# Capacity Development
# Report on: Evaluation Workshop
# Date: 21-22 March 2019

Hotel Averroes – Hammamet Sud – Tunisia

**Project title: SUSTAINABLE SILVOPASTORAL RESTORATION TO PROMOTE ECOSYSTEM SERVICES IN TUNISIA**

**Pilot site: Ouled Sbaihia (Zaghouan, Tunisia)**
**Source of funding:** FAO – W3/Bilateral **BUS number:** 200310
**Starting date:** 26 November 2017 **Ending date**: 31 March 2019
**Project leader:** Dr. Mounir Louhaichi

**Main Partner:** Direction Générale des Forets (DGF) **Focal Point:** Mr. Jamel Kailene
**Other national partner:** Ministry of Agriculture (CRDA); ESAM, GDA Ouled Sbaihia, and INGREF.

**Objective**: The overall objective of the project is to build resilience of a silvopastoral production system through reduced climate change impact and increased resilience to environmental impacts and natural disasters. The project also targets strengthening the capacity of communities as well as building regional platforms for knowledge sharing and collaboration.
**Target beneficiaries:** Smallholder farmers, livestock keepers and extension agents
**Activity mapped to CRP:** CGIAR Research Program on Livestock
**Lead Center:** International Livestock Research Institute
**Flagship:** Livestock and Environment

## Introduction

With 47.2% of the earth's land area covered by dryland ecosystems, it is currently important to improve the conversion of degraded ecosystems to appropriate land uses, restore desertified and degraded soils, and to adopt practices which will enhance terrestrial carbon pools (Lal 2004). Restoring ecological processes is key to enhancing the capacity of ecosystems to support social, economic, cultural and aesthetic values (Jangid et al. 2011). This represents a shift away from conventional land management practices which have been associated with monoculture, tillage, and use of heavy machinery which have contributed significantly towards the loss of biodiversity, changes in the quantity and quality of plant residues and nutrient inputs to soil, which result in resource degradation due to soil erosion and nutrient depletion (Acosta-Martínez et al. 2007). Thus, the incorporation of multipurpose trees on degraded ecosystems represent a promising strategy to combat erosion and desertification, to provide shading trees for cattle, and pest control for crops to contribute additional income and diversified goods and services required by smallholder farmers, and to also improve land- use efficiency by providing livestock nutrition in the dry season (Giraldo et al. 2010; Plath et al. 2011). For instance, silvopastoral systems have been considered as a sustainable landuse approach due to their layered vegetative canopies, extensive and deeper rooting systems as they combine trees, woody shrubs, and grass species with animal grazing (Giraldo et al. 2010). In a silvopastoral system, trees and shrubs improve leaf litter, root mass and rhizosphere- associated microbial activity, providing a large quantity and diversity of organic matter, while deep roots can concentrate nutrients to the soil surface by root turnover (Rivest et al. 2011). Also, silvopastoral systems improve soil physicochemical properties, protect watersheds and soils from erosion and contribute to increase biological diversity and agriculture sustainability (Giraldo et al. 2010). However, successful management of silvopastoral systems requires knowledge on suitable species and site attributes and a profound understanding of their interactions. When implementing and designing silvopastoral systems, it is also important to know tree/shrub species-specific responses to competition because competitive reduction and facilitation effects can be regarded as dominating factors influencing seedling survival and productivity within the first years after establishment (Plath et al. 2011). Based on the above, a two-day evaluation workshop was setup which targeted discussing the best approaches needed to establish and manage silvopastoral system practices, with a special focus on the silvopastoral pilot site in Sbaihia, Tunisia.

## Workshop minutes

After registration, the first day of the Evaluation Workshop was opened with the welcoming of the participants by Mr Jamel Kailene from the forestry department (DGF focal point). The representative of FAO in north Africa introduced the day's activities by highlighting that the aim of such initiatives was to contribute to solutions to eradicate extreme poverty for smallholder farmers. He also noted the joint collaboration for the pilot site of different partners (public sector associations and farmer organizations) which has been important in improving the success of the pilot site and also presented a short video to the participants. Dr Mounir Louhaichi informed the participants that the project is in its final stages and the work

is in progress. He also informed participants that this pilot site would be an example for other places within Tunisia and in the MENA region. He also highlighted how the silvopastoral site has resulted in several social benefits, environments for local communities. The CRDA Zaghouan thanked all the partners in the pilot operation for the important work done and he noted the CES and pastoral improvement accomplished in the region of Sbaihia and the successful collaboration with the local population shown throughout the period of implementing the pilot site.

During the presentation sessions, Dr Louhaichi (ICARDA project leader) gave an overview presentation of the silvopastoral pilot project in Sbaihia, where he highlighted the project's objectives and its achievements thus far. He also highlighted some of the challenges encountered during the project and possible approaches for dealing with such future challenges. Mr Jamel followed the introduction from Dr Mounir by highlighting the best practices needed when implementing a silvopastoral system. These involve the ideal plant species to choose, the management of a site once planted and when to possibly implement utilization of ecosystem services within the silvopastoral site. Mr Bechir then presented to workshop participants the best practices for soil and water conservation practices. This involved detailing the soil and water conservation strategies such as constructing gabions and water harvesting structures such as semi-circle bunds and stone bunds. In most cases, Mr Bechir (Head of the water and soil conservation, CRDA Zaghwan) highlighted the need to combine soil and water conservation practices with shrub/tree growing to maximize on the potential of water harvested in the structures.

Dr Slim then highlighted the positive impact assessment of re-introducing key native species to the formerly degraded ecosystem. The key native and multipurpose species, such as the sulla, have roles to improve the provision of ecosystem services through sequestering carbon, improving soil conservation and supply fodder to livestock during the dry seasons. Dr Slim's presentation was followed by a general discussion, where important questions were asked by workshop participants concerning the transplanting of seedlings to the site and which species

to choose to withstand competition and the harsh climatic conditions. This interactive session was important as it educated the participants more and presented an opportunity for project leaders and participants to interact more. After lunch, one of the students participating on the project (Ms Oumaima) gave a presentation where she highlighted the benefits of improving the silvopastoral site on the systems provision of ecosystem services such as improving the carrying capacity and vegetation cover for grazing animals. Before the closing remarks for the first day, a general discussion was held on how to sustain the pilot site in the long term. Possible utilization of the site through payment of ecosystem services was also discussed during this session.

The second day of the workshop consisted of the visit to the pilot site by all workshop participants. During this day, participants were taken through the different stages of the project, its implementation, management and added benefits to communities within its vicinity. Participants were able to ask practical questions in the field and to interact with workers in the site.

**Presentation session:**

1. Dr Mounir Louhaichi presentation
2. Mr Jamel Kailene presentation
3. Mr Bechir Tarchi presentation
4. Dr Slim Slim presentation
5. Ms Oumaima Ben Romdhane presentation

**Discussion session day 1**

After the 4 presentations a free discussion session was opened for participants. The following points were highlighted by the workshop participants:

**Mr Ltaief** asked the necessity of introducing leguminous species? He also mentioned the laws that organize and control grazing establishment of a management program.
**Mr Aidli Mahdi** mentioned the problem of legume inoculation and missing seeds and that there is a need to provide financial assistance to the community for the self-production of seeds
**Pr Tibaoui Gouider** mentioned that the talk about sowing sulla and shrubs did not solve the problems of the supply of sulla seeds and which choice of legumes to so as to improve the soil nutrient status and also the supply of proteins to livestock.
**Mr Hsen Hsen** highlighted the need to improve the protection of the site. He asked which company was involved in providing protection and their charges and whether it was feasible to continue with the private company.
**Mr Jamel** emphasized the fact that a pilot management model was being implemented, with research results targeted to help guide decision-making. He also highlighted the need for a participatory approach to raise awareness and organize ideal communication, with an overall aim to compensate the local population.

**Dr Mounir Louhaichi** discussed how to manage the paths under forest and how users have the right to exploit forest resources to cover their needs only, with an emphasis that the needs should not be for commercial purposes. He also mentioned the best approach to socio-economic development, and how it is very important for the agro-silvopastoral population.
**Dr Slim (ESAM)** discussed the regeneration of perimeters and mentioned the need to make a mixture of species equilibrium for improved ecosystem service supply.
**Mr Lotfi** noted his experience with sulla. 40 ha of Sulla: Souk Jomoâ: Jandouba no success problem of cultural technique. It is necessary to apply a new intervention and Defense
**Ltaief** highlighted the need to introduce bee hives to add value to the Acacia.
**Mr Fatin** mentioned the need for a GDA creation and the local population needed sensitization through a functional structure.




**Day 2**

**Discussion session day 2 (Figure 5): General recommendations**

The participants agreed that there was a need for landscape mapping and the exploitation of allocating animals to utilize the area through manipulating the livestock heads/month. It was also agreed that an alternative option was to do the mowing of pasture and then sale it per kilogram or tractor load or just the free sale of the area grazed by livestock. However, participants identified a need to establish a management plan with the list of benefits, type of livestock, forage potential, period of exploitation, mowing in a week before implementing

any utilization of the site. It was also agreed that last year's list of beneficiaries should be updated according to: number of sheep flocks, type of livestock and breeders.

# Sustainable Silvopastoral Restoration to Promote Ecosystem Services in Tunisia

## Evaluation Workshop Agenda

21-22 March 2019 - Hotel Averroes – Hammamet Sud – Tunisia

| Day/time | Activity | Person |
|---|---|---|
| **Day # 1 – Thursday 21 March 2019 – Presentations/discussion** | | |
| 08:30 – 09:00 | Registration | |
| 09:00 – 09:20 | Welcome and Opening Statements<br>- ICARDA<br>- FAO<br>- DGF<br>- CRDA Zaghouan | |
| 09:20 – 10:00 | Presentation by ICARDA<br>Project objectives and main achievements | Mounir Louhaichi<br>ICARDA |
| 10:30 – 10:30 | Coffee break | |
| 10:30 – 11:00 | Presentation by DGF<br>Silvopastoral activities | Jamel Kailene<br>DGF |
| 11:00 – 11:30 | Presentation by CES<br>Soil and water conservation activities | Bechir Tarchi<br>CRDA - Zaghouan |
| 11:30 – 12:00 | Impact assessment of re-introduction of key native species | Slim Slim<br>ESAM |
| 12:00 – 13:00 | General discussion | All |
| 13:00 – 14:00 | Lunch | |
| 14:00 – 14:30 | Pasture improvement using native legume forage species | Oumaima Ben Romdhane (PhD Candidate) |
| 14:30 – 16:00 | Brainstorming: Perspectives aimed at sustainability of the pilot site | All |
| 16:00 – 16:30 | Coffee break | |
| 16:30 – 17:00 | Closing remarks | ICARDA/FAO<br>DGF/CRDA |
| **Day # 2 – Friday 22 March 2019 – Field Visit** | | |
| 08:30 | Departure to Ouled Sbaihia, Zaghouan | Ulysse Events |
| 09:30 – 12:00 | Visit pilot site and explain of different silvopastoral interventions | All |
| 12:00 – 14:00 | Lunch (Zaghouan) | |
| 14:00 – 15:00 | Return Hotel/Departure | Ulysse Events |

ICARDA
Science for resilient livelihoods in dry areas

RESEARCH PROGRAM ON Livestock
CGIAR

# Sustainable Silvopasture Restoration to Promote Ecosystem Services in Tunisia

## Evaluation workshop

**21 - 21 March 2019**

**Hotel Averroes Iberostar, Hammamet South, Tunisia**

**Participants list**

| No | Name | Institution / organization | Email | Signature | *Permission |
|---|---|---|---|---|---|
| 1. | HASSEN HASSEN | PRODESUD tataouine | hsan.hsan@yahoo.fr | | ☒ |
| 2. | Hassib Abdallah | CRDA Kebili/Forêts | hassib.abdallah3@gmail.com | | ☒ |
| 3. | MAHDHI Sassi | CRDA Tataouine/Forêts | sassimahdhi@gmail.com | | ☒ |
| 4. | Ben Amor Bechir | CRDA Medenine | bechirbenamor60@gmail | | ☒ |
| 5. | Khmaussi Khalkhalf | CRDA Gabes | Khmaussi.Khalkhalf@gmail.com | | ☒ |
| 6. | Kalem Faouzi | DGF/Nfi | | | ☒ |
| 7. | EL EUCH Fatma | DG/Forêts | eleuchf@yahoo.fr | | ☒ |
| 8. | JASON SIRCELY | ILRI NAIROBI | J.SIRCELY@CGIAR.ORG | | ☒ |
| 9. | HMAIDI Lotfi | CRDA Jendouba | hmaidil@yahoo.fr | | ☒ |
| 10. | ANILÉRS Philippe | FAO | philippe.anlers@fao.org | | ☒ |
| 11. | Slim Jarradi | FAO | slim.jarradi@bar.org | | ☒ |
| 12. | Abbassi Houda | CRDA Zaghouan | h.gadhiban@gmail.com | | ☒ |
| 13. | Ghazouani Hanen | CRDA Zaghouan | hanen.ghazouani123@gmail.fr | | ☒ |
| 14. | Nsairi Amal | ESAM | nsairimabrouka@gmail.com | | ☒ |
| 15. | Souf Taheni | ESAM | taheni.souf333@gmail.com | | ☒ |
| 16. | Ben Otmen Dhafer | DGF | ben.otmen.dhafer@... | | ☒ |
| 17. | Azouzi Mahjouba | ESAM | mahjoubakilani@gmail.com | | ☒ |
| 18. | TRABELSI Yamina | CRDA Zaghouan | Trabelsi_yamina@yahoo.fr | | ☒ |

ICARDA
Science for resilient livelihoods in dry areas

RESEARCH PROGRAM ON Livestock
CGIAR

# Sustainable Silvopasture Restoration to Promote Ecosystem Services in Tunisia

## Evaluation workshop

**21 - 21 March 2019**

**Hotel Averroes Iberostar, Hammamet South, Tunisia**

**Participants list**

| No | Name | Institution / organization | Email | Signature | *Permission |
|---|---|---|---|---|---|
| 19 | Jelloli Khalifa | DG / Forêts | jellolikhalifa@gmail.com | | ☒ |
| 20 | Rjeibi Najoua | DG / Forêts | rjeibinajoua@gmail.com | | ☒ |
| 21 | Chaouch Najoua | DG / ACTA | najouachaouch@yahoo.fr | | ☒ |
| 22 | Hamza Bahri | CRDA Zaghouan | hamzaamarbahri@yahoo.fr | | ☐ |
| 23 | Aida Mehrli | DGF | mehrliaida2011@gmail.com | | ☒ |
| 24 | Kater Bouchkha | C.R.D.A | | | ☐ |
| 25 | Slim Slim | ESAM | Slimbes@gmail.com | | ☐ |
| 26 | Ben Romdhane Oumeima | ESAM | benromdhaneoumeima@gmail.com | | ☐ |
| 27 | Hedhly Amir | ESAM | Hedhly-amir@gmail.com | | ☐ |
| 28 | Torchi Med Bechir | CRDA Zaghouan | torchibechir@yahoo.fr | | ☐ |
| 29 | Tlili Gouider | ESAMateur | Gtlili.gouider@iresa.agrinet.tn | | ☐ |
| 30 | Lotfi Hasnaoui | CRDA- Zaghouan | lotfi.hasnaoui@gmail.com | | ☐ |
| 31 | Ezzine Thouraya | CRDA Zaghouan | thourayezzine@gmail.fr | | ☐ |
| 32 | Rfigui Houcine | " " | houcinez3a@gmail.com | | ☒ |
| 33 | | | | | ☐ |

*By checking the box, I am granting the International Centre for Agricultural Research in the Dry Areas (ICARDA) to use, reuse, publish, and/or republish in whole or in part, in any medium (including the ICARDA website, social media, and publication) the photographs (individually or in a group in which I am included) of me that are taken during this event without restrictions as to changes or alteration, as they are used in conjunction with the representation and promotion of the Centre. I understand that all such recordings, in whatever medium, shall remain solely the property of ICARDA, and I shall have no right or interest in them. I permit ICARDA and its authorized agents to use my image, name and/or business title, as they are used in conjunction with the representation and promotion of the ICARDA.