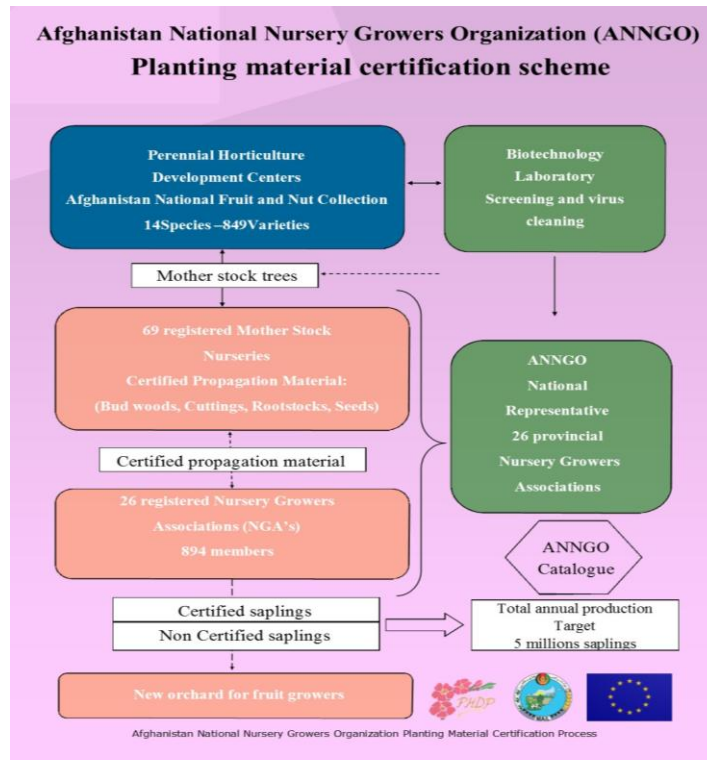


Chart 3. ANNGO Certification scheme chart

Over 900 nursery growers are involved producing fruit tree saplings and establishing orchards in 34 provinces of the country during project life. Each year NGA members used to produce and market millions certified saplings and ornamental plants during planting seasons in 6 different zones. During past 8 year the quality of saplings production is increased. Members NGAs have sold certified saplings with higher prices in the local markets. The demands of certified saplings are increasing day by day.

ANNGO covers the first segment of fruit tree value chain, producing high value crops of different fruit species to orchard growers. High quality, true to type saplings will produce quality fruits with better local and international market and generates good income to orchard growers, fruit traders/exporters and retailers. Thousands of people are involved in the network and the key role has a true to type certified saplings which has its positive impact on the whole network and contributes to the good income of farmers and traders.

2.3. Monitoring Activities of NGAs;

ANNGO has monitored the activities of NGAs continuously at different intervals during the project life. The evaluations of non-productive NGAs are surveyed and data are inserted in the ANNGO database. The application of new NGAs for membership are revised and evaluated. Similarly individual members are given memberships. The memberships were kept open throughout the year. NGAs member activities are evaluated at the end of each year and the results were shared in the ANNGO database. ANNGO technical and regulatory team conducted coordination meetings with private nurserymen in order to increase their awareness on ANNGO activities and opportunities, promoting their association to the organization. At the end of each year ANNGO team collected all the data of NGAs related to certified and uncertified production and release a report on NGAs overall status.

2.4. Inspection of Certified Nurseries;

The first MSNs are established in 2009 and the first certified budwoods are collected during summer 2010 from of the MSNs. The first certified saplings are sold during late winter 2011. During project life ANNGO has worked more on the importance of fruit tree certification scheme, budwood collection from MSNs and inspection of MSNs & CPNs at different stages of growth. The demands for certified budwood are increasing each year. The MSNs could not fulfill the need of budwood for certified saplings production.

The certified production nurseries are produced from MSNs with an exception for some species where in case of serious need for budwood, certified saplings were produced from the national collections provided budwood and when shortage of budwood was felt in the MSNs, with the special official request of ANNGO to transition project/ARIA. Budwood were provided to members NGAs to produce certified saplings in their nurseries.

For the certified nurseries, ANNGO has developed and implemented its strict rules from the land selection until lifting of certified saplings. The seedlings were inspected before budding by Field Officers/Managers. After bud take, when the bud grows more than 25cm it is inspected and the final inspection is done in August or September of second year. Field Managers had their own the responsibility to guide the certified nurseries owners for the standards of certified nurseries. ANNGO inspectors had to inspect CPNs and MSNs each year. During inspection, ANNGO inspectors inform all the ANNGO standards are check. The nurseries fulfill the ANNGO standards based on the certification manual are eligible for certification and ANNGO used to issue labels for such nurseries while the nurseries did not follow certification standards were rejected. All the inspections data were recorded in database and its results are officially shared with NGAs. The number of MSNs and certified nurseries are increasing each year. Each year the list of approved certified nurseries were shared with MAIL directorates, NHLP, partner NGOs and other stakeholders by ANNGO database section.

All the certification data were collected on time during the project life and the database manager used to cross check the data with budwood sale and inspections conducted by ANNGO inspectors. The data was entered in the database of ANNGO. The final technical cross check of data takes place before printing process. Only one NGA member's labels were printed at a definite time. Delivery system of labels was also improved during past 3 years. ANNGO technical staff used to monitor the labeling programme in the field. ANNGO staff used to visit the sale points of NGAs for proper label use in the field.

2.5. Certified Labels printing & distribution;

The label printing & sticking/hanging the label of the true-to-type known sapling is the last evidence of ANNGO Fruit tree Certification. After completing the inspection of certified nurseries by ANNGO inspectors, the NGAs send their label request to ANNGO office which is revised by Head of Regularity Services and either approved for label printing or discussed with ANNGO inspectors for any problem. Only one NGA labels are printed a time by database section. Each NGA member labels are printed and packed in a plastic bag with the name of owner, specie, variety and number of labels printed. The labelling programme can be sorted as;

- Label printing and distribution
- Certified label request monitoring
- Current year Certified label distribution monitoring

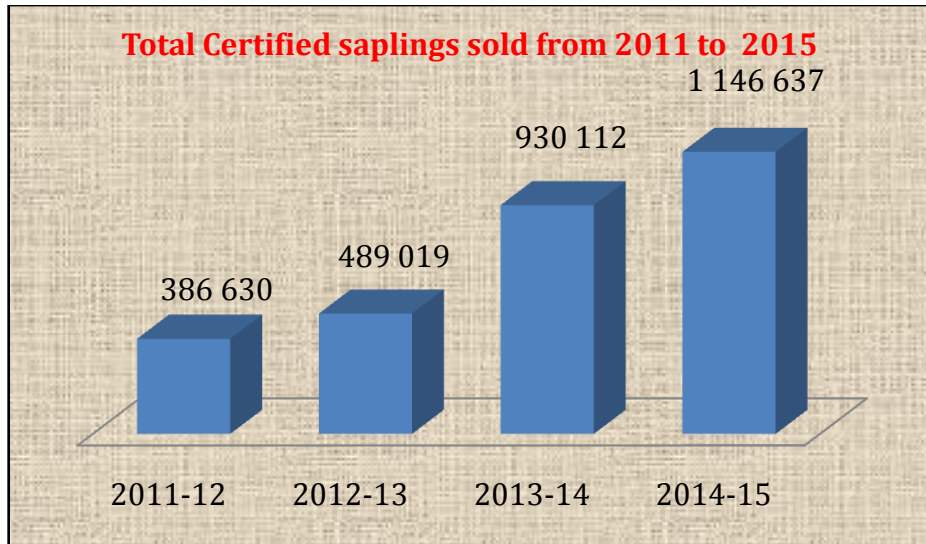


Chart 4. Increasing numbers of certified sapling 2012-2014

The above graph shows the sale of certified saplings during past 4 seasons. The sales have increased. Similarly the budwood sales during 2014 were over 2 million which clearly shows that production of certified saplings are increasing constantly.

3. EU Visibility:

A. Ag-Fairs:

ANNGO annually presenting all their product of the certified saplings, brochures, activities, catalogues, calendars and lots of other project related activities in the annual Ag-Fairs. In these Ag-fairs, representatives from different locations are participating and introducing the project activities to the customers and observers. Most of the government officials (president, ministers, deputy ministers, directors and officers), donor agencies, national and international organization members, farmers, public and private sectors representative are visiting the ANNGO booths



Fig. 2. ANNGO staff briefing the project to H.E MAIL minister Asif Rahimi and Ahmad Wali Masood during Ag-Fair 2015

B. ANNGO Database;

During the project life ANNGO has improved its database. The Database Manger was hired at early stage of the project. Regular data was collected by Field Officers of NGAs. Now ANNGO database section is the busy section throughout the year. ANNGO team is collecting all the soft and hard copies of NGAs data from FMs, NGAs and NGOs. The database section also collected the budwood sale and price from MSNs, bud take% from nurseries, final available certified and uncertified saplings, total labels request, total number of members, number of active members, distribution of MSNs, number of MSNs and rootstocks, Inspection and registration of MSNs all the data. The database information was also published in the ANNGO website.

C. ANNGO Website:

ANNGO has developed a website. The website will provide more detailed information about the project activities and link ANNGO with donors. The home page has logo of the organization with the name "ANNGO", picture citrus certified saplings, MAIL and EU logo. The site home page has an introduction of ANNGO. The site is in 3 languages (Pashto, Dari and English). The site has 9 other pages for more information about MSNs, CPNs, NGAs, technical publications, contact us, reports and blank forms.

The work on the website is in progress and in the near future FMS will be using the website to send all their information and data using their respective users in the site.

The site can be visited with WWW.ANNGO.org.af.



Fig 3. Webpage of ANNGO

D. ANNGO FACEBOOK;

ANNGO has opened Facebook account to convey their messages to nursery growers, companies, NGOs, orchard growers, Field Managers, DAIL,MAIL and agriculture faculty students.

ANNGO keeps all the above groups informed about ANNGO daily activities and updates about nursery businesses.

The FACEBOOK also increases the visibility of the organization and a additional way to stay in contact with NGAs and other relevant horticulture stakeholders.



Fig. 4 ANNGO Face book

E. ANNGO Fruit Catalogue;

During the project life ANNGO has released 4 versions of catalogues during past 4 years. The fifth addition of catalogue is prepared and is under publishing by financial support of ANHDO/HPS.

ANNGO technical team releases each year ANNGO catalogue of certified fruit saplings. Fruit catalogue is a marketing tool for certified saplings and ornamentals of ANNGO members. The list of catalogue's varieties and accessions is based on list of eligible varieties and accession for certification. A technical and editorial board is assigned in order to provide technical material, combine and review before printing. MAIL transition staff provides all the soft and hard copies of the data including pictures of fruits. Data coming from MSNs, Adaptive research, will be considered. Transition project will provide suggestions based on their experience and observations. The catalogue will contain saplings data, rootstocks data and ornamental/forestry trees data. The annual catalogue is also developed based on the budwood sale data provided by NGAs. The most marketable specie and varieties are described in the catalogue.

In order to support the certified saplings selling season each year ANNGO edit as a commercial tool, a catalogue to introduce the certified sapling available by the NGAs members.



Fig. 5. ANNGO Fruit Tree Catalogues (4 Versions)

F. ANNGO Advertisement of certified saplings;

For the sale and marketing of certified saplings, ANNGO have used different sources. Publish catalogue, banners, announce in radio and inform NGOs through MAIL to market the certified saplings. ANNGO have developed large banners for marketing of certified saplings. These large banners are hanged in the four outlet doors of Kabul city. The customers are informed about the certified saplings importance. The banner has certified nurseries, MSNs and quality fruit picture with ANNGO, MAIL, EU and PHDP logos.

Dear Orchard Growers !
If you want to establish new orchards with certified saplings, ANNGO provides you high quality fruit saplings with specifications:

- With specific Labels
- True to type
- Free from pest & disease
- Fruits & ornamentals
- Healthy & vigorous

باغداران عزیز !
اگر میخواهید باغ های جدید را با نهال های تصدیق شده احداث نمایند، موسسه ملی قوریه داران افغانستان (مما) برای شما نهال های مشمر با کیفیت ذیل تهیه میدارد:

- ← با لیبل مخصوص
- ← نهال های نوع مطابق اصل
- ← نهال های عاری از امراض و آفات
- ← نهال های مشمر، غیر مشمر و زینتی
- ← نهال های قوی و صحتمند

موسسه ملی قوریه داران افغانستان (مما) برای اولین بار در سطح آسیا نهال های تصدیق رابه همکاری و حمایت وزارت محترم زراعت آبیاری و مالداری به باغداران عزیز عرضه مینماید

Afghanistan National Nursery Growers Organization (ANNGO) for the first time in Asia offers certified saplings with the support from MAIL to orchard growers & farmers

آدرس !
بادام باغ تعمیر کوپراتیف های زراعت آبیاری و مالداری - کابل، افغانستان
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Fig. 6 Banner of ANNGO placed in 4 outlet doors of Kabul

G. Grape Exhibition:

Agriculture director of Kabul arranged a gathering of all grape growers and projects those were involved in the grape production in Kabul province. This exhibition was called grape day which many government officials were invited. H.E MAIL Minister, commerce minister, Governor of Kabul, Deputy governor of Kabul, governor of different districts of Kabul, MAIL directors and officers, farmers and donors were invited in this gathering. ANNGO also participate in this gathering and present ANNGOs activities specially production of different grapes in MSNs and distribution of certified grape cuttings of improved and high quality marketable varieties to the farmers and projects working in horticulture sector. H.E visit the production of ANNGO different grape varieties and which the project GM explained all the project activities to them and also explained the grape different varieties production procedures under EU funded project ANNGO.



Fig.7 H.E MAIL minister visiting the production of ANNGO in grape exhibition day at Qarabagh district of Kabul province



Fig. 8,9,10. The grape exhibition day starts with speech of H.E minister and governor of Kabul

H. Support & Enhancing Activities of ANNGO- Biotechnology Laboratory (PBT);

Plant bio technology laboratory plays its key role to keep the MSNs free from pest and diseases. It is technical supported by PHDP TA under transition project of MAIL. It plays key role for viral, bacterial, fungal and nematodes control in all MSNs and CPNs. The PBT technical staff coordinates the sample collection with ANNGO staff and develops an annual plan for sample collections. The citrus MSNs are tested for CTV each year. The result of tests conducted are officially shared with ANNGO and then with NGAs. The sample collection from MSNs will continuous for the coming years where it is expected that all the citrus MSNs will be tested for CTV. The stone and pome fruit MSNs will also be tested for specific viral, bacterial and fungal diseases. Upon the request of ANNGO the PBT is also ready to conduct test in CPNs and clonal rootstocks multiplication blocks of NGAs.

I. Selling Points:

ANNGO established a selling point in Kabul (fruit trees saplings, forest trees and ornamental) in the Baraki Area in order to increase the awareness of farmers for purchasing of certified sapling. In this center all the

farmers who are coming for the purchasing the saplings, are invited in the tent to learn how to establish the orchard and deliver them the ANNGO catalogue for their information. ANNGO technical team members are inside the booth and training the farmers who were interested in the plantation of orchards. It was a biggest EU visibility that most of the farmers interested to purchase the certified saplings from ANNGO as well as the nursery growers who had non-certified sapling in the selling area, impressed to get the membership of the organization for production of true to type, healthy and certified saplings. Most of the farmers were from Kabul, Logar, Maidan, Parwan, Kapisa and Ghazni province which they promised to register their nurseries in the existing NGAs in each province. Majority of the farmers who had non-certified saplings, request the project to provide label for their saplings too but when all the procedures explained to them, so they understand the system and promised to be part of the NGAs for the future Inside the tent, movie of orchard plantation method technical video and some steps of certification scheme were played to the customers during the introduction and discussion.



Fig. 11, 12 ANNGO selling point with participant on the training inside the tent

J. Support of Cooperative Building staff of MAIL:

The deep well of the cooperative building of MAIL was dried since one year and the director of Agriculture and director of agriculture cooperative of MAIL requested ANNGO to help them to dig a new deep well in order to solve the problem but as it was out of mandate of ANNGO and informed them that ANNGO can't dig the well. They send several letters that finally H.E deputy MAIL minister send us a letter in order to dig the well for them. All the requests submitted to EU delegation for their review and consideration that luckily the project approved and project start the digging of the deep well and completed in October 2015. (annex 3 request and approval)



Fig. 13 Deep well for the Cooperative Building of MAIL

Mother tree production:

Sampling for MSN virus indexing;

ANNGO technical team will provide the details of the MSNs to the Biotechnology laboratory team each year and they will organize a joint programme for the MSNs sample collection. Number of samples collected from MSNs, varieties and species as well as the number of infected and uninfected trees will be shared with ANNGO technical staff and then to FM's of NGAs

Table No. 1. Number of samples collected and tested from MSNs for viral diseases (2012-2015)

Fruit species	Year	No of samples tested
Stone fruits	2012	1054
Stone fruits	2013	901
Stone fruits	2014	365
Stone fruits, citrus and pome fruits	2015	630
Total		2950

Table No. 2. Number of samples collected and tested from MSNs for bacterial and fungal (2012-2015)

Fruit species	Year	No of samples tested
Stone fruits and citrus	2013	10
Stone fruits, pome fruits and grapes	2014	174
Stone fruits and pome fruits	2015	26
Total		210

Clonal Rootstock production;

ANNGO technical team will work in collaboration with Tissue culture laboratory team to multiply and produce rootstock for NGAs. PBTL and ANNGO will organize to teach the NGAs members the importance of clonal rootstocks, compatibility, and quality of saplings.

Rootstocks will be sold to NGAs according to the results of inspection team reports from February to March each year.

Table No. 3. No of samples collected and tested from MSNs for nematode screening (2012-2015)

Fruit species	Year	No of samples tested
Stone fruits, pome fruit and grapes	2014	9
Stone fruits, pome fruits and grapes	2015	25
Total		34

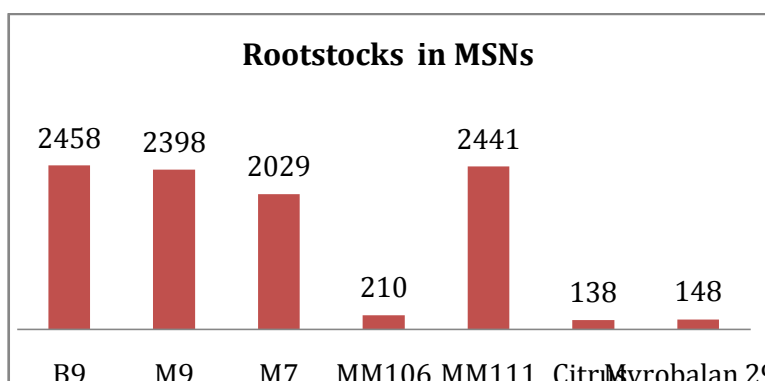


Chart # 5. Rootstocks production in the MSNs

The above & below graph shows the status available clonal rootstocks or seed mother trees available with 26 NGAs in 22 provinces of Afghanistan.

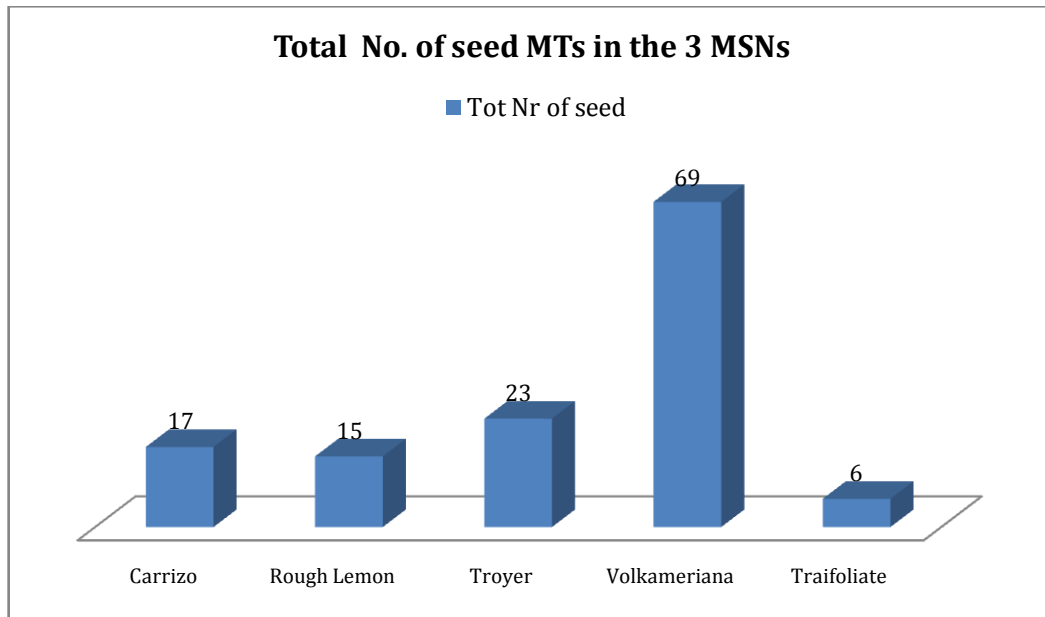


Chart # 6. Citrus Mother trees in eastern zone NGAs

ANNGO & NGAs sustainability;

So far all the services and activities of ANNGO are supported by EU. A small number of activities are co-financed by member NGAs. As shown in the below given graph. ANNGO is currently struggling to generate income through enlargement and improvement of services. In the new grant from EU, ANNGO will focus to increase its income through different activities. These different activities will be;

- NGA registration fee
- Single membership fee
- Certified labels
- Provision of Mother trees (MT)
- Provision for sale of bud wood
- % on sale of saplings
- MSN inspections
- CPN inspections
- ANNGO annual catalogue
- Technical training
- Advertise space on ANNGO catalogue
- Certificates for MSNs
- Advertise space on website
- Clonal rootstocks sales
- Training to third parties
- Orchard establishment programme
- Landscape designing
- Floriculture & Cut flower production services.

A small number of charges which include, membership fee, registration fee, price of labels, mother trees and rootstocks prices are being paid by ANNGO member NGAs. The organization will strictly work with member NGAs for the payment of charges for each service. It is time consuming to convince all the NGAs and its

members for the price of services. During early 2015 mother trees distribution, the demand for mother trees and rootstocks were high. ANNGO had to put a price on the available planting material. The price for a budded mother is 250 Afs. All the NGAs were ready to purchase the produced mother trees for their MSNs. ANNGO could not fulfill the need for mother trees this year. Similarly each year the demand for certified budwood in increasing in all MSNs and the members cannot fulfill the need for certified budwoods.

ANNGO needs to strengthen and improves its current key institutional functions as an umbrella organization which should represent all nursery growers of the country. The local associations need to attract more active nursery producers, educate them about certified saplings production and brief them about importance of membership to Local NGA and ANNGO.

ANNGO needs to work with local associations for their sustainability and improvement in their sources of income. Each NGA has its office setup, more active members, well established MSNs and certified nurseries. For each NGA a Field Manager is hired by supporting projects. Field Managers actively involved managing and controlling their organizational issues and registering the certified nurseries of the members. ANNGO needs to focus on income of each NGA and develop a suitability plan to have more income from their services. This will take place sooner when the new grant is approved by EU.

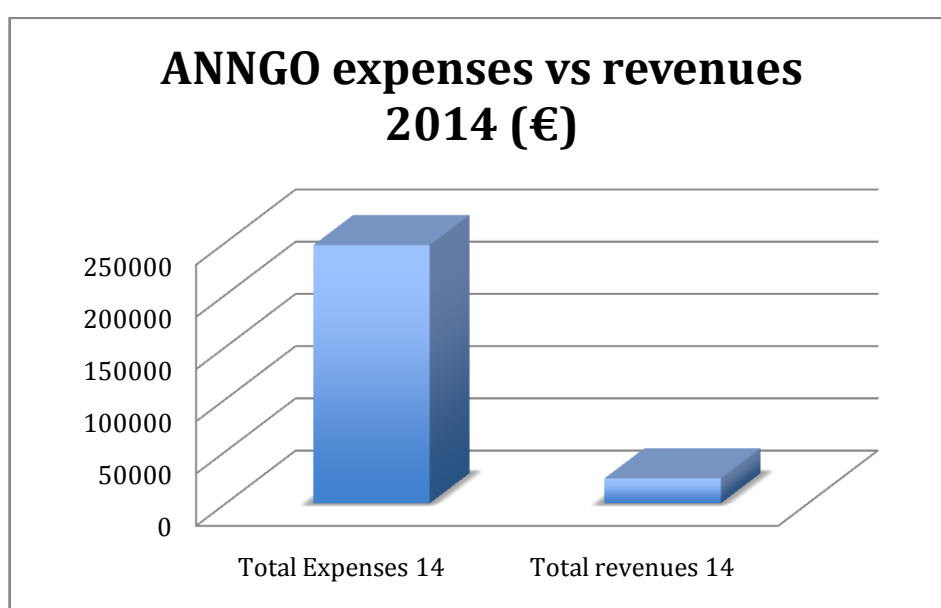


Chart # 7 ANNGO expense vs revenues 2014

The above graph shows that currently ANNGO is totally dependent on donors cost share and its own income cannot fulfill its one month expenses. ANNGO with the technical support of PHDP TA has drafted business plan which will be gradually implemented in the future.

MSNs as a source of certified budwoods;

So MSNs are the only source of certified budwood in the country. All the MSNs are produced from the National Collections in PHDCs. The mother trees produced in PHDCs are healthy, vigorous and true to type to their parents in the national collections. ANNGO has set standards for MSNs. The set standards are followed from land selection and MSN owner selection until budwood collection by NGA members. To check these standards each year all MSNs were inspected by ANNGO inspectors. The technical assistance is the responsibility of ANNGO to provide to all the existing MSNs of all available species and varieties in the country.

During the transition project mother trees are produced to existing & new NGAs of different marketable species. The mother trees were produced for 3 main purposes;

- a) Establishment of new MSNs.
- b) Expansion of existing MSNs.

c) Improvement of existing MSNs.

Distribution of mother trees/clonal rootstocks is a regular process. During the project life a large number of mother trees are distributed to MSN owners for budwoods, rootstocks, seeds or cuttings collection purposes to NGA members to produce true to type certified saplings. The established MSNs are not enough to fulfil the need of bud/graft market in the NGA members, so ANNGO will continue produce and supply mother trees to their member NGAs in the coming years. Similarly improvements and expansion in the MSNs are also very important, specially the MSNs which are established during 2009 & 2010. ANNGO has expanded most of the MSNs in the past 3 years. The activities of ANNGO are expanding each year. New provinces are coming under the activities and more members will join the organization.

It is certainly seen as the responsibility of ANNGO to ensure that its membership can continue to access source material to replace or extend the registered mother stock nurseries, which are a key part of the certification system. The actual holding of the germplasm collections is seen to come under the wider responsibilities to the industry of transition project, and MAIL is the ultimate guarantor of the integrity of the national collections, which is why the collections have been gathered together on the MAIL research stations. PHDP2 has taken part in the long term policy development that included consideration of the national variety collections.

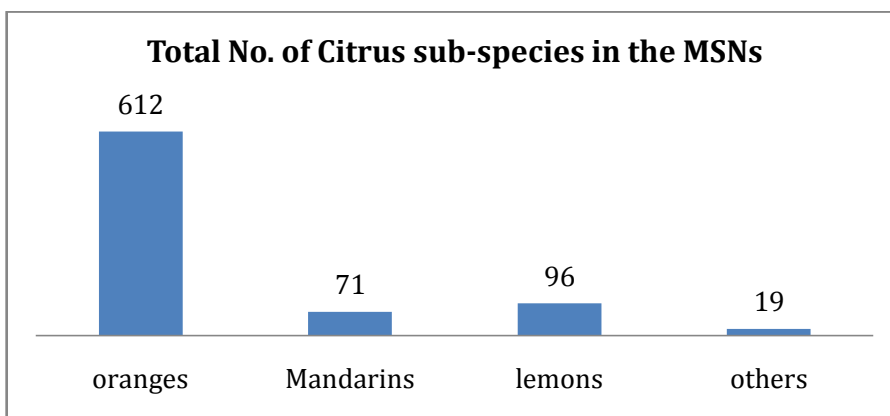


Chart 8. The above graph shows the availability of citrus sub-species

ANNGO Manual of procedures for certification of planting material:

Several meetings held with MAIL Certification Authority for the ANNGO fruit trees certification scheme manual. Certification manual is completed and presented to MAIL Certification Authority for approval and further processing. The manual will be sooner part of seed and planting material law. ANNGO technical staff developed a powerpoint presentation and presented it to MAIL key directorate staff. ANNGO need to provide trainings to MAIL field staff for the rules and regulations of the manual and ANNGO certification processes.

Several trainings are provided to field staff of NGAs. Now the certification law is being implemented by FMs of all NGAs in the field. The manual has been translated into local languages and after approval by certification authority directorate will be distributed among MAIL, DAIL, NGOs, NGAs and FMs.

Training of Field Managers (FMs);

ANNGO technical staff regularly providing seasonal trainings to FMs. The FMs have the responsibility to conduct trainings to the members of the associations. In some special cases ANNGO is also providing technical assistance to production nurseries and has conducted trainings related to budding methods and selection of varieties which has its positive effects on the budtake percentage but still more efforts are needed to work with nursery growers. ANNGO needs to train the field managers as a master trainer where further the Field Managers trains their related NGA members. Similarly some of the species like pistachio, walnuts, loquat & even persimmons are sold as seedlings in the local market which has spoiled the orchard establishment program. ANNGO will focus on major crops to reach to high standards and then need to work

with nursery growers to improve their nursery innovations for certified saplings production. In coordination with HPS will arrange quarterly Training programs for Field Managers. ANNGO will also arrange training trainings to NGAs as per their needs in the open field related to practical work in the nurseries.

The Nursery Growers Associations organizational and technical skills are gradually increasing. Regular technical trainings will be conducted by Field Managers. During the second grant of ANNGO project, the organization will conduct trainings on major subjects to Field Managers and NGA members. ANNGO will also work to develop technical team for each NGA where special trainings with the support from other organizations will be conducted, so that NGAs will be able to run and manage their day to day activities.

Third Party Trainings:

ANNGO technical team also provide trainings for the third parties during the project implementation. The projects were national NGOs, international NGOs and MAIL projects. The following organizations and projects trained by technical team of ANNGO:

1. NHLP (National Horticulture and Livestock Project)
2. TLO (Swiss funded project)
3. AAEP project (Training for women group)
4. Concern World wide (Badakhshan Province)

NHLP is leading customer of ANNGO. NHLP each year purchases over 90% of planting materials are from member NGAs of ANNGO. ANNGO as per MoU with NHLP has agreed to conduct trainings to field staff of NHLP . ANNGO head of regularity services & head of technical services conducted one day training in Badam Bagh SPCD hall to 50 extension staff of NHLP. The training was useful for the trainees to understand ANNGO fruit trees certification scheme and certified saplings production in Afghanistan.

TLO is a Swiss NGO working in Khost, Paktia and Paktika provinces. The organization is also supporting nursery growers in Khost province and has established orchards in different districts of Khost and Paktia provinces. According MoU with TLO, ANNGO has to provide Technical Assistance and trainings to nursery growers. ANNGO technical staff conducted 2 days trainings in Gardez TLO sub-office. All the TLO sub-office staff and nursery growers from Khost province attended the training.

AAEP is a USAID funded project supporting farmers and ladies groups involved in the production and sales of inputs. ANNGO conducted one day training to 16 ladies in cooperative building in badam Bagh. The subject of the training was 'how to establish an association'. The ladies group was willing to establish an association of nursery growers in Kabul and produce ornamental and certified saplings.

ANNGO is leading organization providing TA to national and international organizations in the country. Concern worldwide has been working with the nurseries development programme since 2002 in the north east part of the country. The organization is new member of ANNGO in the north east of the country to work together and provide all possible support to Concern LRRD field staff and DAIL extension workers on district level. ANNGO conducted field visit and 2 days training to field staff of concern working in Badakhshan and Takhar provinces. The training was theoretical and practical in the field. ANNGO provided planting material for the nurseries of concern in Badakhshan province. Annex 4 (agenda and contract for training of concern and AAEP)

Study Tours:

ANNGO technical staff and board members arranged a study tour to India. ANHDO/RI staff was also included in the trip. Total of twelve (12) participants travelled to India for the study tour including seven ANNGO and five HPS participants. The ANNGO participants included ANNGO General Manager, ANNGO Senior Field Inspector, ANNGO Chairman and 4 other ANNGO board members. The trip was held from 11th August to 19th August. The main purpose of the tour was:

- Understand Indian certified fruit saplings production.
- Understand Indian ornamental & forestry nursery sector.

- Increase the capacity of tissue and meristem culture and germplasm conservation as well as the propagation for fruit, ornamental and forestry plant.
- Increase the linkages between nursery grower sector and orchard owner sector.
- Understand the Indian commercial nurseries system and the introduction of new varieties in the Indian market;
- Understand the connection between horticulture industry and the fresh and dry fruit markets;
- Familiarize with the Indian research in horticulture and identify ways to improve the Afghan one.

The tour focused on main agricultural sites in Solan, Shimla and Chandigarh where the team had the opportunity to visit apple certified nurseries, mother stock nurseries, tissue culture facilities, floriculture green houses, cold storages, and kiwifruit varieties. The Indian agriculture sector is a good regional example for promoting inclusive growth, enhance rural income and sustain food and nutritional security. The participants had a good opportunity to explore different agricultural strategies / practices that enhance productivity /quality of products and provide income and employment for the rural population. (Annex 5 invitation letter for the study tour to India)



Fig. 14,15,16, 17 Participant of Study tour (ANNGO, ANHDO & MAIL) in different institute of India

Support to Ornamentals;

Ornamental plants are one of the major productions of nursery growers in the country. The Production and sales are increasing each year. A large number of ornamental plants are also imported from other countries. Therefore ANNGO, with the support of PHDP TA and ANHDO HPS SO1, have decided to move forward in the development of the ornamental sector, developing a long-term strategy and a three-year action plan to be used as a benchmark for the future development and consolidation of the sector. (Annex 7 Strategy of ornamentals)

Ornamental flowers, trees, shrubs and forest trees are major production of all NGAs. Besides development in fruit saplings sector, ANNGO has started to support and work on ornamentals and forest trees improvement. With the technical instructions from the MATI an Italian Company present in the nursery sector for more than 100 years, ANNGO has started supporting historic Babur Garden in Nursery establishment programme. ANNGO has started to support this major component of production and has decided to provide all possible facilities to the production cycle of the NGAs. In some of the NGAs the ornamental flowers are imported from Iran and Pakistan where these plants are further distributed to central, north and north-east part of the country. ANNGO has decided to support the member NGAs to produce the marketable species of ornamental flowers, trees and shrubs. The TA provided to NGAs and sale of the ornamentals will generate income to NGAs and ANNGO. In the preliminary stage ANNGO has started supporting some companies, historic gardens and NGAs to flourish in the country. An international consultant from MATI Company was invited to survey the current situation of ornamentals in the country. During his mission he visited Kabul, Parwan and Balkh provinces.

4. RESULTS ANALYSIS

ANNGO being an independent organization has made improvement in their activities since 2012 has already achieved the following results:

- ANNGO has taken over all the functions of support to nursery industry previously managed by PHDP/II
- ANNGO has successfully operated a program of transition to take over the functions of support to local NGAs previously managed by the MADERA/Mercy Corps NGO consortia.
- ANNGO technical staff has provided ad hoc technical training to NGAs members and FMs.
- The ANNGO technical team has put in place a solid inspection MSNs/CPNs system
- ANNGO has supported PBTL in the MSNs virus indexing campaign.
- ANNGO makes the horticulture industry aware of advantages of certified trees.
- The publication and distribution of 4 editions of the ANNGO catalogue (2011-2014)
- The active participation to the annual Ag-fairs in Kabul
- The publication and distribution of leaflets and other information material
- The active participation in ANHDO planning workshop, in the Citrus Promotion Group meetings, Citrus Field day and the first “National Citrus Workshop”.
- ANNGO has held regular EBoD and general assemblies.
- Constant establishment of new MSNs.
- Created and maintained all the certification records and database
- Collected demand for labels.

General Assembly:

The annual general assembly objective is to invite all the NGA chairmen to review the project progress, explain the NGAs annual achievements, suggestions and feedback from their respective province in order to improve the project activities and production. The members of NGAs also explaining their next year plan and electing new board of directorate members by transparent voting. To achieve the above mentioned objectives, ANNGO arranged the general assembly in Kabul and invite all the chairmen from the 26 NGAs all around Afghanistan.

The below tables show the result of elections among NGAs during general assembly during past 3 years. The election was conducted according to the bylaw of ANNGO in presence of MAIL, Kabul DAIL, partner NGOs, NHLP, PHDP and MAIL related directorates. During each year 4 BoDs meetings are also held where the minutes are shared with EU in the financial report of the project.

Table 4 Result of ANNGO General Assembly Election held on 3rd December 2012

No	Name	Position	Province	Mobile Nr
1	H.Abdul Sattar	Chairman	Kabul	0700280657
2	Haji Latif	Deputy Chairman	Maidan	099460305
3	Esa Jan	Secretary	Nangarhar	0785214047
4	Haji Shah Mohed Muhaqiq	Finance	Baghlan	0700616400
5	Nasir Khan	Marketing	Herat	0708462422
6	Haji Shafi	Encourage Fundraising	Kandahar	0700305406
7	Haji Abdul Rahman	Foreign Relations	Baghlan	0707510651

Table5 Result of ANNGO General Assembly Election held on 14th December 2013

No	Name	Position	Province	Mobile Nr
1	H.Abdul Sattar	Chairman	Kabul	0700280657
2	Esa Jan	Deputy Chairman	Nangarhar	0785214047
3	Haji Salih Mohed	Secretary	Gazni	0799471946
4	Haji Shah Mohed Muhaqiq	Finance	Baghlan	0700616400
5	Nasir Khan	Marketing	Herat	0708462422
6	Haji Shafi	Encourage Fundraising	Kandahar	0700305406
7	Haji Mohed Akram	Foreign Relations	Balk	0700049952

Table 6 Result of ANNGO General Assembly Election held on 2nd -4th February 2015

No	Positions	Candidates	Votes	Status	Remarks
1	ANNGO Chairman	Haji Abdul Satar	27	Selected	
2	Deputy Chairman	Abdul Latif	10	Rejected	
		Esa Jan	17	Selected	
3	Secretary	Saleh Mohammad	22	Selected	Two votes were empty
		Ahmad Shah	3	Rejected	
4	Finance in-charge	Amanullah	5	Rejected	
		Haji Mohaqiq	22	Selected	
5	Foreign Relationship	Haji M. Akram	14	Selected	
		Haji M. Mahfooz	13	Rejected	
6	Marketing in-charge	Abdul Nasir	22	Rejected	5 vote were empty
7	Encourage Fundraising	Haji M. Shafi	22	Rejected	5 votes were empty



Fig. 18 ANNGO general assembly in Kabul

In the General Assembly of 2015, HE deputy minister (Mir Aamanuddin Haideri) open the meeting with his valuable speech. He mentioned that ANNGO is one of the most important organization for the MAIL for provision of certified saplings. ANNGO has strong team members that working for the implementation of the certified saplings production scheme which is according to the policy and strategy of the MAIL. The saplings that is producing by ANNGO, is very important for the horticulture sector and modern orchards establishment. The production of certified sapling production need long term support and assistant that ANNGO should work for improvement of this system with close coordination of related directorates of MAIL. There is lots of old orchards that need to be replaced but there germplasm should be preserve that ANNGO can keep them in their scheme. This is ANNGO mandate to provide the best true to type, healthy and vigorous certified fruit trees to the orchards growers in the country. (Annex 6 General assembly minute)

Mother Stock Nurseries (MSNs):

As MSNs are the main pillar of the certification scheme, so annually numbers of new MSNs were increased based on the demand of the nursery growers. The below chart shows the MTs distribution of from PHDCs to NGA members as MSNs. The distribution during 2012 was very high and then it was deceased because of unknown reasons.

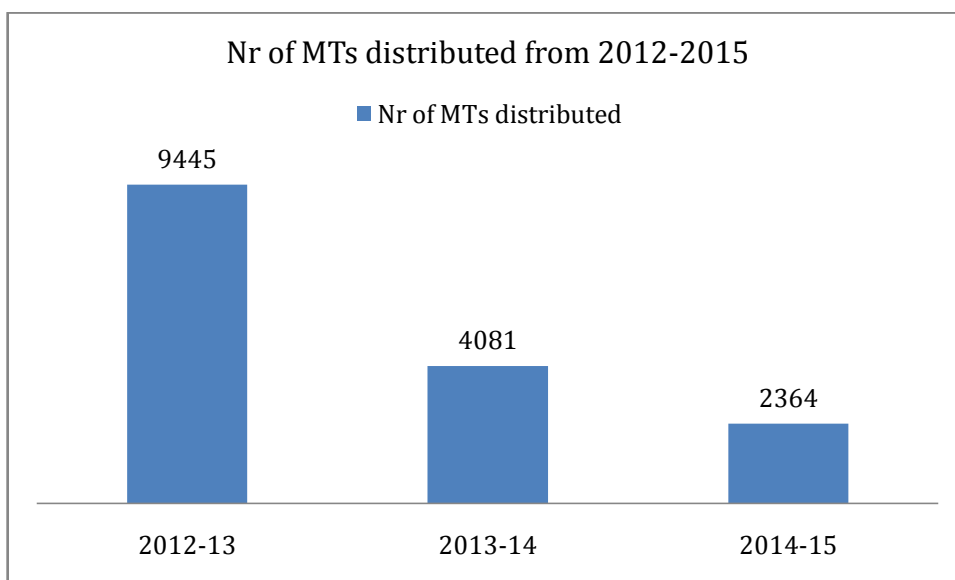


Chart 8, No. of Mother trees distributed for MSNs (2012-2015)

Table 7; Shows the number of varieties available in the MSNs in mother trees

ID	species	Variety	rootstock	Clone No	No S MSN
1	Apple	Red Chief	MM111 rootstock	AFG0101	120
2	Apple	Royal Gala	MM111/seedling	AFG0110	122
3	Apple	Lebnani Sorkh	Seedling	AFG0108	5
4	Apple	Summar red	Seedling	AFG0112	63
5	Apple	Double Red Delicious	Seedling	AFG0109	54
6	Apple	Blushing Golden	MM111	AFG0102	91
7	Apple	Granny Smith	MM111/seedling	AFG0103	4

8	Apple	TOR KULU	MM111/seedling	AFG0104	12
9	Apple	Rakhsh	MM111	AFG0127	2
10	Apple	Lebnani Zard	MM106	AFG0107	9
11	Apple	Mutsu	MM106	AFG0111	9
12	Apple	Nazak Badan	MM111	AFG0479	50
13	Apple	Shakari	Seedling	AFG0434	7
14	Apple	Wellspur	MM111	AFG0106	27
15	Apple	Mashadi	Seedling	AFG4060	11
16	Apple	Cripps Pink	MM111	AFG5036	15
19	Apple	Goldin Delicious Reinders	Seedling	IMP7207	5
20	Apple	Mitchgla Mondial Gala	Seedling	IMP7209	26
24	Apple	Fuji	MM111	IMP7237	111
25	Apple	Treco Gala	MM111	IMP7254	56
26	Apple	Saturn	MM111	IMP7235	80
27	Apple	Piros	MM111	IMP7211	4
28	Apple	Red Windsor	MM111	IMP7231	4
29	Apple	Gala	MM111	IMP7233	7
30	Apple	Jonagold	MM111	IMP7245	14
32	Apple	Heise-Fuji Benishogun	MM111	IMP7210	33
33	Apple	Smoothy	MM111	IMP7243	36
34	Apple	Galaxy	MM111	IMP7240	17
36	Almond	KAGHAZI MAIDA	Almond seedling	AFG6040	4
37	Almond	MAJIDI BALKH	Bitter Almond	AFG0147	15
38	Almond	SATTARBAI BAKHMALI	Bitter Almond	AFG0159	70
39	Almond	SATTARBAI NO.4	Bitter Almond	AFG0154	34
40	Almond	QAMBARI KUNDUZ	Bitter Almond	AFG0172	56
41	Almond	QAMBARI 142	Bitter Almond	AFG0142	100
42	Almond	SATTARBAI MUMTAZ	Bitter Almond	AFG0168	164
43	Almond	SATTARBAI GULDAR	Bitter Almond	AFG0157	36
44	Almond	SATTARBAI SUFI	Bitter Almond	AFG0145	4
45	Almond	QAHARBAI	Bitter Almond	AFG0160	63
46	Almond	NONPAREIL	Bitter Almond	AFG0171	66
47	Almond	CARMEL	Bitter Almond	AFG0167	46
48	Almond	QAMBARI	Bitter Almond	AFG0143	66
49	Almond	QAMBARI KUNDUZ	Bitter Almond	AFG0146	2
50	Almond	QAHARBAI	Bitter Almond	AFG0170	53
51	Almond	ABDUL WAHIDI	Bitter Almond	AFG0153	20
52	Almond	DU MAGHZA	Bitter Almond	AFG0163	3
53	Almond	MARAWAJA	Bitter Almond	AFG0141	2
54	Almond	SHOKORBAI	Bitter Almond	AFG0162	3
55	Almond	KAGHAZI SIAH DANA	Bitter Almond	AFG0535	5
56	Almond	KAGHAZI HERATI	Bitter Almond	AFG0739	8
57	Almond	KAF	Bitter Almond	AFG0793	46
58	Almond	KHAIRODINI	Bitter Almond	AFG0846	19
59	Almond	SATTARBAI YAQUBI	Bitter Almond	AFG0774	15
60	Almond	QAHARBAI HAZRATAN	Bitter Almond	AFG0780	15

61	Almond	SATTARBAI SAIS ZUHRABI	Bitter Almond	AFG0777	12
62	Almond	QAHARBAI	Bitter Almond	AFG0776	18
63	Almond	MARAWAJA MAIDA DANA	Bitter Almond	AFG0775	8
64	Almond	KAFMAL	Bitter Almond	AFG0773	4
65	Almond	QAMBARI KUNDUZ	Bitter Almond	AFG0772	42
66	Almond	SATTARBAI MUMTAZ	Bitter Almond	AFG0771	16
67	Almond	MAJIDI SAMANGAN	Bitter Almond	AFG2010	31
68	Almond	QAMBARI	Bitter Almond	AFG2009	81
69	Almond	SATTARBAI GULDAR	Bitter Almond	AFG2006	68
70	Almond	QAHARBAI AYKHANUM	Bitter Almond	AFG1005	18
71	Almond	SATTARBAI BAKHMALI	Bitter Almond	AFG2008	124
72	Almond	SATTARBAI SAIS AYBAK	Bitter Almond	AFG2011	8
73	Almond	QAHARBAI	Bitter Almond	AFG1003	43
74	Almond	SHOKORBAI	Bitter Almond	AFG2007	19
75	Almond	SATTARBAI DOUM	Bitter Almond	AFG1002	51
76	Almond	QAHARBAI	Bitter Almond	AFG1004	55
77	Almond	SHIR BAI	Bitter Almond	AFG1017	19
78	Almond	SATTARBAI BAKHMALI	Bitter Almond	AFG2012	5
79	Almond	SATTARBAI CHOBAK	Bitter Almond	AFG2038	69
80	Almond		Bitter Almond	AFG2017	4
81	Almond	Sattarbai	Bitter Almond	AFG2044	33
82	Almond	KAGHAZI GERD	Bitter Almond	AFG4016	6
83	Almond	KAGHAZI DU POSTA	Bitter Almond	AFG4048	6
84	Almond	SATTARBAI MUMTAZ	Bitter Almond	AFG1001	181
85	Almond	KAGHAZI	Bitter Almond	AFG4022	3
86	Almond	LAURANNE	Bitter Almond	AFG6309	22
87	Almond	FERRAGNES	Bitter Almond	AFG6206	15
88	Almond	FERRADUEL	Bitter Almond	AFG6308	12
89	Almond	SATTARBAI	Bitter Almond	AFG6038	6
90	Almond	SANGAK YAZDA	Bitter Almond	AFG6041	10
91	Almond	DU MAGHZA SPIN	Bitter Almond	AFG1007	43
92	Almond	QAHARBAI AYKHANUM	Bitter Almond	AFG1006	32
93	Almond	SUPERNOVA	Bitter Almond	AFG2076	14
94	Almond	GENCO	Bitter Almond	AFG2077	26
95	Almond	TUONU	Bitter Almond	AFG1018	7
96	Almond	KAGHAZI CHAR DARA	Bitter Almond	AFG1016	7
97	Almond	KHERAJI	Bitter Almond	AFG2036	25
98	Almond	SAIDBAI	Bitter Almond	AFG2037	7
99	Almond	NONPAREIL	Bitter Almond	AFG2041	21
100	Almond	SATTARBAI LASHMAK	Bitter Almond	AFG2040	3
101	Apricot	Qaisi	Bitter Apricot	AFG0207	14
102	Apricot	Valayati	Bitter Apricot	AFG0208	8
103	Apricot	TOM COT	Bitter Apricot	AFG0212	10
104	Apricot	Amiri	Bitter Apricot	AFG0206	26
105	Apricot	Maidani	Bitter Apricot	AFG0290	9
106	Apricot	Charkhi	Bitter Apricot	AFG0330	15

107	Apricot	Bada Ghor	Bitter Apricot	AFG0362	14
108	Apricot	Amiri	Bitter Apricot	AFG0278	80
109	Apricot	Amiri	Bitter Apricot	AFG0329	77
110	Apricot	Amiri Sorkh	Bitter Apricot	AFG0328	41
111	Apricot	Jauzay	Bitter Apricot	AFG0180	18
112	Apricot	Tajiki	Bitter Apricot	AFG0336	22
113	Apricot	Amiri	Bitter Apricot	AFG0276	14
114	Apricot	Qaisi	Bitter Apricot	AFG0244	39
115	Apricot	Charkhi	Bitter Apricot	AFG0245	1
116	Apricot	Shakarpara Sorkh	Bitter Apricot	AFG0250	2
117	Apricot	Nooraghai	Bitter Apricot	AFG0251	3
118	Apricot	Gold Kist	Bitter Apricot	AFG0267	14
119	Apricot	Goldcot	Bitter Apricot	AFG0265	7
120	Apricot	Patterson	Bitter Apricot	AFG0266	2
121	Apricot	RANGAHO	Bitter Apricot	AFG 0481	3
122	Apricot	Charmaghzi	Bitter Apricot	AFG0356	10
123	Apricot	Chaharmaghzi	Bitter Apricot	AFG0248	11
124	Apricot	Ambercot	Bitter Apricot	AFG0268	14
125	Apricot	PIR NAQSHI	Bitter Apricot	AFG0292	106
126	Apricot	Nari Spin	Bitter Apricot	AFG0355	4
127	Apricot		Bitter Apricot	AFG0286	7
128	Apricot	Baqi Khani	Bitter Apricot	AFG0320	5
129	Apricot	Valayati	Bitter Apricot	AFG0210	3
130	Apricot	Amiri	Bitter Apricot	AFG0326	14
131	Apricot	Shakarpara Safid	Bitter Apricot	AFG0331	40
132	Apricot	Enkeshafi	Bitter Apricot	AFG0313	7
133	Apricot	Kur Pa	Bitter Apricot	AFG0243	3
134	Apricot	Kandahari	Bitter Apricot	AFG0417	8
135	Apricot	Qaisi Safid	Bitter Apricot	AFG0407	10
136	Apricot	Amiri Kalan	Bitter Apricot	AFG0365	32
137	Apricot	Shakarpara	Bitter Apricot	AFG0529	16
138	Apricot	Qaisi	Bitter Apricot	AFG0465	3
139	Apricot	Shakarpara Panjshir	Bitter Apricot	AFG0464	2
140	Apricot	HAZARA	Bitter Apricot	AFG0456	7
141	Apricot	SAFIDAK	Bitter Apricot	AFG0454	7
142	Apricot	Agha Khani	Bitter Apricot	AFG0451	5
143	Apricot	Shakarpara	Bitter Apricot	AFG0478	2
144	Apricot	Turki 2	Bitter Apricot	AFG0463	7
145	Apricot	Shakarpara Sorkh	Bitter Apricot	AFG0372	17
146	Apricot	Shakarpara Safid	Bitter Apricot	AFG0373	37
147	Apricot	Amiri	Bitter Apricot	AFG0485	3
148	Apricot	Rangahi	Bitter Apricot	AFG0484	4
149	Apricot	Nooraghai	Bitter Apricot	AFG0462	3
150	Apricot	Sardayi	Bitter Apricot	AFG0366	5
151	Apricot	Du Maghza	Bitter Apricot	AFG0748	12
152	Apricot	Farahi	Bitter Apricot	AFG0746	15

153	Apricot	Qaisi	Bitter Apricot	AFG0741	40
154	Apricot	Qaisi	Bitter Apricot	AFG0742	7
155	Apricot	Qaisi Safid	Bitter Apricot	AFG0760	8
156	Apricot	Rughani	Bitter Apricot	AFG0750	17
157	Apricot	Nari	Bitter Apricot	AFG0540	42
158	Apricot	Kandahari	Bitter Apricot	AFG0827	15
159	Apricot	Amiri	Bitter Apricot	AFG0822	25
160	Apricot	Shakarpara	Bitter Apricot	AFG0829	8
161	Apricot	Charkhi	Bitter Apricot	AFG0831	47
162	Apricot	Shakarpara	Bitter Apricot	AFG0826	14
163	Apricot	Qaisi	Bitter Apricot	AFG0824	19
164	Apricot	Amiri	Bitter Apricot	AFG0820	21
165	Apricot	Farahi	Bitter Apricot	AFG0747	9
166	Apricot	Jauras	Bitter Apricot	AFG0836	4
167	Apricot	Charmaghzi	Bitter Apricot	AFG0823	11
168	Apricot	Jauras	Bitter Apricot	AFG0833	10
169	Apricot	Jauras	Bitter Apricot	AFG0832	9
170	Apricot	Jauras	Bitter Apricot	AFG0834	8
171	Apricot	Rughani	Bitter Apricot	AFG0751	3
172	Apricot	Shakarpara	Bitter Apricot	AFG0828	12
173	Apricot	Amiri	Bitter Apricot	AFG0821	21
174	Apricot	Shakarpara	Bitter Apricot	AFG0830	21
175	Apricot	Shaikhmiri	Bitter Apricot	AFG2046	70
176	Apricot	Ghat Spin	Bitter Apricot	AFG1014	16
177	Apricot	Amiri	Bitter Apricot	AFG1013	7
178	Apricot	Qaisi	Bitter Apricot	AFG4003	2
179	Apricot	Tarnaw	Bitter Apricot	AFG2047	7
180	Apricot	Qaisi	Bitter Apricot	AFG4002	2
181	Apricot	Qaisi	Bitter Apricot	AFG4005	3
182	Apricot	Qaisi	Bitter Apricot	AFG4041	6
183	Apricot	Saqi	Bitter Apricot	AFG5003	30
184	Apricot	Amiri	Bitter Apricot	AFG1012	24
185	Apricot	Haidari	Bitter Apricot	AFG2045	16
186	Apricot	Shekh Miri	Bitter Apricot	AFG2064	4
187	Apricot	Qaisi	Apricot	AFG4023	7
188	Apricot	Aqa Banu	Bitter Apricot	AFG4037	23
189	Apricot	Baghal Sorkh	Bitter Apricot	AFG4025	21
190	Apricot	Jebraile	Bitter Apricot	AFG4019	22
191	Apricot	Turki 2	Bitter Apricot	AFG4039	35
192	Apricot	Amiri	Bitter Apricot	AFG4038	5
193	Apricot	Rughani	Bitter Apricot	AFG4040	2
194	Apricot	Rughani	Bitter Apricot	AFG4017	5
195	Apricot	Jebraile	Bitter Apricot	AFG4018	5
196	Apricot	Charmaghzi	Bitter Apricot	AFG4035	4
197	Apricot	Charmaghzi	Apricot	AFG6310	53
198	Apricot	Turki 1	Bitter Apricot	AFG6315	25

199	Apricot	Aurora	Bitter Apricot	AFG7135	15
200	Apricot	Qaisi	Bitter Apricot	AFG6204	7
201	Apricot	Turki	Bitter Apricot	AFG6313	23
202	Apricot	Shakarpara	Bitter Apricot	AFG6214	8
203	Apricot	Badami	Bitter Apricot	AFG6212	19
204	Apricot	Amiri	Bitter Apricot	AFG6216	4
205	Apricot	Charmaghzi	Bitter Apricot	AFG6215	32
206	Apricot	Pink Cot	Bitter Apricot	AFG7137	11
207	Apricot	Badami Dir Ras	Bitter Apricot	AFG6213	8
208	Apricot	Trevatt	Bitter Apricot	AFG6211	15
209	Apricot	Pink Cot	Bitter Apricot	IMP7137	26
211	Peach	Bushqabi	Peach	AFG0257	22
212	Peach	Suncrest	Peach	AFG0260	63
213	Peach	Maycrest	Peach	AFG0259	74
214	Peach	Jauras	Peach	AFG 0816	2
215	Peach	Aquli	Peach	AFG0293	31
216	Peach	Sartani	Peach	AFG0318	19
217	Peach	Sartani	Peach	AFG0169	11
218	Peach	SHELIL BAKHMALI	Peach	AFG0179	5
219	Peach	Sartani	Peach	AFG0340	5
220	Peach	Jauzay Safid	Peach	AFG0334	2
221	Peach	Asadi	Peach	AFG0338	4
222	Peach	TIRMAHI	Peach	AFG0339	4
223	Peach	Jauzay	Peach	AFG0337	16
224	Peach	Bushqabi	Peach	AFG0335	7
225	Peach	JAUZAY SORKH	Peach	AFG0333	16
226	Peach	Jauzay	Peach	AFG0306	9
227	Peach	Jauzay	Peach	AFG0321	16
228	Peach	Almani Dir Ras	Peach	AFG0439	26
229	Peach	SHELIL BAGHAL SORKH	Peach	AFG0370	12
230	Peach	Bushqabi	Peach	AFG0461	5
231	Peach	Urdu Khan Paia Awal	Peach	AFG0442	13
232	Peach	Jauras	Peach	AFG0452	16
233	Peach	Garma	Peach	AFG0371	5
234	Peach	Bushqabi	Peach	AFG0411	4
235	Peach	SHELIL TIRMAHI	Peach	AFG0420	3
236	Peach	Kala Gurba	Peach	AFG0401	7
237	Peach	Almani Zud Ras	Peach	AFG0440	86
238	Peach	Turki Sorkh	Peach	AFG0804	79
239	Peach	Shelil Shab Rang	Peach	AFG0810	47
240	Peach	Gulbasar	Peach	AFG0802	51
241	Peach	Kandahari Sorkh	Peach	AFG0818	5
242	Peach	Dir Ras	Peach	AFG0812	23
243	Peach	Awal Ras	Peach	AFG0803	10
244	Peach	Turki Zard	Peach	AFG0811	40
245	Peach	Qandak Safid	Peach	AFG0809	15

246	Peach	Kharbozehi Zard	Peach	AFG0808	30
247	Peach	DUM RAS	Peach	AFG0806	5
248	Peach	Awal Ras Safid	Peach	AFG0805	9
249	Peach	Kharbozehi	Peach	AFG0817	8
250	Peach	Dir Ras	Peach	AFG0807	22
251	Peach	Early Grand	Peach	AFG6036	29
252	Peach	Garma	Peach	AFG6205	13
253	Peach	Flordaking	PSB2	AFG6035	29
254	Peach	Maycrest	Peach	AFG6303	150
255	Peach	Flavour Top	Peach	AFG6302	89
256	Peach	Miana Ras	Peach	AFG4057	14
257	Peach	Shab Rang	Peach	AFG4021	22
258	Peach	SHELIL BAHARI	Peach	AFG4054	9
259	Peach	Shelil Shab Rang	Peach	AFG4000	62
260	Peach	Zud Ras	Peach	AFG4027	34
261	Peach	SARTANI	Peach	AFG1010	19
262	Peach	Jauras	Peach	AFG2002	23
263	Peach	Asadi	PSB2	AFG2000	19
264	Peach	Zud Ras	Peach	AFG2003	5
265	Peach	Yarkandi	Peach	AFG2001	16
266	Peach	SHELIL BAHARI	Peach	AFG0754	4
267	Peach	TIRMAHI	Peach	AFG0753	12
268	Peach	Bahari	Peach	AFG0752	2
269	Peach	Shelil Sorkh	Peach seedling	AFG4026	5
270	Peach	Zud Ras	PSB2	AFG4051	15
271	Peach	SHAB RANG	Peach	AFG4024	1
272	Peach	Miana Ras	Peach	AFG4033	12
273	Peach	Shab Rang	Peach	AFG4055	2
274	Peach	Flavour Crest	Peach	AFG6301	52
275	Peach	Shelil Flavour Top	Peach	AFG6219	50
276	Peach	6A	Peach	AFG6217	20
277	Peach	No 6	Peach	IMP7287	16
278	Peach	Viowhite 5	Peach	IMP7277	4
279	Peach	Plawhite 5	Peach	IMP7278	27
280	Peach	Plagold 50	PSB2	IMP7276	25
281	Peach	Zincal 4	PSB2	IMP7279	14
282	Peach	No 7	PSB2	IMP7288	7
283	Peach	Olivine	Peach	IMP7284	20
284	Peach	No 5	PSB2	IMP7286	6
285	Peach	No 8	PSB2	IMP7289	13
286	Peach	Summer Lady	Local Seed	IMP7185	35
287	Peach	Ryan Sun	Peach	IMP7186	31
288	Peach	Benedicte	Peach	IMP7187	41
289	Peach	MAYCREST	Peach	IMP6303	6
290	Peach	SHELIL SWEET RED	Peach	IMP7150	14
291	Peach	Shelil Caldesi 2000		IMP7148	6

292	Peach	Ambara	PSB2	IMP7146	15
293	Peach	BIG TOP	Peach	IMP7147	45
294	European Plum	Alucha Herati	Almond/Apricot	AFG0357	13
295	European Plum	Stanly	Almond/Apricot	AFG0332	14
296	Japanese Plum	Friar	Almond	AFG0273	23
297	Japanese Plum	Irani	Almond	AFG0253	51
298	Japanese Plum	Alucha Gurja	Almond/Apricot	AFG0358	9
299	Japanese Plum	Formosa	Almond/Apricot	AFG0280	11
300	Japanese Plum	Formosa	Almond	AFG0294	5
301	Japanese Plum	Siah	Almond/Apricot	AFG0327	4
302	Japanese Plum	Kunduzi Zard	Almond/Apricot	AFG0311	17
303	European Plum	KUNDUZI	Almond/Apricot	AFG0310	16
304	European Plum	Kuk Sultan	Almond/Apricot	AFG0308	2
305	European Plum	Ghulami	Almond/Apricot	AFG0312	11
306	Japanese Plum	Tamsuq	Almond/Apricot	AFG0178	7
307	European Plum	Alu Bokhara Spin	Almond	AFG0524	6
308	European Plum	Alu Bokhara Shalili	Almond	AFG0364	9
309	European Plum	Herati	Almond/Apricot	AFG0528	12
310	Japanese Plum	Grangej Siah	Almond/Apricot	AFG0381	4
311	Purple Plum	Leave Alucha Sorkh	Almond	AFG0176	2
312	Japanese Plum	Grangej	Almond/Apricot	AFG0539	13
313	Japanese Plum	Catalina	Almond/Apricot	AFG0270	36
314	European Plum	Siah	Almond/Apricot	AFG0378	14
315	European Plum	Patak Morabai	Almond	AFG0413	2
316	Japanese Plum	Grangej Sorkh Dir Ras	Almond	AFG0414	8
317	Japanese Plum	Goja	Almond	AFG0423	5
318	European Plum	KUK SULTAN	Almond/Apricot	AFG0473	6

319	Japanese Plum	Irani	Almond/Apricot	AFG0444	9
320	Japanese Plum	Alu Bokhara Sorkh	Almond/Apricot	AFG0367	2
321	Japanese Plum	Formosa	Bitter Almond	AFG0455	4
322	Japanese Plum	Formosa	Almond	AFG0814	32
323	Japanese Plum	Zard Lemoyi	Almond/Apricot	AFG0815	4
324	Japanese Plum	Sorkh	Almond/Apricot	AFG0813	20
325	European Plum	Goja Sabz	Almond/Apricot	AFG0755	19
326	Japanese Plum	Alu Bokhara	Almond	AFG0757	26
327	European Plum	Stanly	Almond/Apricot	AFG6312	8
328	Japanese Plum	Farmosa	Almond	AFG6307	21
329	Japanese Plum	Grangej Siah	Almond	AFG4010	11
330	Japanese Plum	Formosa	Almond/Apricot	AFG1011	37
331	European Plum	NESHASTI	Almond	AFG4015	30
332	Japanese Plum	Fortune	Almond	AFG6311	47
333	Japanese Plum	Red Beauty	Almond/Apricot	AFG6037	16
334	Japanese Plum	Fazil Manani	Almond/Apricot	AFG6201	25
335	Japanese Plum	Black Amber	Almond/Apricot	AFG6305	40
336	Japanese Plum	Red Flash	Almond/Apricot	AFG6304	8
337	Japanese Plum	Fazil Manani	Almond/Apricot	AFG6222	10
338	Japanese Plum	Sultanpuri	Almond/Apricot	AFG6202	10
339	Japanese Plum	Lal Khon	Almond/Apricot	AFG6203	7
340	Japanese Plum	Fazil Manani Dir Ras	Apricot	AFG6039	8
341	Japanese Plum	Grangej Zard	Almond	AFG4031	44
342	Japanese Plum	Grangej Siah	Almond/Apricot	AFG4030	67
343	Japanese Plum	Grangej Sorkh	Almond	AFG4007	13
344	Japanese Plum	Formosa Zard	Almond/Apricot	AFG1009	28
345	Japanese Plum	Angeleno	Bitter Almond	IMP7144	8

	Plum					
346	Plum	Myrobalan	Myrobalan cuttings	Root	Myrobalan	148
347	Cherry	Mahali	Mahaleb		AFG0468	3
348	Cherry	Mahali	Mahaleb		AFG0477	6
349	Cherry	Tashqand-i-Sawri	Mahaleb		AFG0323	25
350	Cherry	Bing	Mahaleb SL 64		AFG0113	24
351	Cherry	Sawri	Mahaleb SL 64		AFG0324	10
352	Cherry	Bing	Mahaleb		AFG0279	5
353	Cherry	Mahali	Mahaleb		AFG0341	3
354	Cherry	Mahali	Mahaleb		AFG0343	3
355	Sour Cherry	Mahali	Mahaleb		AFG0307	2
356	Cherry	Irani	Mahaleb		AFG0425	10
357	Sour Cherry	Mahali	Mahaleb		AFG0424	4
358	Sour Cherry	Mahali	Mahaleb		AFG0469	8
359	Sour Cherry	Mahali	Mahaleb		AFG0476	4
360	Cherry	Summit	Mahaleb SL 64		IMP7142	13
361	Cherry	Folfer	Mahaleb SL 64		IMP7154	10
362	Cherry	Burlat	Mahaleb SL 64		IMP7139	9
363	Cherry	Ferrovio	Mahaleb SL 64		IMP7140	3
364	Cherry	Moreau	Mahaleb SL 64		IMP7141	5
366	Cherry	Sabrina	Mahaleb		IMP7155	1
367	Cherry	Ferrovio	Mahaleb		IMP7265	6
368	Cherry	Stella Compact	Mahaleb		IMP7225	18
369	Cherry	Stella	Mahaleb		IMP7222	28
370	Cherry	Sweetheart Sumtare	Mahaleb		IMP7246	13
371	Cherry	Blaze Star	Mahaleb		IMP7248	14
372	Cherry	Black Star	Mahaleb		IMP7249	13
373	Cherry	Stella	Mahaleb		IMP7250	11
374	Cherry	Scrumptious	Mahaleb		IMP7239	4
375	Cherry	Lapins	Mahaleb		IMP7224	16
376	Cherry	Sweetheart	Mahaleb		IMP7228	2
379	Cherry	Black Star	Mahaleb SL 64		IMP7226	12
380	Cherry	Bataton	Mahaleb SL 64		IMP7218	14
381	Cherry	Blaze Star	Mahaleb SL 64		IMP7219	24
382	Cherry	Santina	Mahaleb		IMP7216	7
383	Cherry	Sunburst	Mahaleb		IMP7220	15
384	Sour Cherry	MONTMORENCY	Mahaleb		IMP7223	7
385	Sour Cherry	Cherry Pie	Mahaleb SL 64		IMP7227	4
386	Pear	Fransawi	Seedling		AFG0277	67
387	Pear	Yakhnak	Seedling		AFG0261	1
388	Pear	Chinai	Seedling		AFG0412	46
389	Pear	Amrutcha	Seedling		AFG0419	4
390	Pear	Kadu Amrot	Seedling		AFG0426	8
391	Pear	Shah Mewa	Seedling		AFG2025	70
392	Pear	Natanz	Seedling		AFG2024	47

393	Pear	Beruti	Seedling	AFG2027	1
394	Pear	Mirzai	Seedling	AFG2069	3
395	Pear	Andarabi	Seedling	AFG2026	2
396	Pear	Garma	Seedling	AFG5013	10
397	Pear	Baghal Sorkh	Seedling	AFG4065	6
398	Pear	Sardah	Seedling	AFG6221	6
399	Pear	Williams	Seedling	AFG6318	1
400	Pear	Doyemme Du Comice	Seedling	AFG6320	4
401	Pear	Faransawi dir ras	Seedling	AFG5033	6
402	Pear	Zard	Seedling	AFG5006	5
403	Pear	Reg Nak Garma	Seedling	AFG5011	9
404	Pear	Batang	Seedling	AFG5012	6
405	Pear	Conference	Seedling	AFG6321	43
406	Pear	Dr Jules Guyot	Seedling	AFG6319	15
407	Pear	Louise Bonne of Jersey	Seedling	IMP7198	3
408	Pear	Cascade	Seedling	IMP7197	28
409	Pear	Shah Mewa	Seedling		8
410	Grape	Ayta	Cutting	AFG0216	4
411	Grape	Lal Herati	Cutting	AFG0218	33
412	Grape	Flame Seedless	Cutting	AFG0221	89
413	Grape	Emperor	Cutting	AFG0222	19
414	Grape	Cardinal	Cutting	AFG0229	5
415	Grape	Exotic	Cutting	AFG0230	19
416	Grape	Ribier	Cutting	AFG0232	23
417	Grape	Raucha Safid	Cutting	AFG0300	16
418	Grape	Ayta Qalami	Cutting	AFG0353	26
419	Grape	Crimson Seedless	Cutting	AFG0225	45
420	Grape	RED GLOBE	Cutting	AFG0228	22
421	Grape	Taifi	Cutting	AFG0140	16
422	Grape	BLACK EMERALD	Cutting	AFG0223	33
423	Grape	SAHIBI	Cutting	AFG0240	2
424	Grape	Fantasy	Cutting	AFG0224	42
425	Grape	Perlette	Cutting	AFG0226	45
426	Grape	Thompson	Cutting	AFG0234	8
427	Grape	RUBY	Cutting	AFG0233	9
428	Grape	Ayta Tor	Cutting	AFG0393	5
429	Grape	Lal Katta Dana	Cutting	AFG0487	8
430	Grape	Ayta	Cutting	AFG0500	5
431	Grape	Hussaini	Cutting	AFG0504	9
432	Grape	Ayta	Cutting	AFG0503	9
433	Grape	Keshmeshi Sorkh	Cutting	AFG0502	6
434	Grape	Emperor	Cutting	AFG0536	17
435	Grape	Mirahmadi	Cutting	AFG0422	4
436	Grape	SHONDAKHANAI KISHMISHI	SORKH Cutting	AFG0515	4
437	Grape	SHONDAKHANAI SRA	Cutting	AFG0391	11

438	Grape	MAHALI	Cutting	AFG0498	5
439	Grape	SAHIBI SPIN	Cutting	AFG0499	6
440	Grape	ASKARI	Cutting	AFG0501	7
441	Grape	Sahibi Sra	Cutting	AFG0488	5
442	Grape	Hussaini	Cutting	AFG0497	11
443	Grape	Ayta	Cutting	AFG0553	29
444	Grape	Shondakhanai	Cutting	AFG0555	18
445	Grape	Taifi	Cutting	AFG0863	21
446	Grape	Hussaini Qalamak	Cutting	AFG0725	6
447	Grape	Hussaini	Cutting	AFG0854	26
448	Grape	SHONDAKHANAI	Cutting	AFG0857	15
449	Grape	ABJUSH	Cutting	AFG0797	25
450	Grape	Hussaini	Cutting	AFG0799	20
451	Grape	MUNAQA	Cutting	AFG0801	17
452	Grape	LOGHI	Cutting	AFG0709	8
453	Grape	MIR AHMADI	Cutting	AFG0712	9
454	Grape	Taifi	Cutting	AFG0858	11
455	Grape	KHAE KAUK	Cutting	AFG0733	1
456	Grape	EXOTIC	Cutting	AFG0548	14
457	Grape	GERDAK	Cutting	AFG0554	6
458	Grape	SAHIBI SRA	Cutting	AFG0721	15
459	Grape	MASKA SORKH	Cutting	AFG0737	8
460	Grape	KHURMAYI	Cutting	AFG0868	7
461	Grape	SHAH ANGOR	Cutting	AFG0710	14
462	Grape	AQA ALI	Cutting	AFG0734	12
463	Grape	KHALILI ALA	Cutting	AFG0875	20
464	Grape	KALA ZAGH	Cutting	AFG0887	6
465	Grape	MASKA	Cutting	AFG0877	1
466	Grape	LAL BAQOLI DANA	Cutting	AFG4067	8
467	Grape	FLAME SEEDLESS	Cutting	IMP7065	9
468	Pomegranate	Spin Khog	Cutting	AFG0386	20
469	Pomegranate	TOR	Cutting	AFG0390	4
470	Pomegranate	Sor Zod Ras	Cutting	AFG0385	38
471	Pomegranate	Tashkurghani	Cutting	AFG0860	38
472	Pomegranate	Kandahari	Cutting	AFG0862	23
473	Pomegranate	May Khosh	Cutting	AFG0873	42
474	Pomegranate	Sorkhak	Cutting	AFG0859	30
475	Pomegranate	Bedana	Cutting	AFG0762	18
476	Pomegranate	Spin Khog	Cutting	AFG0563	20
477	Pomegranate	NAZEK POST	Cutting	AFG0561	15
478	Pomegranate	PAND POST	Cutting	AFG0562	5
479	Pomegranate	Sorkhak	Cutting	AFG0878	35
480	Pomegranate	Mahali	Cutting	AFG0884	32
481	Pomegranate	Sumbarskii	Cutting	AFG7178	5
482	Pomegranate	Kandahari May Khush	Cutting	AFG6056	11
483	Pomegranate	Kandahari	Cutting	AFG6057	26

484	Pomegranate	Bedana	Cutting	AFG6060	9
485	Pomegranate	KAGA SPIN	Cutting	AFG5023	9
486	Pomegranate	Sakerdze	Cutting	AFG7167	2
487	Pomegranate	MAY KHOSH SHINKI	Cutting	AFG5025	15
488	Pomegranate	Wonderful	Cutting	IMP7163	42
489	Pomegranate	Mae	Cutting	IMP7164	18
490	Pomegranate	EVE	Cutting	IMP7165	25
491	Pomegranate	Purple Heart	Cutting	IMP7166	35
492	Pomegranate	Sakerdze	Cutting	IMP7167	8
493	Pomegranate	Al-Sirin-Nar	Cutting	IMP7168	25
494	Pomegranate	Zubejda	Cutting	IMP7171	15
495	Pomegranate	Ariana	Cutting	IMP7176	32
496	Pomegranate	Apseronski Krasnyj	Cutting	IMP7169	12
497	Pomegranate	Nikitski Ranni	Cutting	IMP7170	15
498	Pomegranate	Mayatadzhy	Cutting	IMP7179	13
499	Pomegranate	CRANBERRY	Cutting	IMP7173	13
500	Pomegranate	PALERMO	Cutting	IMP7174	5
501	Pomegranate	Sumbarskii	Cutting	IMP7178	33
502	Pomegranate	CRAB	Cutting	IMP7172	17
503	Pomegranate	Medovyi Vahsha	Cutting	IMP7175	20
504	Pomegranate	Girkanets	Cutting	IMP7177	42
505	Pomegranate	Andalib	Cutting	IMP7180	15
506	Pomegranate	Kopetdag	Cutting	IMP7182	14
507	Pomegranate	Sirenevyi	Cutting	IMP7181	12
508	Fig	TASHQORGHANI	Cutting	AFG0285	4
509	Fig	SPIN	Cutting	AFG0551	4
510	Fig		Cutting	AFG4090	28
511	Fig			AFG4075	10
512	Fig	HASPANIAYI 1	Cutting	IMP7063	2
513	Fig	HASPANIAYI 2	Cutting	IMP7064	2
514	Fig	SIAH	Cutting	AFG0301	41
515	Fig	KANDAHARI	Cutting	AFG0196	7
516	Fig	SIAH	Cutting	AFG0150	29
517	Lemon	Traifoliate		AFG6021	6
518	Lemon	Rough Lemon	Rough Lemon	AFG6026	15
519	Lemon	Carrizo	Carrizo	IMP7101	17
520	Lemon	Troyer	Troyer	IMP7100	23
521	Lemon	Volkameriana	Volkameriana	IMP7102	69
522	Lemon	Femminello Siracusano	Trifoliate	IMP7010	45
523	Lemon	Adamo	Trifoliate	IMP7011	51
524	Mandarin	Avana Apireno	Trifoliate	IMP7013	5
525	Mandarin	Clementine Di Nules	Trifoliate	IMP7015	25
526	Mandarin	Clementine Hernandina	Trifoliate	IMP7020	15
527	Mandarin	Clementine SRA 89	Trifoliate	IMP7105	16
528	Orange	Navelina	Trifoliate	IMP7002	102
529	Orange	Washington Navel	Trifoliate	IMP7005	35

530	Orange	Valencia Campbell	Trifoliolate	IMP7007	96
531	Orange	Valencia Campbell	Trifoliolate	IMP7008	15
532	Orange	Moro	Trifoliolate	IMP7009	72
533	Orange	Parent Washington Navel	Trifoliolate	IMP7098	41
534	Orange	Olinda Valencia	Trifoliolate	IMP7099	25
535	Orange	Navelina VCR	Trifoliolate	IMP7106	41
536	Orange	Lane Late	Trifoliolate	IMP7107	36
537	Tangelo	Minneola	Trifoliolate/Rough Lemon	IMP7026	4
538	Grapefruit	Marsh Seedlees	Trifoliolate	IMP7012	15
539	Loquat	Panisello-71		IMP7089	17
540	Mandarin	Clementine Marisol	Trifoliolate	IMP7021	5
541	Orange	Thompson Navel	Trifoliolate	IMP7006	10
542	Orange	Tarocco Gallo	Trifoliolate	IMP7001	10
543	Orange	Navelate	Trifoliolate	IMP7003	5
544	Mandarin	Clementine Rubino	Trifoliolate	IMP7017	5
545	Loquat	Tanaka		IMP7097	5
546	Loquat	MAHALI		AFG0283	15
547	Orange	Newhall	Trifoliolate	IMP7004	102
Total					11258

Table 8; Show the available clonal rootstocks in the MSNs of NGAs in the country

ID	species	Variety	rootstock	Clone No	No. of Rootstock
17	Apple	MM111	MM111-Rootstock	IMP7159	3786
18	Apple	M7	M7-Rootstock	IMP7153	1596
21	Apple	B9	B9-Rootstock	IMP7157	1562
22	Apple	MM106	MM106-Rootstock	IMP7158	210
23	Apple	M9	M9-Rootstock	IMP7252	2448
31	Apple	M7	M7-Rootstock	IMP7253	1908
35	Apple	M25	M25-Rootstock		141
210	Apricot		Myrobalan		279
365	Cherry	Colt	Colt	Colt	503
377	Cherry	Mazzard	Mazzard	Mazzard	106
378	Cherry	Colt	Colt	IMP7228	25
Total					12564

Specific Objective:

The private sector nursery industry is profitably providing sufficient healthy true to type planting materials for increased orchard and vineyard planting

4.1 RESULT 1

Result 1:

ANNGO is developed as an independent organisation for the development of the fruit tree nursery industry.

- A. Regular board meetings held during the project life (4 times per year)
- B. Each year, one annual general meetings was arranged by ANNGO staff where BoD members were selected
- C. Each year reports was submitted to Ministry of Economy, MAIL and EU
- D. Memorandum of understanding made with MAIL and partner organization for better cooperation and coordination- Attached find.
- E. Memorandum of understanding with Technical Assistance
- F. Recruitment of staff from PHDP2 during mid 2012
- G. Recruitment of additional staff from outside PHDP2 Training of ANNGO board on legal responsibilities during project life.
- H. Coordination with NGAs for better services to the orchard growers
- I. Preparation of accounts: setting up QuickBooks accounting system and ensuring familiarisation of bookkeeping staff

4.2 RESULT 2

Result 2:

The technical level of the fruit tree nursery in Afghanistan is raised to standards appropriate to the development of a modern orchard industry

- A. Provision of further mother stock nurseries, and rootstock mother stock nurseries from resources of PHD Centres after review of demand and need
- B. Organise training programmes for local nursery growers in conjunction with Partner (ANHDO/RI/HPS/SO1)
- C. Provide regular testing for mother stock nurseries and potential mother stock material with sample testing at Plant Biotechnology Laboratory
- D. Support the Expansion of tissue culture facilities to increase the production enough clonal rootstocks from different species for NGA members

4.3 RESULT 3

Result 3:

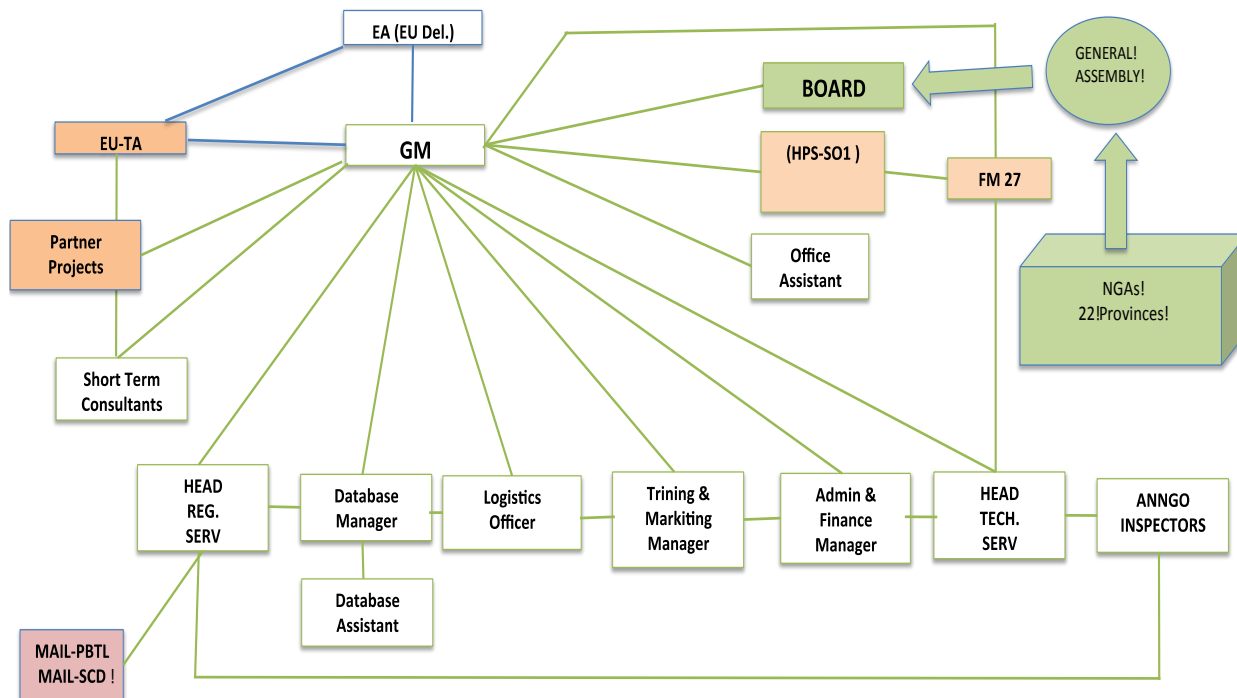
A planting material registration and certification system is in operation

- A. Implement the planting materials regulations is in progress
- B. Train newly hired FMs in implementation of registration and certification rules
- C. Carry out field inspections each year during project life
- D. Report on inspection of MSNs/CPNs was developed and data was recorded in database
- E. successes and failures and maintain records in a computerised database
- F. Each year issued certificates and labels to materials that meet required standards
- G. ANNGO has shared certification manual with SPCD & closely working and cooperation with SPD Directorate
- H. Training to SPCD and external parties about manual

5. THE ORGANIZATIONAL DEVELOPMENT

The below chart shows the current status of the organization and its strong relation with MAIL and partner organization working for the development in Horticulture sector.

ANNGO organization/implementation Structure



Based on the MoU with MAIL, ANNGO is provided office space in Cooperative Building Badam Bagh, Kabul. The NGAs have also their own offices in DAILs in the provinces.

6. THE ANNGO SERVICES & BUSINESS PLAN

In order to reach the full implementation of the certification scheme, ANNGO is providing to its members the following services:

- 1) MSNs inspections
- 2) MSNs virus indexing (in collaboration with Plant Biotechnology Laboratory)
- 3) CPN inspections
- 4) Nursery design, establishment and management TA
- 5) IPM TA provision
- 6) NGA members training on Certification scheme procedure for implementation
- 7) Field managers training
- 8) Information about the best marketing varieties (ANNGO catalogue of fruit species and varieties, website, leaflet and other publication, radio and TV announcements)
- 9) Certified label printing and distribution
- 10) NGA constant technical assistance trough ANNGO field managers (one per each NGA)
- 11) Marketing support actions for NGA members. (linking the NGAs with potential informal and institutional costumers).

6.1 The development of ANNGO business plan

After the official handing over of the technical activities from PHDP II to ANNGO in 2013, the TA as part of its mandate, have continued to closely support the ANNGO in the organization capacity development.

One of the biggest weak points of the Organization was the lack of a clear long-term vision and strategy concerning the self-sustainability. ANNGO vision can be resumed as follows: “The private sector fruit and nut nursery industry is profitable and provides sufficient healthy, true-to-type stocks to meet demands from growers for planting orchards”. In order to reach and maintain this objective ANNGO vision could be explained by the following points: a) *Keep implementing the ANNGO certification scheme*, b) *Enlarge and improve new services for the nursery industry sector*.

Based on the mentioned findings PHDP TA and ANNGO technical team have worked together to identify the potential sources of income and to develop a strategy based the following:

Table No.9; Potential sources of income for ANNGO in the future

1 NGA registration fee
2 Single membership fee
3 Certified labels
4 Provision of Mother trees (MT)
5 Provision for sale of bud wood
6 % on sale of saplings
7 MSN inspections
8 CPN inspections
9 ANNGO catalogue
10 Orchard grower TA providing
11 Technical training providing
12 Advertise space on ANNGO catalogue
13 Certificates for MSNs
14 Advertise space on website
15 Clonal rootstocks sale

The ANNGO strategy is also focused in the enlargement of the type of services for the NGAs. In the past two years of activity ANNGO technical staff has realized that the ornamental nursery sector is one of the most promising for Afghan nurserymen. Since then lot of work was done, assessment, case studies interviews input from foreign experts etc.

As result of that the ANNGO team have decided to start to promote the sector inserting an ornamental section on the Catalogue, and to implement some pilot project with a group of selected nurseries to confirm its impression.

The ANNGO vision for the development and support of the ornamental sector comprises:

1. Comprehensive assessment of the ornamental production in Afghanistan
2. Implement pilot project with selected NGAs
3. Establishment of partnership with public and public-private stakeholders for the improvement of public green (i.e. Kabul municipality, Baboor Garden etc)
4. Establishment of partnership with other institutional project focused on reforestation, landscape design etc.
5. Improve technical capacity to provide specific TA

6. Establishment of partnership with other private foreign stakeholders like cosmetic industry, ornamental producer/reseller etc.

PHDP TA and ANNGO technical team have also recognized and analyzed the following group of constrains as key issues for successful development and implementation of its long-term vision.

7.THE ANNGO SYNERGIES

7.1 ANNGO and PBTL

The need for a biotechnology laboratory and its services in quality control and management of the horticulture input chains was identified by the EC at an early stage of its support to horticulture sector development, and in 2007 the laboratory started screening the health status of the National Collection of Afghan Fruit tree species and varieties. This facilitated the multiplication of not only the best selected varieties or ecotypes, but also the avoidance of the production and distribution of virus infected fruit tree saplings.

The broad objective of the PBTL is to contribute towards the horticultural development, which will improve the livelihoods of the farmers ensuring food security and farm incomes, thus resulting overall improvement in Afghanistan's economic.

The specific objectives of the PBTL are:

- Increasing fruit production by controlling deleterious pest and diseases in Agriculture(Horticulture)
- Support to the production of disease free planting materials for National Collection and MSNs for commercial orchards establishment
- Technical support to the plant quarantine department of MAIL by controlling of exotic pathogens enter to the country
- Increase public/private stakeholders' awareness about the importance of diseases free planting materials.
- Provide a set of services to diagnose the health or diseases status of the planting materials.
- Engage in research and development for the knowledge bank.
- Advice the public/private stakeholders on the control of pest and diseases
- To share the knowledge and experiences with the students of the universities, staff of the Government and Non-Government Organizations.
- By providing technical support to the export and import of vegetative planting materials

During the period 2010-2015 the PBTL was always collaborative and proactive in supporting ANNGO to implement the certification scheme

The major achievements of the PBTL could be summarized as follows.

- Verifying the health status of National fruit varieties (apricot, almond, peach, cherry plum, grape and citrus etc)
- Detection of important viruses in Afghanistan
- Detection and identification of fungal and bacterial diseases of fruit crops.
- Development of control strategies for the detected virus
- Production of certified rootstock (GF 677)
- Development of links among Biotechnology laboratory with International suppliers of chemicals/regents and technical equipment
- Development of links with external universities and experts for technical support

- Experience sharing /trainings stockholders (farmers, nursery growers, university students, NGOs and MAIL technical staff)
- Development of curriculum for the diseases of fruit trees
- Detected CTV, GFLV, PNRSV and ACLSV viruses in Afghanistan
- Analyzed more than 7000 samples of various fruit trees since June 2009.
- Play a key role on the identification and control of CTV virus for the rebirth of afghan citrus industry

PHDP TA and PBTL have developed a midterm work plan in order to keep running the described activities and eventually expand them

The main points of the plan could be summarized as follows:

- *Extending lab services for the remaining fruit species (apple, pear and cherries)*
- *Analyze the remaining MSNs of ANNGO*
- *Monitor the health status of National collections of fruit trees.*
- *Extending work to seasonal/annual crops (potato)*
- *Working in close collaboration with MAIL*
- *Provision of lab service to private sector*
- *Insuring sustainability of the action*
- *To work in close collaboration with MAIL quarantine department and to provide lab services for the inspection of import and export of planting materials*

The detailed work plan for 2012,& 2015 are in the ANNEX 8.

ANNGO and MAIL:

ANNGO has a very close coordination with all MAIL directorate that most of the time they are visiting our project activities and results. MAIL officially send a delegation of horticulture directorate to the field together with project inspectors to monitor the project activities in the provinces. The delegation observed the project MSNs, CPNs and NGAs of North and North East province. MAIL horticulture directorate representatives prepared a good report from our activities to HE MAIL minister and HE MAIL deputy minister which based on this report MAIL provide awards to the best NGAs, nursery growers, project staff and PHDP TA. This awards handed over to the project team, best NGA chairmen, PHDP advisor by MAIL authority in a half day gathering in the Barg-continental Restaurant. In this gathering H.E deputy minister, Head of Horticulture directorate, EU delegation, DAIL Kabul, ANHDO, HPS, HVP, Landle Mill, were invited that H.E Deputy minister was busy and was not attend the meeting, similarly the EU delegation also didn't participate due to the security issues. The program start with the presentation of overall the project activities in the past one year by the project GM and later on the DAIL director, horticulture director, ANNGO Chairman, NGA Chairmen, ANHDO Chairman had speech on the ANNGO achievements. At the end the MAIL appreciation certificates awarded to the NGA members, Project staff, PHDP TAs and best nursery growers delivered by MAIL authorities. The guests and participants served the lunch in this restaurant and program ended at 2:30 pm.

ANNGO team and BoD chairmen had meeting with HE MAIL minister for briefing of the project and its impact on the horticulture industry (specially Horticulture directorate of MAIL). H.E appreciate the activities of the project and promised to support ANNGO for the future too. H.E was also mentioned to link the project with the different donor in order to be sustainable in the future.

Meanwhile ANNGO technical team and BoD members had several meeting regarding the certification scheme and progress of the activities with HE Deputy minister. HE inform horticulture directorate team to issue letters for all the DAIL directorate and organization to purchase the saplings only from the ANNGO NGAs and also to stop the importing of saplings from other countries. (Annex 9)

List of NGAs received appreciation letter from MAIL

No.	Name	Province
1	Paghman NGA	Kabul
2	Hakim Sanai NGA	Ghazni
3	Imami Quitba NGA	Baghlan
4	Said Khil NGA	Parwan
5	Nangarhar NGA	Nengerhar
6	Kandahar NGA	Kandahar
7	Helmand NGA	Hekmand
8	Paktia NGA	Paktia
9	Takhar NGA	Takhar

List of staff received the appreciation letters from MAIL

No.	Name	Position
1	Haji Abdul Satar	ANNGO Chairman
2	Zainulabuden Noor	ANNGO GM
3	Muzafar Athar	Head of Technical services
4	Sharafuden Sharaf	Head of regulatory services
5	Atiqullah Besmil	HR/finance
6	Nazifullah Husaini	Senior Inspector
7	Noorajan Sadat	Senior Inspector
8	M.Talib Sultani	Data base Manager
9	Zabiullah Sahil	Asst. Data base Manager
10	Fatima Durani	Office Assistant
11	M.Zahir Arabzai	Training/Marketing Manager
12	Giuliano Masini	PHDP II Team Leader
13	Pablo Degl'Innocenti	PHDP II Advisor

Below picture is a certificate that distributed to the above mentioned people during the gathering



Fig 19 Certificate provided by MAIL to ANNGO team



Fig 20. Abdul Ghafar Majeed (From horticulture directorate of MAIL), distributing the certificate to the NGA members



Fig 21. PHDP TA distributing the certificate to NGA member

ANNGO and ARIA:

The collaboration between ANNGO and MAIL-ARIA started in mid 2013, when MAIL decided to shift the PHDCs under ARIA responsibility. The coordination among the partners is still feeble, but it is strongly promoted and supported by PHDP II, the EU-MAIL transition program and HPS SO2.

Currently the matter of discussion is the provision of planting material from the national collection to the ANNGO NGAs members. There are multiple issues to be discussed and adjusted.

The main are summarized as follows:

- *Partial revision of the Article 8. of the procedures to manage the National Collection of fruit trees varieties.*
- *Establishment of a board composed by ARIA, PHCD and ANNGO personnel, to issue and disseminate the list of varieties suitable for commercial purposes.*
- *Increase ARIA awareness on the National collection and ANNGO certification scheme.*
- *Improve the collaboration between the ARIA and ANNGO technical teams.*

ANNGO and MAIL SPCD

The collaboration between ANNGO and MAIL- SPCD started in 2013, when MAIL decided to establish the **Seed and Planting Material Directorate**.

The main point of the collaboration was the integration of the ANNGO certification scheme into the seed law regulations.

The discussion was initiated in early 2012 when the Seed Directorate and took two more years to finally get to a version that currently is in the draft status.

ANNGO with the support of PHDP TA and EU-MAIL transition project were able to agree the integration of ANNGO certification scheme into the seed law regulation by the insertion of Art. 14.

The article states the following¹:

Article 14: Planting materials of fruit trees and vines

14.1 The list of crops covered by this section is shown in *Schedule 1C*. Varieties already tested and distributed by the Perennial Horticulture Development Projects shall be included in the National Register of Fruit Varieties and shall be considered as officially released.

14.2 Varieties in the National Register of Fruit Varieties shall be maintained as mother trees within the National Collection of Fruit and Nut Varieties. Material originating from these trees shall be distributed, propagated and marketed under a certification scheme that provides full traceability to the original material.

14.3 The certification scheme for these crops shall be prepared in consultation with the Directorate of Horticulture of the Ministry and authorized by a Memorandum of Understanding (MoU) signed between the Ministry and the Afghanistan National Nursery Growers Organization (ANNGO). This MoU may be revised from time to time at the request of the parties and according to their needs.

14.4 Only members of ANNGO are eligible to receive this certified material and they are bound by the rules of the organization in the management of the certified trees they produce from it. All certified trees offered for sale must carry a label obtained from ANNGO on payment of the fee determined by the organization.

Although that was a great result, still a huge work needs to be done. As said before the regulations are still in the draft stage. ANNGO is currently engaged in the provision of TA on the certification scheme to the SPCD. The newly established Directorate is currently very cooperative and a series of actions are already planned and partially implemented with the support of EU-MAIL transition program.

ANNGO and NHLP

The NHLP, or National Horticulture and Livestock Project is implemented by the Ministry of Agriculture, Irrigation and Livestock (MAIL) with support of the Afghanistan Reconstruction Trust Fund (ARTF). The action contributes to the overarching goal of increased productivity and overall production of horticultural products, and improved animal production and health. The technical strategy for achieving this objective is based on the delivery of extension and investment support through strengthened systems.

The project has three components: (i) Horticultural Production; (ii) Animal Production and Health; and (iii) Implementation Management and Technical Assistance Support. These activities are

¹Extracted from Law on Cultivation of Seeds (16 December 2009) Seed Regulations 28 September 2013

currently implemented in 140 districts in 21 target provinces, numbers that may grow as conditions warrant.

NHLP is engaged in the to promotion and adoption of improved production practices by target farmers, with gradual rollout of farmer-centric agricultural services systems and investment support.

During the past year NHLP and ANNGO have established a good coordination in terms of training and TA provision. Under suggestion of MAIL, NHLP became the largest customer of ANNGO purchasing each year a consistent number of fruit tree saplings from ANNGO member NGAs. So far, NHLP has financed the establishment of 5,229 hectares of new orchards (against a target of 2,000 hectares), of which 32 percent are in new provinces. Similar substantial achievement has been recorded for rehabilitation of orchards (29,192 hectares actual against a target of 2,000 hectares).

The main purpose of the partnership between the NHLP and ANNGO is to strengthen the existing collaboration in order to develop a series of common activities focused to provide to the nursery industry healthy and true to type planting material.

After more than 5 years of collaboration ANNGO and NHLP comes to sign an MoU (October 2015)

The main objective of the MoU could be summarized as follows:

NHLP will:

- 1) Entrust ANNGO as implementer of the regulatory system for planting material, under the Seed and Planting Material Directorate monitoring.
- 2) Entrust ANNGO labels as a private brand until the regulatory system becomes part of the seed law.
- 3) Entrust ANNGO manual of procedures for production of true to type fruit saplings that are being enforced among the ANNGO NGAs members
- 4) Promote sharing with ANNGO and other stakeholders of data, trial results and any information concerning the performance of the varieties in the orchards established by NHLP
- 5) Participate and support ANNGO technical staff to conduct trainings/field visits/field days
- 6) Help ANNGO to protect the interest of the Nursery Growers that are implementing the regulatory system. Promote the certified true to type saplings. Discourage production, distribution and imports of uncertified planting material.
- 7) Provide adequate financial support for the establishment of fully equipped tissue culture laboratory. (The specifications of the construction will be agreed together with Plant Biotechnology laboratory (PBT), the donor, MAIL and ANNGO and provided in the ANNEX1 "ANNGO Tissue culture laboratory" BOQ). The laboratory facility will be donated to ANNGO at the end of the this MOU
- 8) Support ANNGO to select a suitable space for the construction of the tissue culture laboratory
- 9) Purchase certified saplings from NGAs as per agreed fix price proposed during the regular ANNGO-NHLP coordination meeting and approved by the ANNGO General Assembly.
- 10) Purchase clonal rootstocks from the newly established tissue culture laboratory at an agreed fix proposed during the regular ANNGO-NHLP coordination meeting and approved by the ANNGO General Assembly.
- 11) Participate to ANNGO regular coordination meetings.
- 12) NHLP field staff will attend workshops, seminars or trainings arranged by ANNGO.
- 13) Purchase only Labeled and certified saplings. The labeled saplings should be purchased from ANNGO registered NGAs.
- 14) Facilitate ANNGO technical staff during technical visits to the targeted provinces.

15) Any other missing points, which are not mentioned in this MoU, will be discussed and agreed during ANNGO-NHLP coordination meeting. The agreed points should be recorded in the minutes of the meeting

ANNGO will:

- Maintain the database with list of registered NGAs, data on production and marketing of certified and non-certified trees. Make the database accessible to NHLP and its partners.
- Facilitate the NHLP staff travel for visit ANNGO NGA's MSNs and Nurseries based on prior plan and within the limit of available resources
- Support NHLP technical staff to select a suitable construction site for the tissue culture laboratory.
- Involve PBTL in the design and TA providing for the tissue culture facility.
- Provide technical assistance and trainings to the NHLP extension and field staff related to certified saplings, ANNGO fruit trees certification scheme and other nurseries related issues.
- Provide adequate financial support for the personnel and for the running cost of the tissue culture laboratory
- ANNGO will develop the tissue culture business plan in order to provide to NHLP a clear self-sustainability time frame. The clonal rootstocks will be sold only to the members fulfill ANNGO standards for the production of certified saplings. ANNGO will develop eligibility criteria forms for the selection of nursery growers to purchase clonal rootstocks produced by tissue culture lab.
- Provide the annual tissue culture production plan.
- Provide professional services to the NHLP project. The charges will depend on the type of service provided (TA, Annual Catalogue, training, Inspections, virus indexing etc) and both parties will agree them in advance.
- ANNGO will conduct trainings for NHLP technicians on the use and importance of clonal rootstocks and methods of grafting.
- ANNGO will establish MSNs of the targeted rootstocks species, which is to be cultured in the laboratory.
- ANNGO will have the responsibility to run the lab and produce true to type and virus free clonal rootstocks for ANNGO member NGAs.
- ANNGO will be the responsible organization to allocate and distribute the produced rootstocks to potential NGA members.
- ANNGO will issue the list of certified saplings each year and NHLP will purchase only certified saplings produced by NGA members in each targeted province while NHLP will share the list of produced orchards at the end of each planting season with its details.

This MoU represent a milestone for both partner, and HPS SO1 and EU-MAIL transition project will continue to support and follow up the correct implementation among the partners.

ANNGO and other NGOs

During the period 2013-15, ANNGO establish solid collaborations with other local and international NGOs becoming a solid counterpart for all the relevant nursery industry-related stakeholders. Valid examples are the MoU signed with bag e baboor, for the promotion and development of the ornamental sector, and with NVDA and CPG for the promotion of citrus industry in Nangarhar region.

ANNGO is also closely cooperating with ANHDO and RI, and it is a beneficiary in the EU founded HPS/HVP projects.

8. THE ANNGO DATABASE

At the beginning of PHDP I ANNGO was maintaining all the data concerning the implementation of the certification scheme only in hard copy files. The amount of data managed by the association was huge and the system was highly ineffective. The type and amount of data produced and managed by the organization could be summarized as follows:

1) **NGA related information**

- 1.1 *NGA membership data*
- 1.2 *NGA members records*
- 1.3 *NGA members performances*

2) **MSN related information**

- 2.1 *Type, number and location of MSN*
- 2.2 *MSN detailed maps*
- 2.3 *MSN inspection results*
- 2.4 *Virus indexing data*
- 2.5 *Inspection reports*

3) **Sapling production related information**

- 3.1 *certified budwood production and exchange data*
- 3.2 *Certified, category 2 and uncertified sapling production (by specie, NGA and member)*

4) **Labeling related data**

- 4.1 *Label request and verification*
- 4.2 *CPNs inspection results and reports*
- 4.3 *Label printing and distribution*
- 4.4 *Tree labeling inspection and verification*

5) **Marketing related data**

- 5.1 *Budwood sales data*
- 5.2 *Sapling sales data*
- 5.3 *Market surveys*

6) **Technical and informative material**

- 6.1 *Field officers training material*
- 6.2 *NGAs training material*
- 6.3 *Technical publications*
- 6.4 *Certification scheme manual of procedures.*

7) **Bookkeeping data**

8) **ANNGO catalogue related information**

The management of this huge amount of data was recognized as one of the bottleneck for the correct development of the organization. ANNGO was not able to provide information to its members within reasonable time frame, and the NGAs perception of organization ability to provide a valid technical support was very negative. The electronic data were dispersed in many laptops belonging to the organization technical team.

PHDP TA has promoted a complete reform of this system, supporting the organization in a step-by-step reorganization of the data management.

The first step was the recruitment of a professional dedicated database manager that was trained for a 6 months period in order to get familiar with the ANNGO system and type of data. The second step was the design of a comprehensive electronic database with a set of dedicated procedures including the assignment of responsibility in the data management. A special effort was dedicated to the transfer of the old hard copy data, and to the design of an electronic system to control the label printing and distribution.

After the implementation phase, the ANNGO team have also developed a brand new website which fully integrates the electronic database. (www.anngo.org.af)

- **ANNGO staff new e-mail addresses;**

ANNGO team were used the same email ID which was created for ANNGO/ANHDO but Because of technical problems, ANNGO staff has changed their e-mail addresses form ‘Afghanistanhorticultuere.org’ to ‘anngo.af.org’. The ID was also created for the field managers and NGA chairmen. The details of new e-mail addresses is as follows;

Table 10 New e-mail addresses of ANNGO staff

No	Name	Position	Official Emails
1	Zainulabudin Noor	General Manager	znoor@anngo.org.af
2	Talib Sultani	Database Manager	talibsultani@anngo.org.af
3	Zabiullah Sahil	Asst. Data Manager	zsahil@anngo.org.af
4	Muzaffar Athar	ANNGO Head of Technical Services	muzaffarathar@anngo.org.af
5	Sharafuddin sharaf	ANNGO Head of Regulatory Services	sharafuddinsharaf@anngo.org.af
6	Ahmad Zahir	ANNGO Office Assistant	ahmadzahir@anngo.org.af
7	Atiq Besmil	Accountant Manager	abesmil@anngo.org.af
8	Noorajan Sadat	Senior Field inspector	noorajan-sadat@anngo.org.af
9	Nazifullah	Senior Field inspector	nazif.husaini@anngo.org.af
10	Fatima Durrani	Office Assistant	fdurrani@anngo.org.af
11	ANNGO	ANNGO Website	info@anngo.org.af

9. THE ANNGO FUTURE PLAN

At the end of its mandate PHDP TA in collaboration with the relevant nursery industry stakeholders have developed a 3 years strategy for the improvement of the organization fro the technical and institutional building.

The planning process was developed trough a GAP analysis in a participatory approach manner

Below the main points of the ANNGO future steps :

ANNGO is actually working to improve the organization management through the revision of its by-law, the refinement of its manual of procedures, and the enlargement of the service provided. A strong organization self-sustainability plan is in the development phase and the BP development will be a milestone of this institutional building process.

ANNGO vision can be resumed as follows: “The private sector fruit and nut nursery industry is profitable and provides sufficient healthy, true-to-type stocks to meet demands from growers for planting orchards”

In order to reach and maintain this objective ANNGO vision could be explained by the following points:

- 1. Keep implementing the ANNGO certification scheme*
- 2. Enlargement and improvement of new services for the nursery industry sector*

1. Keep implementing the ANNGO certification scheme

This represents the “core business” of ANNGO, the association was created to implement and improve the certification scheme supporting the NGAs in producing and selling the certified planting material. As mentioned before ANNGO has already reached those results fulfilling the following conditions:

- *ANNGO has taken over all the functions of support to nursery industry previously managed by PHDPII*
- *ANNGO has successfully operated a program of transition to take over the functions of support to local NGAs previously managed by the MADERA/Mercy Corps NGO consortia.*
- *ANNGO technical staff has provided ad hoc technical training to NGAs members and FMs.*
- *The ANNGO technical team has put in place a solid inspection MSNs/CPNs system*
- *ANNGO has supported PBT in the MSNs virus indexing campaign.*
- *ANNGO makes the horticulture industry aware of advantages of certified trees through:*
- *The publication and distribution of 4 editions of the ANNGO catalogue*
- *The active participation to the annual Ag-fairs in Kabul*
- *The publication and distribution of leaflets and other information material*
- *The active participation in ANHDO planning workshop, in the Citrus Promotion Group meetings, Citrus Field day and the first “National Citrus Workshop”.*
- *ANNGO has held regular EBoD and general assemblies.*
- *Constant establishment of new MSNs*
- *Created and maintained all the certification records and database*
- *Collect demand for labels*

As a result of that all the NGAs have now provision for access to MSNs that met ANNGO standards (true to type, disease free, vigor), and are able to produce, lift, label and pack fruit saplings to the standards set by ANNGO.

The organization expectation for the coming years is to continue to implement and consolidate such activities and in particular:

- Release and establish new MSNs with the best marketing varieties
- Consolidate and rationalize the inspection system (possibly in collaboration with MAIL newly established “Seed and Planting Material Directorate”)
- Keep issuing certification labels
- Promote the establishment of new NGAs in other provinces
- Continue to provide TA to the NGAs (MSN and orchard design and managing, IPM etc)
- Continue to provide the FM service to the NGA
- Include the nurseries that are currently outside the system
- Keep supporting the CPG and citrus industry

At the moment all the mentioned services are still largely supported by EU. Although some of these services are co-financed by the NGA and their members (membership fees, labels). The organization is currently working with the NGAs to gradually shift from supported to full service oriented structure, introducing fees for:

- 1 NGA registration fee
- 2 Single membership fee
- 3 Certified labels
- 4 Provision of Mother trees (MT)
- 5 Provision for sale of bud wood
- 6 % on sale of saplings
- 7 MSN inspections
- 8 CPN inspections
- 9 ANNGO catalogue
- 10 Orchard grower TA providing
- 11 Technical training providing
- 12 Advertise space on ANNGO catalogue
- 13 Certificates for MSNs
- 14 Advertise space on website
- 15 Clonal rootstocks sale

2) Enlargement and improvement of new services for the nursery industry sector

The ANNGO vision is also focused in the enlargement of the type of services for the NGAs. In the past two years of activity ANNGO technical staff has realized that the ornamental nursery sector is one of the most promising for Afghan nurserymen. Since then a lot of work was done, assessment, case studies, interviews, input from foreign experts etc.

As a result of that the ANNGO team have decided to start to promote the sector inserting an ornamental section on the Catalogue, and to implement some pilot project with a group of selected nurseries to confirm its impression.

The ANNGO vision for the development and support of the ornamental sector comprises²:

1. *Comprehensive assessment of the ornamental production in Afghanistan*
2. *Implement pilot project with selected NGAs*
3. *Establishment of partnership with public and public-private stakeholders for the improvement of public green (i.e. Kabul municipality, Baboor Gardens etc)*
4. *Establishment of partnership with other institutional project focused on reforestation, landscape design etc.*
5. *Improve technical capacity to provide specific TA*
6. *Establishment of partnership with other private foreign stakeholders like cosmetic industry, ornamental producer/reseller etc.*

The progressive introduction of professional services is the key for a successful risk management. The introduction of the services will be prioritized starting from the essential/mandatory like the membership fees, correct payment of the labels, production and distribution of the labels. Then inspection and other professional services will be gradually introduced to the NGA. After a mid-term review, ANNGO technical team will assess the status of the implementation and eventually re-orient the actions.

² For full details see ANNGO 2015 year planning section "promoting new services and activities"

Based on the abovementioned points PHDP TA and ANNGO technical team has developed a tentative business plan. The result of this exercise is showed in the figure below.

10. CONCLUSIONS

At the end of its mandate PHDP recognizes the following points as key issue to be improved in the future with the support of HPS/HVP projects and the EU-MAIL transition program

Technical constrains

- *NGA members level of awareness of the benefit of the full implementation of the certification scheme*
- *FM training is still on going*
- *Lack of technical knowledge of the NGA members on nursery management, IPM, fertilization, correct use of pollinator combination etc.*
- *ANNGO is still not representing all the actors of the nursery industry*
- *Some MSN are still containing inadequate planting material that should be uplifted and substituted.*
- *National collection varieties characterization is still ongoing.*
- *Resistance from some of the NGA members to pay for the ANNGO services*
- *ANNGO database is not fully operational*

Institutional constrains

- *ANNGO EBoD still need to improve leadership*
- *ANNGO lack of institutional capacity in terms of Project planning grant proposal writing etc*

Security constrains

- *Some of the NGA are in high risk areas*
- *Movement restriction for some FM*
- *Difficulty to establish new NGAs in unsafe areas*

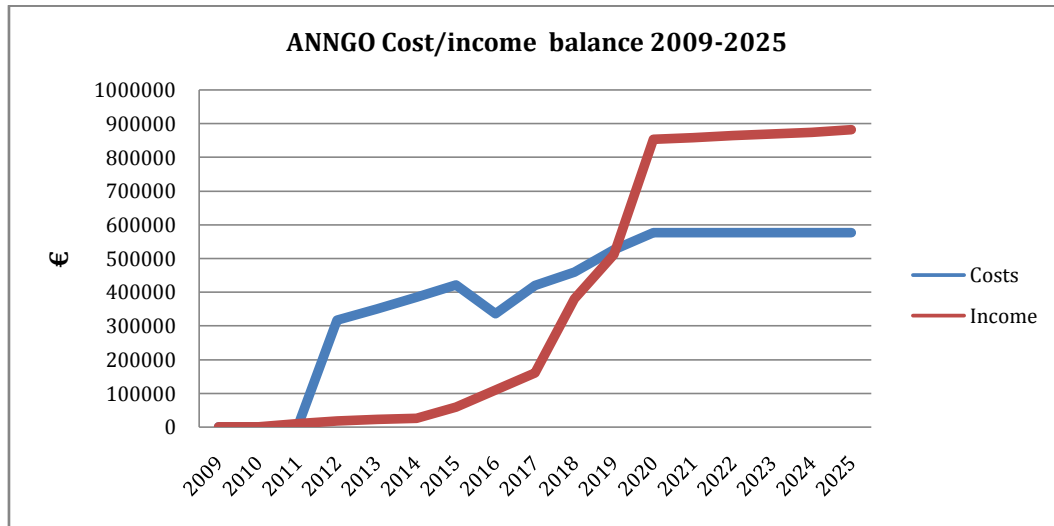
Financial constrains

The organization is not fully self-sustainable yet. In July 2015 the EU support to the organization will come to an end. Although the organization could eventually survive reducing to the bone staff and services there is a serious risk of loosing part of the huge achievement reached by the Organization in term of:

- *Loss of highly trained and skilled staff*
- *Loss of TA support to the NGAs*
- *Risk of a partial collapse of the certification scheme*
- *Loss of leadership, confidence and guidance for the NGAs*
- *Loss of quality for the planting material in the MSNs*
- *Loss of NGAs and members.*
- *Interruption of the provision of new MSNs to the NGAs*

Assuming that the demand for Horticulture sector remains sustained and that Government policies remains supportive of the sector, ANNGO could be able to develop and implement the mentioned strategy and reaching the sustainability according the path described in the chart below in the near future.

Fig.3.5 ANNGO cost income balance 2009-2025



Pictures;



Fig. 22 ANNGO general manager explained the project achievements



Fig. 23 Historic picture of former PHDP staff, currently called ANNGO and ANHDO staff.



Fig. 24 A stonefruit MSN during early spring in Kunar province



Fig. 25 A stone fruit MSN in Laghman province which sells over 100,000 budwood each year



Fig. 26 Certified saplings labeled in the field during late winter in Maidan province.



Fig. 27 H.E.MAIL Minister, Mr.Asad Zameer visits ANNGO Booth during AgFair



Fig. 27 ANNGO inspector inspecting pomegranate MSN in Kandahar province



Afghanistan National Nursery Growers Organization

(ANNGO)

Manual of Procedure

2014

Acknowledgment

This Manual was developed by the ANNGO team (Zainulabudin Noor ANNGO General Manager, Sharafuddin Sharaf ANNGO Head of Regulatory Services, Muzaffar Athar ANNGO Head of Technical Services, Noorajan Sadat ANNGO Head of Inspection Services, Nasifullah Hussaini ANNGO Inspector) with the support of the TA of PHDPI, PHDPII, ANHDO/HPS-SO1.

Message of HEHead of Seed and Planting Material Directorate

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INTRODUCTON

At the end of 2013 the MAIL has finalized the regulation on seed and planting material as provided by Chapter Four, Article 27 of the Seed Law (see Annex 11), and established the seed material certification directorate (Certification Authority). The regulation state that ANNGO is the organization that implement the certification scheme for planting material and that only ANNGO is authorized to receive mother plants from the National Collection of Fruit Tree Varieties for multiplication in the MSNs.

Plant reproductive material is a fundamental input for the productivity, the diversity, the health and quality of horticulture sector.

Article 14 of the proposed regulations deal specifically on planting material and is reported below.

Article 14: Planting materials of fruit trees and vines

14.1 The list of crops covered by this section is shown in Schedule 1C. Varieties already tested and distributed by the Perennial Horticulture Development Projects shall be included in the National Register of Fruit Varieties and shall be considered as officially released

14.2 Varieties in the National Register of Fruit Varieties shall be maintained as mother trees within the National Collection of Fruit and Nuts Varieties. Material originating from these trees shall be distributed, propagated and marketed under a certification scheme that provides full traceability to the original material.

14.3 The certification scheme for these crops shall be prepared in consultation with the directorate of Horticulture and authorized by a Memorandum of Understanding (MoU) signed between the Ministry and the Afghanistan National Nursery Growers organization (ANNGO). This MoU may be revised from time to time as the request of the parties and according to their needs.

14.4 Only members of ANNGO are eligible to receive this certified material and they are bound by the rules of the organization in the management of the certified trees they produce from it. All certified trees offered for sale must carry a label obtained from ANNGO on payment of the fee determined by the organization.

The procedures included in this manual were drafted in the first phase of PHDP, based on the EU regulations for planting material and submitted to MAIL in October 2010.

The private nurseries, member of NGAs and of ANNGO are following these regulations since the establishment of the first MSNs in 2009.

These procedures constitute the implementation of the regulatory system for planting material. Although the system was endorsed by MAIL, (MOU signed in November 2012), it will became a legal Certification System only when the Regulations will be formally attached to the Seed Law and when the Certification Authority (Seed and planting material Directorate) will validate the system with random inspections, leaving to ANNGO the task of implementation of the ongoing system.

For this purpose an updated MOU between the Certification Authority and ANNGO will be needed. This MOU will describe clearly the responsibilities of the Certification Authority and those of ANNGO.

At the beginning of 2014, the MAIL established a Certification Authority for both seed and planting material (the Seed and planting material directorate) the Certification Authority, with ANNGO support, will establish a

section of inspectors for planting material and appropriate procedures for random inspection of the ANNGO regulatory system based on this manual.

The function of the Certification Authority is to monitor and validate the traceability system for planting material. Therefore, the inspectors of the Certification Authority will recheck the inspections performed by the ANNGO inspector and issue a document that will validate the system according to the law and the approved Regulatory System for seed and planting material.

While the inspection of the small and medium nursery will be generally random, the Certification Authority will inspect the large commercial nurseries regularly every year.

The manual contains:

- The necessary definitions for the correct interpretation of this sets of rules.
- The plant health and quality standards in the MSNs for the genus and species of fruit plant originated from the National Collection, based on international standards.
- Procedures and fees for ANNGO NGAs members to apply for MSN and nursery registration.
- Procedures for the correct variety identification and labeling. In order to achieve a complete planting material traceability system, from the NC to the market.
- Procedures for technical inspections of MSN and Certified nurseries.
- List of the major planting material harmful organisms and procedure for pathogen testing

This manual provide guidelines for export of planting material that should be of the same staff afford the same guarantees as the propagating material and fruit plants produced in Afghanistan and complying with Afghan rules.

The competent authorities of the Certification Authority and MoAIL should ensure that procedures of this manual are followed, when carrying out controls and inspections.

II) THE MANUAL OF THE AFGHANISTAN NATIONAL FRUIT TREE CERTIFICATION SCHEME

CHAPTER 1. SCOPE AND DEFINITIONS

1.1 Scope

The Afghanistan National Fruit Tree Certification Scheme (the Scheme) aims to provide commercial fruit growers with certified true to type fruit tree saplings that are proven in terms of health and vigor.

1.1.1 The set of rules and regulation establishes the ***detailed requirements for the planting material certification procedure*** regarding conditions for registration, submission and content of applications, formal and technical examinations, examination reports, decisions on registration, period of validity and its renewal, revocation/deletion of registration and maintenance of mother stock nurseries varieties.

This set of rules and regulation shall apply to the production and marketing of fruit plant propagating material and fruit plants intended for fruit production and rootstocks, under the Certification Authority.

1.1.2 This set of rules shall apply to the genera and species coming from the Afghan National Collection of Fruit tree varieties (listed in Annex 10) as well as to their hybrids. It shall also apply to rootstocks and other parts of plants of other genera or species other than those listed in Annex 10, if the material is grafted or is to be grafted onto them.

1.1.3 This set of rules shall apply also to propagating material or fruit plants shown to be intended for export to third countries, provided they are identified as such, and kept in specific lots.

1.2. Definitions

For the purposes of this manual, the following definitions shall apply:

- **ANHDO:** Afghanistan National Horticulture Development Organization;
- **ANNGO:** Afghanistan National Nursery Grower Organization;
- **Certified nurseries:** nurseries that are registered in an existing NGA, and approved after the inspection of the Certification Authority technical staff;
- **Certified material:** propagation material which:
 - a) Has been produced directly in a vegetative way from NGAs MSNs material or, if intended to be used for the production of rootstocks, by certified seeds or stoolbeds, from basic or certified material of rootstocks
 - b) Is intended for the production of fruit plants;
 - c) Satisfies the specific requirements for certified material, established by Certification Authority set of rules and regulations;
 - d) Has been found by official inspection to satisfy the conditions in Certification Authority set of rules and regulations;
- **Certification authority (CA):** department or organization designated by the Minister of Agriculture, Irrigation and Livestock (MAIL) to oversee and take responsibility for implementation of the Afghanistan National Fruit Tree Certification Scheme under the authority vested in him by the Seed Law
- **Clone:** the vegetative genetically uniform progeny of a single plant;
- **Eligible for multiplication:** satisfying the appropriate certification scheme standards;
- **Eligible NGA's:** means the NGAs that are entitled to receive MSNs according the criteria set by the Certification Authority;
- **Foundation tree:** means a tree, maintained by a competent organization as defined from time to time by the certification authority, which is to serve as a primary source of propagating material;
- **Indicator plant:** means a woody or herbaceous plant used for detecting viruses;
- **List of varieties eligible for multiplication:** means a list of planting material is sued by the NC Curator on year basis, which contains the list of species and varieties that are approved for the distribution to the NGAs;
- **Lot:** means a number of certified fruit saplings of a single accession/clones. Identifiable by its homogeneity of composition and origin;
- **MoAIL:** Ministry of Agriculture Irrigation and Livestock;
- **Mother tree:** means a tree that has been produced according to the NC rules for MT production and has been verified by the certification authority and maintained by an applicant Mother Stock Nursery according to the procedures as a source of certified scion wood for growing certified saplings;
- **MSN:** mother stock nursery constituted by basic material coming from the NC;
- **NC:** Afghanistan National Collection of Fruit Trees Species and Varieties;
- **NGA:** Nursery Grower Association;
- **Official inspection:** means inspections carried out by the responsible official bodies of ANNGO;
- **Official description** means a variety description that has been produced by a competent authority, includes the specific characteristics of the variety and makes the variety identifiable by examination of its distinctiveness, uniformity and stability;
- **Official inspection** means: inspection carried out by the responsible Certification Authority technical team;
- **Off-type** means the plant is different from the variety or selection listed on the application for registration or certification;
- **PBTL:** means Badam Bagh Biotech Laboratory;
- **PHD Centre:** means Perennial Horticulture Development Centre;
- **Propagating material:** means seeds³, parts of plants including rootstocks, coming from the MSNs and intended for the propagation and production of certified fruit saplings;

³Referred to citrusseedmothertrees

- **Stool beds:** means a planting of registered clonally propagated trees that are used exclusively for producing vegetative propagated rootstocks;
- **Supplier:** any natural or legal person who is a legal member of ANNGO, carrying out professionally at least one of the following activities: reproducing, producing, preserving and/or treating, importing and marketing of certified fruit plants;
- **True to type:** plant that is genetically the same as the clone listed on the application for registration or certification;
- **Variety** plant grouping within a single botanical tax on of the lowest known rank, which can be:
 - a) Defined by the expression of the characteristics resulting from a given genotype or combination genotypes;
 - b) Distinguished from any other plant grouping by the expression of at least one of the said characteristics;
 - c) Considered as an entity in view of its ability to be propagated unchanged;
- **Virus-infected:** infected by a virus or having symptoms or behavior characteristic of a virus disease;
- **Virus indexed plant:** is a plant that has been tested for virus infection by using indicator plants or by other standard procedures;

CHAPTER 2. REQUIREMENTS FOR PLANTING MATERIAL

2.1 General requirements

2.1.1 MSNs

Certified **propagating material**, seeds, bud-wood and rootstocks, may only be *marketed* by the NGAs registered members if:

- a) The propagating material is coming from the NC and is used to create registered MSNs
- b) The bud wood, seeds and rootstocks are coming from one of the registered MSNs
- c) The register MSNs have been officially inspected and approved by the Certification Authority technical team
- d) The lots of bud wood, seeds and rootstocks are identifiable by its homogeneity of composition and origin and correctly labeled.

Nursery growers that wish to participate to the Scheme should be member of an officially registered Nursery Growers' Association (NGA), and the NGA should be a member of the Afghanistan National Nursery Growers' Organization (ANNGO). The members should submit an application form (see Annex 3.2) to register the planting material existing in the MSNs.

Then, after receiving a MSN registration certificate (Annex2.2), the MSNs will be inspected and should meet all the Scheme's standards.

The propagating material should also be clearly identifiable from material that is not entered into the Scheme.

2.1.2 Certified fruit saplings and rootstocks,

Certified fruit saplings and rootstocks may only be *marketed* by the NGAs registered members if:

- a) The propagating material is coming from one of the NGAs registered MSNs.
- b) The fruit saplings is coming from one of the NGAs registered nurseries
- c) The register nursery have been officially inspected and approved by the Certification Authority technical team

- d) The fruit sapling is provided with the certification label.

Nursery growers that wish to participate in the Scheme should be a member of an officially registered Nursery Growers' Association (NGA), and the NGA should be a member of the Afghanistan National Nursery Growers' Organization (ANNGO). The members should submit an application form (see Annex 1) to register their nursery.

The nursery grower should submit an application to enter the saplings of his nursery into the Scheme (Annex 3.1).

Then, after receiving a nursery registration certificate (Annex 2.1), the nursery will be inspected and if it meet all the Scheme's standards the CA will issue the certification label.

Not all the fruit saplings on a nursery has to be entered for certification, but all material entered must meet all the Scheme's standards and be clearly identifiable from material that is not entered into the Scheme. (E.g. Category two saplings, non-certified but coming from registered members)

Once the CA receives a signed application form, no participant may withdraw until the end of the calendar year.

Registration of nursery or certification of fruit trees will not imply any warranty or guarantee on the part of the certification authority or any employee thereof, beyond the terms of the Scheme (see Disclaimer in Chapter 8, 8.2).

2.1.3 The CA and the Curator of the National Collection may authorize suppliers to place on the regional or international market appropriate quantities of certified propagating material and fruit saplings, coming from registered nurseries, intended for:

- a) Commercial purposes
- b) Trials, DOs or scientific purposes;
- c) For selection work;
- d) To help preserve genetic diversity;

2.2 Responsibility of Applicant

The applicant nurseryman shall be responsible, subject to approval by the CA, for the selection of the location and the proper maintenance of registered plants being grown under the provisions of the Scheme. The applicant shall be responsible for maintaining the identity of fruit trees entered in the Scheme in a manner approved by the CA.

The applicant shall also provides:

- To identify and monitor critical points in their production process which could influence the quality of the material,
- To keep all the required Scheme information available for monitoring and examination when requested by the CA,
- To take samples where necessary for analysis in a laboratory
- To ensure that, during production, lots of propagating material remain separately identifiable
- NGAs members shall ensure that suppliers shall keep records of their sales or purchases when propagating material or fruit plants are marketed.

2.3 Standards for Mother Trees

- (a) Each planting location shall be subject to approval by the CA and shall be in an area suitable for healthy growth with minimal risks for spread of infectious pests and diseases.

- (b) Water supply should be uncontaminated (re-circulating water should not be used unless it has been efficiently decontaminated). Fields where drainage water from other fruit tree nurseries or orchards may enter should be avoided.
- (c) In order to reduce the risk of soil-borne infection, previous cropping should not have included fruit plants of the same genus.
- (d) Plants entered in the Scheme shall be kept in a good growing condition and pests shall be effectively managed. Suitable precautions shall be taken in cultivation, irrigation and in other farming practices to guard against spread of disease.
- (e) Materials and tools should be disinfected, and used only for the crop concerned. Secateurs should be disinfected between pruning trees of different varieties or clones that are entered separately for registration or certification.
- (f) There should be no off-types (if off-types are seen, they should be removed)
- (g) Mother plants shall have originated from registered varieties or clones maintained in the National Collections of Varieties of Fruits and Nuts or other sources approved by the certification authority.
- (h) A mother plant may not be located within 5 meters of any non-registered plant of the same genus. Only registered trees are permitted in a registered block of mother trees. Registration of mother tree blocks for propagation purposes depends on inspection of the mother trees in the growing season after planting and the verification of trueness to type by the certification authority..
- (i) There should be a gap of one tree between mother plants of different clones in the same row (i.e. if the trees are spaced 1.2 meters apart, then there should be a gap of 2.4 meters).
- (j) There should be a simple sign at the end of each row of mother plants showing the row number and variety or clone number. Signs should also be used where a new variety or clone starts within a row.
- (k) Each mother plant shall bear a permanent number. Labeling of each mother tree entered in the Scheme shall be done in a manner approved by Certification Authority.
- (l) All the mother plants should be recorded on a simple map showing their identity and location in terms of row numbers and relative positions within the rows in accordance with their actual identity and position in the nursery.
- (m) Mother trees shall be planted and maintained in a manner and at sufficient distance that branches of different clones do not overlap.
- (n) There should be no weeds or intercrops growing within 1 meter of the mother trees. The ground in a mother tree block and for a distance of 5 meters surrounding it shall be kept either clean cultivated or in an approved, properly controlled, ground cover.
- (o) To assure that the inspections required by this Scheme are performed properly and to provide close working knowledge of field operations, the nurseryman shall notify the Certification Authority, in advance, of removal of plants entered in the Scheme so that approval can be granted before the work is done.
- (p) There may be no budding, grafting or top working of certified mother trees.
- (q) Flowers should be removed before they open.

2.4 Standards for Certified Fruit Trees (Saplings)

- (a) Each planting location shall be subject to approval by the certification authority and shall be in an area suitable for healthy growth with minimal risks for spread of infectious pests and diseases.
- (b) Water supply should be uncontaminated (re-circulating water should not be used unless it has been efficiently decontaminated). Fields where drainage water from other fruit tree nurseries or orchards may enter should be avoided.
- (c) In order to reduce the risk of soil-borne infection, previous cropping should not have included fruit plants of the same genus.
- (d) Plants entered in the Scheme shall be kept in a good growing condition and pests shall be effectively managed. Suitable precautions shall be taken in cultivation, irrigation and in other farming practices to guard against spread of disease.
- (e) Materials and tools should be disinfected, and used only for the crop concerned.
- (f) No off-types (if off-types are seen, they should be removed)
- (g) Certified saplings shall be planted sufficiently apart to maintain their identity. There should be a distinct gap (of at least 80cm) between saplings of different varieties and clones in the same row.
- (h) All certified saplings should be designated as to scion and rootstock sources. This information should be shown on the nursery map and signage.
- (i) There may be no re-budding or re-grafting of rootstocks unless the rootstock is reworked from the same certified mother tree sources as used originally.
- (j) Fruit tree saplings being grown for certification shall be on rootstocks approved by the certification authority. In the future the rootstocks will originate from registered seed trees or from registered stool beds; until then, fruit tree saplings being grown for certification may be grown on non-certified rootstocks. From time to time, the certification authority will issue lists of approved species or varieties of rootstock for each species or variety of scion.
- (k) Scion material (buds/graft wood) shall have originated from certified mother trees maintained by registered Mother Stock Nurseries.
- (l) There should be no weeds or intercrops growing within 1 meter of the saplings. Ground in a certified sapling block and for a distance of 5 meters surrounding it shall be kept either clean cultivated or in an approved, properly controlled, ground cover.
- (m) All certified saplings meeting the requirements of the Scheme, when sold are to be bundled in accordance with commercial practice and shall be identified by one or more legible printed labels that designate the clone, rootstock and certification number.
- (n) Quality standards for marketing fruit saplings (from the PHDP manual no. 3):
 - Stem diameter 2.5 cm above the bud union; 1.3 – 2 cm
 - Height range 0.9 – 1.8 m
 - Number of feathers (small lateral branches) between 3 and 9
 - Strong and straight union between rootstock and scion
 - No sign of pest attack, bark wound, gummosis or similar alterations
- (o) Lifting and packaging standards for marketing fruit saplings(from the PHDP manual no. 3):
 - Reject any tree showing sign root infection
 - Cut dead/damaged roots and dead/damaged branches
 - Top the tallest saplings to 1.8 m.

- Immediately after lifting, put the plants in a shadowed area. To ensure continuous moisture, cover the roots with damp material. In case of emergency or long delays for packaging and transport, dig a hole in the ground and cover the root and collar with saw dust and soil. keep the roots moistured.
- For transport, tie the sapling in bundles and put them in a plastic bag, with moistened saw dust at the bottom, covering the root area.
- Deliver the trees as soon as possible to the site of planting.
- Unload in a shadowed site, avoiding direct sunlight.

CHAPTER 3. REGISTRATIONS

3.1.1 Application for registration of a nursery

Application for registration of a nursery shall be made yearly on or before January 31 by contacting the Certification Authority at designated centers for delivery of applications or through their local Nursery Grower Association. The application form is presented in Annex 1. Following registration the nursery will receive a nursery registration certificate with registration number for the nursery (see Annex 3).

3.1.2 Application to enter plants and planting materials into the Scheme

Application for certification of plants (such as mother trees or saplings) or planting materials (such as seeds, buds and rootstocks) shall be made yearly on or before June 30 by contacting the Certification Authority at designated centers for delivery of applications or through their local Nursery Grower Association. The application form is presented in Annex 4.

The applicant nursery shall provide to the certification authority all information pertinent to the operation of this Scheme and shall give his/her consent to the certification authority to take propagating wood from any tree for testing purposes.

3.1.3 Registration fees

The Certification Authority shall be entitled to require payment of fees from applicants for entering plants or planting materials into the scheme, for inspection and registration of mother stock nurseries and certified nurseries, and for the issue of certificates and labels. The fees shall be calculated based on the recovery of costs of materials, staff salaries and living expenses, travel costs and overhead costs for running the scheme. The fees will be recalculated annually and notified to the nursery industry by the Certification Authority.

3.1.4 Technical and formal inspection fees

The Certification Authority shall charge fees to recover the necessary costs incurred for the following inspection services:

- a) The formal examination of the applications referred to in Annex 7;
- b) The technical examination of the MSNs;
- c) The technical examination of the certified nurseries;
- d) The formal examination of the NGAs member's applications for the request of certification labels;
- e) The technical examination for MSNs virus indexing;
- f) The technical examination for NGAs member's nurseries;

ANNGO will charge fees for its services with the objective to become gradually self financing and sustainable. For this purpose ANNGO will prepare a business plan including all costs and all possible income from services.

Ideally the inspection fee charges should at least cover the salary for the ANNGO staff engaged in inspections. This objective will be achieved gradually in a reasonable time. The criteria for the fee will be based on the cost incurred by each organization. Part of the fee will be for the cost of the virus laboratory (PBTL), based on the actual cost incurred.

The level of the fee for inspections and the share between ANNGO and PBTL will be determine each year by a committee chaired by the Director of the Certification Authority and composed by ANNGO, PBTL and NGAs representatives will determine the level of the fee for inspections and the share between ANNGO and PBTL.

CHAPTER 4. VARIETY IDENTIFICATION AND LABELLING

4.1 Variety identification

Propagating material coming from the MSNs and fruit certified saplings should be marketed with a reference to the variety to which they belong. Where, in the case of rootstocks, the material does not belong to a variety, reference shall be made to the species or inter specific hybrid concerned.

4.2 Lot composition and identification

4.2.1 Plant reproductive material shall be made available from the MSNs to the NGA members in lots. Those lots shall be sufficiently homogeneous and identified as distinct from other lots of plant reproductive material.

4.2.2 During processing, packaging, storage, and transport or at delivery, lots of plant reproductive material of different origins *may be merged or split* into a new lot. In that case the professional operator shall keep records including data about the origin of the individual components of the new lot and communicate the changes to the CA.

4.2.3 Plant reproductive material shall be made available from the MSNs to the NGA members as individual plants, or in packages, containers or bundles.

4.3 Labeling

4.3.1 Certified material shall be identified through an official label (see Annex 12).

4.3.2. Official labels shall certify certified material complies with the relevant production and quality requirements of the Scheme.

4.3.3 The certification referred to in paragraphs 4.3.1 and 4.3.2 shall be based on field inspections, sampling and testing carried out in accordance with the rules of the Scheme.

4.3.4. The official label should be written in Dari and Pashto languages. They shall be legible, indelible, printed on one side, not previously been used and easily visible.

4.3.5. The official label could have a distinct color per category of species.

4.3.6 The official label should also include at least the following information:

- a) Certification Authority logo
- b) NGA identification number
- c) MSN identification number
- d) NGA member identification number.
- e) Variety and clone/accession number
- f) Year of production
- g) "Coming from virus tested basic material" declaration.

4.3.7. The Certification Authority shall be empowered to setting further requirements, referred to paragraphs 4.3, for official labels.

4.4 Responsibility to produce and affix official labels

4.4.1The CA central and/or regional offices shall produce the official labels, based upon the request of the NGA members, and distributed after the official inspection conducted by CA professional inspectors.

4.4.2NGA members, under the official supervision of the CA field officers, shall affix the official labels.

4.4.3NGA members may be authorized by the CA to affix the official labels without the official supervision, only if they fulfill all of the following conditions:

- a) They possess the necessary knowledge to fulfill the production and quality requirements of the certification scheme;
- b) They possess, or have access to, adequate equipment to apply correctly and efficiently the requirements of the certification scheme;
- c) They have identified, and have the capability to monitor, the critical points of the production process, which may influence the quality and identity of the plant material, and keep records of the results of that monitoring;
- d) They are capable to ensure that lots remain identifiable;

The authorized NGA members will receive random official inspection based on the discretion of the CA to keep the authorization valid.

CHAPTER 5. IMPORTED PROPAGATING MATERIAL

5.1 Imported of certified propagating material

Plant reproductive material may be imported directly by NGAs members from third countries only if:

- a) The variety is not present in the any of the NGAs MSNs
- b) The variety is not present in the NC register
- c) Formal request has been sent to the CA with appropriate timing advance
- d) The CA has informed the NC curator and received a formal approval
- e) The imported variety is provided with all the passport data according international rules on movement of planting material.
- f) The imported variety is inserted in the NC

5.2 Exports of certified propagating material

Plant reproductive material may be exported by NGA members' only if:

- a) Formal request has been sent to the CA with appropriate timing advance
- b) The CA has informed the NC curator and received a formal approval
- c) Where the export of plant reproductive material to a third country is governed by an agreement with that third country, that export shall comply with that agreement.
- d) Where the export of plant reproductive material to a third country is not governed by an agreement with that country, that export shall take place in accordance with the rules of the third country into which that plant reproductive material is to be exported.
- e) Where the export of plant reproductive material to a third country is neither governed by an agreement with a third country nor by the rules of the third country into which that plant reproductive material is to be exported, that export papers should be based on the traceability rules and regulation of this Scheme.

CHAPTER 6. CONTROL MEASURES

6.1 Official inspections for MSNs and certified saplings

Inspection and testing procedures prescribed in the Scheme may be carried out only by staff of the CA or by persons assigned by the CA, who have been trained for this purpose and shall be conducted in a manner and at times approved by the certification authority.

At least one visual inspection shall be made of mother trees intended for production of certified scion materials (bud wood or graft wood) during each growing season. The form for inspecting mother trees is presented in Appendix 4.

At least one visual inspection shall be made of rootstocks intended for budding or grafting for the production of certified saplings during the first growing season. At the request of the certification authority any undesirable rootstocks shall be rogued before budding or grafting. At least two visual inspections shall be made of saplings during the growing season following budding or grafting. The form inspecting saplings is presented in Appendix 5.

The CA shall refuse certification in part or for all of a planting if plants have been propagated from registered trees determined to be significantly affected by a virus or virus-like disease or if other requirements of this program have not been met.

If plants are entered for certification and after one or more inspections they are found to meet all the required conditions, a numbered certificate will be issued (see format in Appendix 6). The certificate will have a specific period of validity from the date of issuance through to 31 March, so long as the certification authority does not suspend or cancel it for reasons given in section 4 of this certification scheme.

6.2 MSN Virus indexing

All the NGAs MSN should be periodically, indexed for the viruses mentioned in Annex 13. The timing and procedure for such analysis are listed in Annex 14.

6.3 Follow-up actions by the CA

- a) The CA shall ensure that propagating material and fruit plants produced among NGA members and intended for marketing comply with the requirements of this set of rules and regulations.
- b) If, during the official inspections referred to in chapter 7, it is found that propagating material or fruit plants do not meet the requirements of this manual, the responsible official body shall take appropriate actions to ensure that they do comply with the provisions of this manual or, if that is not possible, to ban the NGA members who are not repeatedly respect the correct implementation of the Scheme.
- c) Any measures taken under this chapter shall be withdrawn as soon as it has been established with sufficient certainty that the propagating material or fruit plants intended for marketing by the supplier will, in the future, comply with the requirements and conditions of this manual.

CHAPTER 7. GENERAL AND FINAL PROVISIONS

7.1 Free movement clause

7.1.1. Propagating material and fruit plants which comply with the requirements and conditions of this manual shall be subject to no marketing restrictions as regards supplier, plant health, growing medium and inspection arrangements, other than those laid down in this manual.

7.1.2. As regards the propagating material and fruit plants of the genera and species referred to in Annex 10, CA should not impose more stringent conditions or marketing restrictions other than those laid down in manual.

7.2 Disclaimer

The issuance of a certified plant label under this Scheme affirms solely that the labeled fruit tree sapling or scion material and rootstocks have been subjected to certification standards and procedures by the Certification Authority.

The Certification Authority disclaims all express or implied guarantees, including without limitation, implied guarantees of salability and fitness for particular purpose, regarding all plants, plant parts, and plant materials under this Scheme.

The Certification Authority is not responsible for disease, genetic disorder, off-types, failure of trees to perform, mislabeling (no) or otherwise, in connection with this Scheme. No grower, nursery dealer, government official, association, NGO or other person is authorized to give any expressed or implied guarantee, or to accept financial responsibility on behalf of the certification authority regarding this Scheme.

7.3 Amendments and adaptation of annexes

The CA, in accordance with the procedures of this manual could amend the Annexes of this manual for the purpose of adapting it to developments in scientific and technical knowledge.

7.4 Keeping and handling of information

7.4.1. The CA shall keep a database containing files on:

- a) Existing NGA records (number of members, registration data, fees etc)
- b) Existing MSN maps (with all the variety registered in the NC)
- c) Planting material transfers
- d) Request of labels by NGAs
- e) Production and distribution of certification labels
- f) Formal and technical inspection records
- g) All the records concerning all the annexes of this set of rules and regulations

7.4.2. The CA shall keep the database updated and shall create regular backups of the electronic copies of all the documents.

7.4.3. The CA shall make the consultation of the certification scheme documents available for NGAs members' consultation.

7.4.4 Records of Disposal of Certified Plants/Planting Materials

NGA members are required to keep records of the disposal (e.g. sale or movement) of plants/planting materials covered by certificates and make those records available to the certification authority on request. The records should show the date of disposal, consignee (customer), fruit species, variety (clone number), certificate number and quantity.

7.5 Penalties

The fruit tree certification scheme is authorized under the Seed Law, and any penalties for abuse of the scheme will be decided in reference to that Seed Law. In addition, the certification authority is not compelled to accept the applications for registration of planting materials from any person who is not considered capable of following the regulations of this fruit tree certification scheme

7.6 Enforcement

7.6.1 Refusal, Suspension or Cancellation

Certification may be refused, suspended or cancelled for any plants in part or all of a planting under any of the following conditions:

1. The requirements of this chapter have not been met.
2. A certified tree is found upon indexing to be virus-infected or off-type.
3. Plants are seriously infected with pests or diseases.
4. For any reason the identity of a plant becomes uncertain or has not been properly maintained.
5. A certification number is misused.
6. The status of planting materials produced under the provisions of the Scheme is knowingly misrepresented.

7.6.2. Role of MAIL directorates

As per directions of HE the MAIL ministers, the role of the different MAIL directorates that are concerned with planting material is defined as follows:

General Directorate of Research (ARIA)

Manage the National Collection of fruits and nuts of Afghanistan according to the agreed National Collection Procedures, in the 6 Perennial Horticultural Centers (PHDCs).

Release to ANNGO the mother plants for the MSNs, based on formal requests and according to the procedures of the National Collection.

Directorate of Horticulture Extension

Work with extension network and private entities to divulgate among farmers best practices of orchard management and results of the applied research including recommended varieties, rootstocks, etc.

Directorate of seed and planting material

Act as Certification Authority to monitor and validate the ANNGO voluntary regulatory system that ensures the traceability of planting material.

Establish and enforce regulations for seed law and prepare a manual for seed certification.



ANNGO strategy for the development of Afghan ornamental nursery industry



October 2015

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1. List of abbreviation and acronyms

AKF:	Agha Khan Foundation
ANNGO:	Afghanistan National Nursery Growers Organization
ANHDO:	Afghanistan National Horticulture Development Organization
MAIL:	Ministry of Agriculture Irrigation and Livestock
PHDPI & II:	Perennial Horticulture Development Project (Phases I & II)
PHDC:	Perennial Horticulture Development Centers
MSN:	Mother Stock Nursery
NGA:	Nursery Grower Association
NC:	National collection of fruit species and varieties
TA:	Technical assistance

2. Foreword.

ANNGO is an Afghan NGO whose mandate is to enforce the regulatory system for planting material that leads to the production and marketing of certified fruit saplings and represents at national level all the nurseries that accept and implement the voluntary regulatory system for planting material. These nurseries are grouped at provincial level in Nursery Growers Associations (NGAs) that are registered with the Ministry of Justice

The regulatory system promoted by the EU-funded PHDP and implemented since 2009, stipulate that Mother Stock Nurseries are established from original mother stock from the National Collection located in the 6 Perennial Horticulture Development Centers.

The ANNGO member nurseries can produce certified fruit saplings only by using propagation material from the registered MSNs

Since 2009, ANNGO has implemented a regulatory system as a private voluntary scheme that ensured traceability from the National Collection and provision of healthy and true to type sapling to the fruit growers.

During the period 2011-15 ANNGO technical team have worked in close collaboration with the NGA members, the MAIL and in general with all the nursery industry stakeholders, in order to consolidate the establishment of the planting material certification scheme. As result of this 4 years of activities ANNGO has developed a deep knowledge of the nursery industry sector and the technical team have recognized the

ornamental sector as one of the most promising for the future development and sustainability of the Organization' members.

In 2012 the ANNGO team together with PHDP TA have started to address some tentative activities in order to test the nursery industry stakeholder's response regarding the ornamental sector development. The team has promoted a basic assessment and the findings could be resumed as follows:

- 1) *Most of the ANNGO-NGA members have a small part of their nurseries dedicated to ornamentals.*
- 2) *The number of cultivated species and varieties are limited comparing to the potentials offered by the sector and the agro-climatic conditions of Afghanistan.*
- 3) *NGAs members show limited knowledge of the ornamental nursery techniques.*
- 4) *Diffused lack of specific inputs for the sector (i.e. fertilizer, cultivation media, pottery irrigation system, etc.)*
- 5) *Marketing activities are limited*
- 6) *The demand of ornamentals from public/private customs is very high, however the offer is poor in terms of quality and quantity.*

The results of the initial survey have driven ANNGO team to take the initial steps for the development of the sector. For example, they have inserted some basic information on ornamentals in the annual catalogue of fruit species, promoted basic training for the field officers, and established tentative partnership with some public and private stakeholders.

In 2014 due to the positive feedback of the mentioned activities, ANNGO, in collaboration with ANHDO-HPS SO1 project, have promoted a small support program for ornamentals, which included a baseline reviews of the sector and a the implementation of a number of small pilot projects⁴.

Some activities are still ongoing, but the preliminary results of the reviews substantially confirmed the initial hypothesis, and clearly outlined weakness and strength of the sector.

Therefore ANNGO, with the support of PHDP TA and ANHDO HPS SO1, have decided to move forward in the development of the ornamental sector developing a long-term strategy and a three-year action plan to be used as a benchmark for the future development and consolidation of the sector.

3. Areas of interventions

The results of the preliminary activities of ANNGO on the Afghan ornamental sector clearly defines the areas of intervention of the proposed strategy as:

1) Public Sector interventions

- MAIL and related directorates
- City municipalities/public parks

2) Private sector interventions

- Small-scale ornamental nurseries (production)
- Large-scale ornamental nurseries (production)
- Private parks/garden (design, establishment, plant procurement etc.)
- Landscape design (service providing)
- Medicinal, oils and essence for industrial production

⁴ Full details of the actions and results of the survey are available in the **ANNEX 1 Preliminary ornamental sector review**, Cosimo Frati, and private nursery industry survey, ANHDO HPS SO1. See also HPS SO1 2014-15 annual work plan

- TA and training provision
- Internalization of the enterprises
- Ornamental propagation methods (including tissue culture)

3) Synergies with other Donors/Agencies/Organizations

- Review of the past and on going programs
- Coordination with the related on going activities (avoid duplication and support/strength the existing)
- Attract new funds

4. Proposed activities

4.1 Public sector interventions

According to the basic assessments performed by ANNGO and HPS SO1 the level of public sector' awareness on the potentialities and importance of ornamental sector in Afghanistan is good. The Ministry of Agriculture (Horticulture and Extension Directorates), recognizes the importance of the development of the sector as one of the most promising to be developed. The MAIL recognizes also that ANNGO with the well-established structure for the certification of the fruit tree planting material could play a key role for the sector and it is ready to support the Organization.

Note: *is important to consider that the certification of the ornamental planting material is not in discussion at the moment. The strategy will focus on the development of an internal set of agreed "good practices" that will indicate the minimum standards in terms of propagation methods, phytosanitary and traceability aspects. The set of rules will be in line with the international standards, focusing on the phytosanitary aspects*

Besides the MAIL, ANNGO had several meetings with the Kabul Municipality. The output was that they are ready to collaborate and participate to develop a common strategy to make specific interventions in more than 40 public parks in Kabul.

Another huge opportunity is represented by the recent collaboration between ANNGO and the famous Bagh-e-Baboor Garden, in Kabul⁵. ANNGO and the Bagh-e-Baboor Trust NGO⁶ have recently signed and MOU in order to establish an experimental ornamental nursery (inside the main garden) and a small program of training and TA provision.

The proposed activities for the enhancement of the ornamental sector at public level are:

- A) Support ANNGO to work in close collaboration with MAIL relevant directorates
- B) City municipalities/public parks.

4.2 Private sector

According to the basic assessments performed by ANNGO and HPS SO1 the level of public sector' awareness on the potentialities and importance of ornamental sector in Afghanistan are very promising.

This area of intervention could also represent a huge opportunity for ANNGO self-sustainability.

The proposed activities for the enhancement of the ornamental sector at public level are:

- ANNGO creates an experimental nursery as center to develop and implement best practices in ornamental nursery industry
- Small-scale ornamental nurseries (production)
- Large-scale ornamental nurseries (production)

⁵ For detailed information see the report of Mr. Cosimo Frati and www.baghebaour.com

⁶ Local NGO supported by AKF that is currently managing the garden. The board of the NGO is composed by public/private actors representing the Kabul municipality and some entrepreneurs

- Private parks/garden (design, establishment, plant procurement etc.)
- Landscape design (service providing)
- Medicinal, oils and essence for industrial production
- TA and training provision
- Internalization of the enterprises
- Ornamental propagation methods (including tissue culture)

4.3 Other Donors

- Review of the past and on going programs
- Coordination with the related on going activities (avoid duplication and support/strength the existing)
- Attract new funds

5. The establishment of the ANNGO ornamental focal point

The implementation of the ANNGO strategy for ornamental nursery industry could be enormously facilitated by the creation of an ornamental focal point.

The Organization, in synergy with MAIL and other potential donor will identify a suitable place, (preferably in Badam Bagh) to establish an experimental ornamental nursery in order to develop the following activities:

5.1 Establishment of experimental plots containing the most common ornamental species. (see annex)

The plots will be arranged as follows:

- a) Annual species (flowers)
- b) Perennial species (trees and shrubs)
- c) Cosmetic and pharmaceuticals

The plots' purposes are to provide a training tool to test the best agronomic practices for a modern ornamental nursery industry. They will also represent a good demonstration point for NGAs members and eventually a selling point to contribute to the organization self financing.

The plots will be also used to promote small marked oriented side-trials, such as rose oil production, pharmaceutical preparations etc.

5.2 Propagation facility

One of the most important factors to be considered in the ornamental sector is the propagation method. The ornamental focal point will be equipped with a small facility to test the most common propagation techniques. The facility will also assure the provision of planting material for the nursery self sustain. Part of the propagated material could also be sold to the NGA members to start or improve their ornamental productions.

The site will include a tissue culture facility dedicated to the multiplication of fruit rootstock and some ornamental species that are not easily multipliable with mechanical or agronomical means.

5.3 Soil/Media preparation facility/site

To prepare and test the different media combinations for the different ornamental species

To prepare and sell optimized media combinations to the NGA members for their ornamental production

5.4 Collection site

Afghanistan ornamental sector potential is still largely unexplored. ANNGO technical team with the support of the NGA members will have the occasion to promote a large-scale assessment in order to find out which are the best Afghan ornamental varieties. Eventually the best varieties will be preserved and characterized in an Ornamental collection plot. The plants preserved in the collection will provide propagating material, that will be used to self sustain the ANNGO nursery, and/or provided as planting material for the NGA members.

The collection could also host certified imported varieties that are not present in Afghanistan yet.

5.5 Phytosanitary control site

A section dedicated to test the best practice in phytosanitary control of ornamentals. ANNGO team will extend the collaboration with PBTL to ensure the minimum phytosanitary standards for the marketing of ornamental species. They will develop internal standards and procedures.

5.6 Landscape design (public/private garden design, green areas design etc.)

ANNGO technical team will have dedicated personnel to provide landscape design services. Services will include: design of public/private green areas, garden etc. cost assessment, and plant provision. The ANNGO team could also provide on site direction of work and TA

5.7 Training room

The ANNGO technical team will provide professional trainings to the NGAs members and to third parties (MAIL personnel, NGOs, private entrepreneurs etc.). The trainings will be focused on the correct development and implementation of ornamental nursery industry-related topics.

5.8 External selling point

As result of the correct implementation of the above-mentioned activities ANNGO will eventually create a selling points for its members. The selling point main focus will be to provide to ANNGO members the following professional services:

- Provision of ornamental planting material such as adult plants, young saplings and propagating material (cuts, bulbs etc,) for the establishment of commercial nurseries and green areas.
- Provision of nursery tools and inputs.
- Provision of technical assistance

6. Conclusions

The development and implementation of ANNGO strategy for ornamental nursery industry represents the natural evolution for the Organization. As mentioned before, Afghanistan ornamental sector has a great-unexplored potential and many environmental and geographic advantages.

The establishment of the ANNGO focal point will give a strong kick-start to the sector and at the same time, will greatly increase the ANNGO revenues, allowing the organization to reach the break-even point and to be financially viable.