LEBANON REFORESTATION INITIATIVE FINAL PERFORMANCE EVALUATION

September 2015

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LEBANON REFORESTATION INITIATIVE: FINAL PERFORMANCE EVALUATION

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CONTENTS

ACRONYMS iv

EXECUTIVE SUMMARY v
Evaluation Purpose and Evaluation Questions v
Project Background vi
Evaluation Methods and Limitations vi
Findings, Conclusions, and Recommendations vi
Findings and Conclusions by Evaluation Question vi
Recommendations x

EVALUATION PURPOSE AND EVALUATION QUESTIONS 1
Evaluation Purpose 1
Evaluation Questions 1

PROJECT BACKGROUND 3
Project Objective and Modifications 3
Project Scope 4
Development Hypothesis 4
Project's Intended Results 4

EVALUATION METHODS AND LIMITATIONS 6
Desk Review 6
Field Research 6
Data Analysis 7
Limitations 7

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS 8
Findings and conclusions by evaluation question 8
Question 1: To what extent has LRI achieved its outcomes and stated purposes found in the signed agreements and agreement modifications? 8
Question 2: To what extent has the sustainable management of natural resources in Lebanon been developed? 19
Question 3: What impact did LRI have on the reforestation sector generally and specifically on: 21
Question 4: What are the prospects for the sustainability of LRI's activity results? 23
Question 5: What evidence is there that social cohesion has improved as a result of reforestation projects in identified communities? 24
Question 6: Did LRI enhance a more active environmental awareness and economic involvement of women in the communities where the activities were implemented? 27
Recommendations 29
Technical Aspects 29
Networking and Fundraising 29
Community Participation 30
Social Cohesion/Stability 30
Women's Empowerment 31

ANNEXES 32
Annex I: Evaluation Statement of Work 32
Annex II: Sources of Information 33
Annex III: Criteria and the selected sites for field visit 37
Annex IV: Data Collection Instrument 39
Annex V: Evaluation Matrix 43
Annex VI: Quality of Seedling, Quality of Planting, and Survival Rate* 46
Annex VII: Cost of Plantation 47

Annex VIII: List of Environmental Committee Members 48
Annex IX: Rapid Tension Assessment Tool 49
Annex X: Map of the Visited Sites 62
Annex XI: Statement of Differences 63

ACRONYMS

AFDC	Association for Forest Development and Conservation
BARC	Burned Area Reflectance Classification
CFC	Committee for Friends of Cedars
DEC	Development Experience Clearinghouse
EC	environmental committee
FAO	Food and Agriculture Organization
FG	focus group
FGD	focus group discussion
FY	fiscal year (USAID October 1 to September 30)
GIS	Geographic Information System
INGO	International Non-Governmental Organization
IP	Implementing Partner
IR	Intermediate Result
KAP	Knowledge, Attitudes, and Practices
KII	Key Informant Interview
LAF	Lebanese Armed Forces
LRI	Lebanon Reforestation Initiative
M&E	Monitoring and Evaluation
MoA	Ministry of Agriculture
MoE	Ministry of Environment
MOSA	Ministry of Social Affairs
MOU	memorandum of understanding
NGO	Non-Governmental Organization
PAPA	Participating Agency Program Agreement
PEER	Partnerships for Enhanced Engagement Research
PMP	Performance Management Plan
PMSPL	Performance Management and Support Program for Lebanon
PPP	public-private partnership
SOW	Scope of Work
TA	technical assistance
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
USAID	United States Agency for International Development
USFS	United States Forest Services
USG	United States Government

EXECUTIVE SUMMARY

EVALUATION PURPOSE AND EVALUATION QUESTIONS

The final performance evaluation of the Lebanon Reforestation Initiative (LRI) project had the following purposes:

- To analyze the extent to which the LRI's objectives, impacts, sustainability targets, and involvement of stakeholders have been achieved; and
- To provide key information about successes, challenges, and lessons learned for future programs.

During the evaluation, United States Forest Service (USFS) received news of a decision from USAID for an additional three years and a new phase to the LRI project. Hence, this LRI performance evaluation report provides recommendations based on findings of past project performance, successes, challenges, and lessons learned to guide USAID/LRI in this new project phase. It will be used by USAID/Lebanon, USFS, and others to inform program improvement and future programming in the reforestation sector. It will also be used by USAID/Lebanon during its annual Portfolio Review.

The evaluation questions addressed in the evaluation are as follows:

1. To what extent has LRI achieved its outcomes and stated purposes found in the signed agreements and agreement modifications?
    a. What were the factors influencing the achievement or non-achievement of these purposes and intermediate results?
2. To what extent has the sustainable management of natural resources in Lebanon been developed?
    a. Have key stakeholders and reforestation champions, support for community initiatives, and environmental awareness been identified?
    b. What is the outlook for sustaining the Cooperative of Native Tree Nurseries?
    c. What evidence is there of the sustainability of the 10 planting communities to implement their five-year plans?
    d. What prospects are there for scaling up cooperatives and planting communities?
3. What impact did LRI have on the reforestation sector generally and specifically on:
    a. reversing environmental degradation by reforesting previously forested grasslands, shrub-lands, and areas burned by wildfires;
    b. community engagement to protect the community environment;
        i. community-led restoration of watershed-level forest bio corridors;
    c. private-sector engagement through native tree nurseries and private-sector support for outplanting;
    d. advanced planting techniques, resulting cost/benefit, and out planted seedling survival on reforestation
4. What are the prospects for the sustainability of LRI's activity results?
    a. Which results show the best prospect of being sustained and why?
    b. Provide recommendations on how the activity design could be enhanced to improve the sustainability of results and any additional programming or support in the upcoming years that would improve LRI's results sustainability.
5. What evidence is there that social cohesion has improved as a result of reforestation projects in identified communities?
6. Did LRI enhance a more active environmental awareness and economic involvement of women in the communities where the activities were implemented?
    a. Did women actively participate in local decision making, e.g., in the municipal environment committees?
    b. Were women encouraged to take on leadership roles in local forest area management?

PROJECT BACKGROUND

The Lebanon Reforestation Initiative is a four-and-a-half year project (September 30, 2010– June 30, 2015) funded by USAID and implemented by the United States Forest Service (USFS). The project had six modifications over its implementation period with a total award amount of $12,692,009. The project aims to reverse environmental degradation by reforesting grasslands, shrub-land, and areas burned by wildfires.

The project's overall objective is the "Protection of the environment and the promotion of the sustainable management of natural resources in Lebanon."

The project had six Intermediate Results (IRs):

- IR 1: Capacity of native tree nurseries enhanced
- IR 2: Improving tree planting practices
- IR 3: Long-term mechanisms for sustainable forest preservation and reforestation established
- IR 4: Forest biodiversity protection enhanced
- IR 5: (Cross-cutting) Environmental education and community engagement
- IR 6: (Cross-cutting) Mapping of reforestation sites and vegetative cover produced

EVALUATION METHODS AND LIMITATIONS

This evaluation made use of mixed methods to collect and analyze primary and secondary data, spread over three phases. Secondary data included the review of project documentation, work plan, progress reports, technical reports, project website, and online reforestation mapping tools. Primary data was collected during the field mission through interviews with LRI project staff, USAID's Lebanon Mission staff, project beneficiaries, private-sector partners, other stakeholders (e.g., at the municipal level, community level, nurseries, Ministry of Agriculture and Ministry of Environment, and partners of non-governmental organizations, or NGOs), direct on-site observation, and additional Key Informant Interviews (KIIs). An evaluation matrix was used for data analysis in order to ensure that all data sources were considered and the team was able to use triangulation of data to answer each question with more validity.

Limitations included difficulty in organizing the planned focus group discussion because the evaluation was carried out during Ramadan and field visits were conducted during working hours. Another limitation was difficulty in conducting visits to all the plantation sites due to the limited time available for the field visits. The evaluation team could only visit sites identified as representative sites (selection criteria in Annex III). Therefore, certain situations of some particular sites might not be reflected in this report.

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Findings and Conclusions by Evaluation Question

1. To what extent has LRI achieved its outcomes and stated purposes found in the signed agreements and agreement modifications?

Achievements that have had the greatest success include:

- Advanced nursery techniques have been successfully adopted and adapted to local conditions. Consequently, high-quality seedlings were produced at a low cost, in a short

time, and with consumption of little medium; were easy to transport and plant; and were better adapted to natural conditions.

- The project has successfully established 767 hectares (ha) of tree plantations. The planted trees have a high survival rate and are healthy. They were irrigated for the first two to three years and are well protected.
- The capacity of native tree nurseries has been strengthened through training in advanced nursery techniques, study tours, and access to the latest technology and equipment. A cooperative of native tree nurseries has been formed for sharing knowledge and enabling better marketing of native tree seedlings.
- The project information management system provides a great platform for reforestation stakeholders to coordinate and share information and for educational purposes.
- Fire-management programs have successfully raised the awareness of focal groups in the municipality where they have been implemented.
- Fire combustibility maps and fire hazard maps are invaluable tools for fire management in Lebanon.
- The series of specific interactive web-based maps developed by LRI allows users to view information at specific points, such as information about vegetation, fire risk, reforestation sites, recommended species, and climate change impacts on biodiversity and vegetation. This system is a fundamental tool for managing natural resources in the country.

Challenges achieving success on other outputs and outcomes, not necessarily within the control of the LRI project, included:

- Trainings on business plan development for native tree nurseries were ineffective as native tree nursery owners have been unable to develop business plans after attending two trainings.
- LRI environmental awareness, education, and community-engagement activities have achieved and exceeded planned targets but the outcome of these trainings in terms of instilling "commitment and engagement" of the various community groups for reforestation, forest management, and protection has not yet been evaluated by the LRI.
- The lack of a system for seed storage and quality control could have an effect on the quality of seedlings and the capacity of native tree nurseries to produce seedlings on short notice.
- Documentation of the main factors that contribute to high survival rates was limited.
- Capacity building for municipalities in reforestation was not targeted and community participation was very minimal in some reforestation models.
- Late fire-management intervention has led to poor integration between fire prevention and outplanting activities.
- The fire-management programs have successfully raised the awareness of focal groups such as the fire response squads and pupils from 14 schools; however, the majority of community members, who are mainly responsible for the forest fire initiation, were not targeted in the fire-awareness campaigns.

Factors enabling the achievement of the purposes and IRs:

- Selection and strong collaboration with the right partners;
- Use of appropriate techniques combined with provision of professional training for project staff, partners, and beneficiaries;
- Native tree nursery owners were creative, open-minded, and willing to learn new techniques, and always strived to improve their knowledge and skills. Furthermore, they

were willing to work together to strengthen their technical capacity and to promote new standards for seedlings.
- High quality seedlings and site-species matching.

Hindering factors resulting in non-achievement of these purposes and IRs, not necessarily within the control of the LRI project:

- Lack of participation from line municipalities in the development of the information system, combined with limited available data in Lebanon—particularly maps and data on administrative land boundaries, land ownership, and land-use planning;
- The high cost of USD $6.75/seedling (rather than around $2.5/seedling) for tree plantations;
- Variable yearly demand for native tree seedlings and an accompanied lack of understanding regarding how many seedlings should be produced for the current year.
- The quality of seedlings was affected by storage, handling among the native tree nurseries, and the location of nurseries.

In summary, the quantity and quality of the outputs produced are satisfactory. LRI has been able to reach or surpass the set targets for most of the indicators for the various planned output, many of which have transformed into consolidated outcomes. Some outputs need more time to be effective and ensure sustainability in order for the evaluation team to state with confidence that outcomes have been met. Overall, the project delivered on its required outputs, and the result is that there is now a solid knowledge-based foundation for reforestation activities and the management of natural resources in the country. Local stakeholders have had their technical capacity strengthened to the extent that they can now confidently establish tree plantations on degraded land.

2. To what extent has the sustainable management of natural resources in Lebanon been developed?

The project has established a strong partnership with local agencies for the implementation of its activities at the local level and has collaborated with international agencies for disseminating lessons learned to the national level.

At present, the market for native tree seedlings in the country is very limited. There are certainly prospects for high demand for native tree seedlings in the future; however, the Cooperative of Native Tree Nurseries might face obstacles in accessing such a demand.

Prospects of the communities (besides the two Forest Reserves) to expand on LRI reforestation initiatives without LRI external support are very dim. The protection of lands reforested by LRI is sustained mainly by municipalities and their budgets. So far, the community engagement activities have not brought about much change with respect to self-engagement of communities in reforestation outside of LRI support. Additional project support and a revised community strategy will be needed in the next project phase.

The production capacity of the Cooperative of Native Tree Nurseries is sufficient for seedling demand in the near future, so scaling up is not yet necessary.

The prospects for scaling up planting communities are encouraging. Mayors confirmed availability of land suitable for reforestation within their municipal cadastral zones and expressed interest in continuing their cooperation with LRI.

The project has successfully introduced a technical approach to reforestation in Lebanon. Project interventions have had a significant influence on changing standards of seedling quality, introducing advanced seedling production techniques, establishing and maintaining tree plantation, and applying

Geographic Information System (GIS) technologies for the management of natural resources. The introduced knowledge has quickly been taken up by the project staff, partners, and local NGOs, and some of the results may even be applied at the national level.

3. What impact did LRI have on the reforestation sector generally and specifically on the following:

a. *Reversing environmental degradation by reforesting previously forested grasslands, shrub-lands, and areas burned by wildfires.* It is too early to quantify the impact of the project intervention on environmental degradation, but the intervention is potentially rehabilitating degraded forestland.

b. *Community engagement to protect the community environment.* Community engagement has increased seedling survival rates and thus the potential for the reforested land to grow into a forest. However, it is still too early to assess the impact of community-led restoration of watershed-level forest bio corridors.

c. *Private-sector engagement through native tree nurseries and private-sector support for outplanting.* As a result of LRI efforts, private native tree nurseries have changed their marketing strategy from treating others as competitors to treating them as collaborators. LRI also piloted an effective approach to private-sector engagement for sustainable reforestation and established an operational system for public-private partnership (PPP). However, LRI efforts at private-sector engagement were not pursued beyond the pilot phase and institutionalization of a mechanism for private-sector funding has yet to be determined. It is planned that Phase II of the LRI project will work on covering these gaps.

d. *The impact of advanced planting techniques, resulting cost/benefit, and out planted seedling survival on reforestation.* Among the project's established tree plantations, higher planting cost was not associated with higher survival rate (Annex VII details the cost of planted seedling, the cost of surviving seedling and the rate of survivability by municipality). The average cost of each planted seedling was USD 6.75 which is higher than in most developed countries in the world and countries in the region (it does not exceed $2,000/ha/800 seedlings or $2.5 per planted seedling). However it remains lower than the cost of $8.67 per seedling estimated by the MoE in "Safeguarding and Restoring Lebanon's Woodland Resources Project Report, 2014".

The current approaches to reforestation mainly introduced techniques to reestablish forests in Lebanon. We could not sufficiently assess whether the approach would be affordable for the country. Moreover, the involvement of local people was limited. Ensuring that the previous deforestation drivers will not come back again, and that established plantation forests will be sustainably managed, requires enhancing the participation of the local community.

4. What are the prospects for the sustainability of LRI's activity results?

Advanced seedling production techniques will likely remain in the country, as seedlings produced by advanced techniques are recognized as well adapted and as having high survival rates. Lebanon is preparing to implement its program to plant 40 million forest trees, which will annually require two to three million seedlings for the next 15 years. The probability that forests will be properly managed by the municipalities is high based on the evaluation team's visit to selected municipalities. Municipalities and local communities appreciate the plantation sites established by the project. Most of the plantation sites are well fenced, so the follow-up management required is manageable for most municipalities.

The project's information management system is a great platform for the government to coordinate forestry and related activities with relevant agencies and to share knowledge. Interviews with key informants at the Ministry of Agriculture (MoA) showed that it appreciates the system and is

considering having a similar system under its national forestry program. The information management system will likely be retained or adopted by the MoA.

5. What evidence is there that social cohesion has improved as a result of reforestation projects in identified communities?

LRI reforestation and forest protection initiatives enhanced interaction and support between diverse communities and groups around a common issue. The extent of how much this interaction developed into "social stability" is difficult to assess without an initial baseline assessment and indicator system. Presently, there are no indications that the twinning will have a positive impact on social stability between host communities and Syrian refugees.

6. Did LRI enhance a more active environmental awareness and economic involvement of women in the communities where the activities were implemented?

The project enhanced active involvement of women in environmental awareness and marginally in economic activities. The project facilitated women's access to leadership in local area forest management through environmental committees (ECs) and the project's consultative process, but decision making is still the prerogative of the mayor/municipal council. Most importantly, facts inherent to LRI livelihood opportunities (outplanting) have "culturally" inhibited women from participating in and benefiting from economic/income-generating activities. The evaluation found it difficult to assess the extent of women's empowerment in LRI as the project did not set baselines or targets against which to measure.

Recommendations

Technical Aspects

- Selecting reforestation sites by means of participatory land-use planning will enhance the sustainability of plantations and enhance plantation habitat connectivity. Reforestation sites should be selected based upon a set of criteria to ensure that the land is earmarked for the purpose of long-term reforestation. Private land owners should be encouraged to share their land-use vision and land-management objectives in order to assess the potential for setting common land-use objectives and enhancing habitat connectivity.
- Any opportunities to reduce the cost of setting up a plantation should be utilized, and potentially low-cost sites should be given priority for reforestation. Potential cost reduction can be assessed for several options, such as making use of appropriate irrigation techniques, or by studying the "no-irrigation" option for certain types of soil. The selection of appropriate sites could mean that no or only low-cost fencing is required.
- Any opportunities to increase the survival rate of planted trees should be utilized. Apart from appropriate measures introduced by the project, there are several other opportunities to increase the survival rate of planted trees, including a) ensuring quality of seedlings delivered on sites, especially seedlings delivered in containers, b) improving coordination between seedling delivery and planting activities, and c) increasing the number of tree planters when a large number of seedlings is received.
- Assessment and establishment of green firebreaks will contribute to fire prevention in the long term. A firebreak system should be designed as part of every large-scale reforestation site and be designed to prevent fire in the long term. Fire-resistant species (both tree and shrub) should be identified and then planted in firebreak belts.

Community Participation

- The municipality should be primarily in charge of reforestation and management activities. The project should play a minimal role in the management of plantations in order to build management capacity within the municipality as well as encourage the municipality to take ownership responsibilities. Nonetheless, the project should play a central role in technical support and supervision to ensure quality achievements.
- It is important to identify and pilot mechanisms that encourage private land owners, and the private sector generally, to reforest on private land. This will be a way to speed up forest cover and to ensure that reforestation sites will be properly managed.

Networking and Fundraising

- Strengthening the reforestation network will enhance the capacity of the Cooperative of Native Tree Nurseries. The reforestation network will be a great platform for the Cooperative to promote its products with reforestation organizations, particularly with decision makers and influential organizations such as donors, United Nations (UN) agencies, and Ministries. Furthermore, networking events will help the Cooperative to understand potential seedling demand and possibly to forge links with reforestation organizations.
- The project should expand ECs' membership base and formalize these committees to ensure sustainability via memoranda of understanding (MOUs) to engage three parties: municipalities, ECs, and LRI. Capacity building of ECs will be a condition of post-training deliverables.

Social Cohesion/Stability.

- Should USAID/LRI decide to pursue social stability objectives—concurrently with reforestation objectives in the next project phase—among community groups, with neighboring communities, and with Syrian refugees, then it is recommended that LRI follow the roundtable approach to jointly identify with community leadership any impediments and challenges to social stability that are particular to each community or group of communities. Following this assessment, activities designed to improve social stability would be formulated jointly with local leaders of host communities, possibly using the reforestation activities as the convener.

Women's empowerment

- The project can and should make better use of women's "inherent potential" to improve economic benefits and enhance the leadership role of women at the community level. This can be done by training female trainers / community mobilizers in each locality and then plan with them how to disseminate awareness messages to the various community groups and/or how to monitor forest protection.
- The project needs to expand women's participation in ECs and to develop targets and indicators for women's social and economic empowerment.

EVALUATION PURPOSE AND EVALUATION QUESTIONS

EVALUATION PURPOSE

The final performance evaluation of Lebanon Reforestation Initiative Project has the following purposes:

- To analyze the extent to which the LRI's objectives, impacts, sustainability targets, and involvement of stakeholders have been achieved; and
- To provide key information about successes, challenges, lessons learned, and recommendations for future programs.

During the evaluation, United States Forest Services (USFS) received news of a decision from the United States Agency for International Development (USAID) for an additional three years and a new phase to the LRI project. Hence, this LRI performance evaluation report provides recommendations based on findings of past project performance, successes, challenges, and lessons learned to guide USAID/LRI in this new project phase.

This final performance evaluation is to be used by USAID/Lebanon, USFS, and others at the discretion of the Mission, including by USAID/Lebanon during its annual Portfolio Review and to inform future programming in the sector.

EVALUATION QUESTIONS

This evaluation of the LRI project seeks to answer the following evaluation questions:

1. To what extent has LRI achieved its outcomes and stated purposes found in the signed agreements and agreement modifications?
    a. What were the factors influencing the achievement or non-achievement of these purposes and intermediate results?
2. To what extent has the sustainable management of natural resources in Lebanon been developed?
    a. Have key stakeholders and reforestation champions, support for community initiatives, and environmental awareness been identified?
    b. What is the outlook for sustaining the Cooperative of Native Tree Nurseries?
    c. What evidence is there of the sustainability of the 10 planting communities to implement their five-year plans?
    d. What prospects are there for scaling up cooperatives and planting communities?
3. What impact did LRI have on the reforestation sector generally and specifically on:
    a. reversing environmental degradation by reforesting previously forested grasslands, shrub-lands, and areas burned by wildfires;
    b. community engagement to protect the community environment;
        i. community-led restoration of watershed-level forest bio corridors;

c. private-sector engagement through native tree nurseries and private-sector support for outplanting;

d. Advanced planting techniques, resulting cost/benefit, and out planted seedling survival on reforestation?

4. What are the prospects for the sustainability of LRI's activity results?

   a. Which results show the best prospect of being sustained and why?

   b. Provide recommendations on how the activity design could be enhanced to improve the sustainability of results and any additional programming or support in the upcoming years that would improve LRI's results sustainability.

5. What evidence is there that social cohesion has improved as a result of reforestation projects in identified communities?

6. Did LRI enhance a more active environmental awareness and economic involvement of women in the communities where the activities were implemented?

   a. Did women actively participate in local decision making, e.g., in the municipal environment committees?

   b. Were women encouraged to take on leadership roles in local forest area management?

PROJECT BACKGROUND

PROJECT OBJECTIVE AND MODIFICATIONS

The Lebanon Reforestation Initiative (LRI) was originally a four-year (2010–2014) reforestation program for Lebanon implemented by the U.S. Forest Service (USFS) through an interagency agreement with USAID utilizing a Participating Agency Program Agreement (PAPA) implementing mechanism (Agreement 268-P-00-10-00046-00). According to the initial agreement, the aim of LRI was "to reverse environmental degradation by reforesting previously forested grasslands, shrub-land, and areas burned by wildfires; provide short-term jobs in vulnerable areas; and mobilize Lebanon's rural, urban, and Diaspora communities to support national reforestation through fundraising and volunteerism."[1] The initial period of performance of this contract was September 30, 2010 to October 1, 2014.

The original contract agreement has undergone significant changes from the outset: Six subsequent contract modifications introduced changes to the program purpose and objectives while increasing the total award to $12,692,009 and extending the period of performance to June 30, 2015.

Most of the salient changes introduced to the original program description include a shift in the strategic approach of the original project "from a largely top-down approach engaged with the Ministry of Environment (MoE) to one focused almost exclusively at a practitioner and local community level."[2] Original activities designed for capacity building and sustainability at the national level were also changed to focus exclusively on local-, municipal-, community-, and private-sector–level engagement. The revised program increased outplanting rates by 50 percent—with a minimum of 300,000 trees to be planted during the project lifetime—and incorporated a wildfire prevention and response component.

Another modification included a no-cost extension that extended the project completion date to December 31, 2014. The additional technical assistance measures that were incorporated into the agreement were: "Increase capacity of the LRI-inspired Cooperative of Native Tree Nurseries; technical assistance (TA) during outplanting season; TA for private-sector engagement; increase community engagement; ensuring sustainability of LRI mapping platform; and advanced training and field exercises for newly acquired fire trucks."

Finally, the project timeframe was extended for six additional months to June 30, 2015 with additional funding and new activities. This new phase of LRI introduced "twinning" activities with communities hosting large numbers of Syrian refugees to promote harmony and social cohesion. The extension also covered the provision of environmental education including forest fire protection, expanding reforestation efforts with planting of biocorridors and abandoned agricultural terraces, strengthening the technical and business reach of the Cooperative of Native Tree Nurseries; and replication of the Firewise collaborative approach in a few high–fire risk communities.

[1] Program description, PAPA agreement between USAID and USFS signed September 30, 2010.

[2] LRI revised program strategy and work plan, October 2013–September 2014

PROJECT SCOPE

LRI provided technical assistance on sustainable forestry practices and wildfire control in economically depressed and environmentally degraded regions throughout Lebanon. USFS technical assistance to Lebanon focused on improving the quality of native tree seedlings through native tree nurseries, while concurrently engaging with targeted community institutions to improve outplanting techniques and to protect and maintain the forest and for wildfire prevention and response. In order to restore Lebanon's natural forests and promote advanced reforestation practices, the USFS and its Lebanese partners planted several hundred thousand native trees throughout the country in selected areas and were to establish a self-sustaining foundation to continue reforestation into the future. USFS/LRI worked closely and forged partnership agreements with Lebanon's non-governmental forestry sector, including NGOs, private-sector entrepreneurs, other forestry practitioners, and academics, as well as the Lebanese Armed Forces (LAF) and local municipalities throughout the country's eight governorates. National seed stock was to be taken only from local sources and from agricultural research centers.

DEVELOPMENT HYPOTHESIS

No specific development hypothesis was written for LRI during the design phase or in the program description. A development hypothesis was later added during development of the LRI performance management plan (PMP). This stated that "Sustainable management of Lebanon's forest resources can be achieved through a reforestation program that includes technical assistance to improve Lebanon's native tree nurseries productivity and quality of tree seedlings, engaging rural communities adjacent to forests to plant native tree species and to monitor the forest, establishing a native tree nursery cooperative, conducting an outreach program to gain support for reforestation and forest fire prevention, and exploring mechanisms to support longer-term reforestation in Lebanon." The PMP included a graphic depiction of the development hypothesis (represented through a results framework), included below in Figure 1. No development hypothesis was provided for the six-month funded extension that began on January 1, 2015. However, the implication was that community reforestation activities in communities where there is potential friction between factions or that are stressed by large numbers of Syrian refugees will increase social cohesion. An indicator that measures the direct *output* of the efforts in building the social cohesion was introduced during the six-month extension. An indicator that will measure the *outcome* has yet to be introduced for Phase II of the LRI.

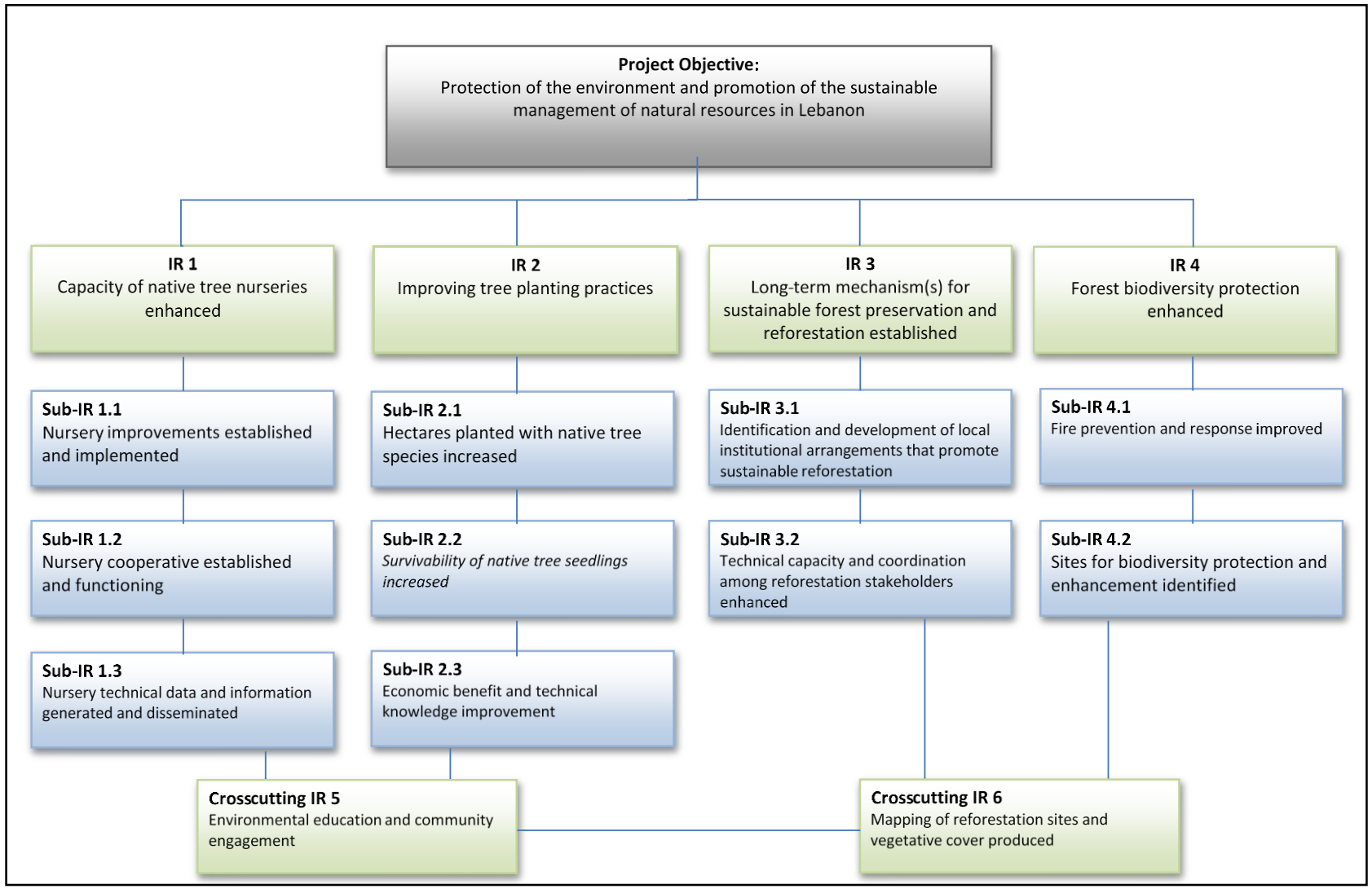
Project's Intended Results

In September 2010 and at its onset, the LRI project was proposed to fall under USAID's Economic Growth Strategic Objective (Assistance Objective). The LRI-approved Results Framework (December 2012) in Figure 1 stated that the Project Objective of "Protection of the environment and promotion of the sustainable management of natural resources in Lebanon" would be achieved through four Intermediate Results (IRs) and two cross-cutting results:

- IR 1: Capacity of native tree nurseries enhanced
- IR 2: Improving tree planting practices
- IR 3: Long-term mechanisms for sustainable forest preservation and reforestation established
- IR 4: Forest biodiversity protection enhanced
- IR 5: (Cross-cutting) Environmental education and community engagement.
- IR 6: (Cross-cutting) Mapping of reforestation sites and vegetative cover produced.

For the purpose of this evaluation, the LRI-approved PMP and last revisions to the work plan (2014) will be referenced to assess achievements against project indicators and targets.

Figure 1. Lebanon Reforestation Initiative Results Framework



EVALUATION METHODS AND LIMITATIONS

This evaluation made use of mixed methods to collect and analyze primary and secondary data, with data collection and analysis spread over three phases (desk review, field research, and data analysis). Secondary data relied on the review of LRI project documentation, work plan, progress reports, technical reports and the project website, and online reforestation mapping tools. Primary data was collected during field research and interviews with LRI project staff, USAID's Lebanon Mission staff, project beneficiaries, private-sector partners, and other stakeholders (e.g., at the municipal or community level, nurseries, Ministry of Agriculture, Ministry of Environment, and NGO partners and international NGOs such as EC, Italian Cooperation, and Food and Agriculture Organization [FAO]) as well as direct on-site observation.

DESK REVIEW

The evaluation team reviewed 56 documents related to the LRI project including the background literature of relevant policy documents, project documents, agreements, technical reports, project monitoring and evaluation (M&E) reports (see Annex II for a full inventory of documents reviewed). These documents are divided into five categories:

- Contract and modifications
- Work plans and PMP
- Progress reports
- LRI-produced documents
- Related documents/reports

FIELD RESEARCH

The evaluation team met with the staff of the LRI project in Beirut in order to gain an in-depth understanding of the project setting, its processes and procedures, challenges, and constraints.

The project operated in 10 municipalities, with 17 large plantations directly established by LRI, 13 plantations established through collaboration with NGOs, 14 small-scale plantations established by municipalities or LAF, two small plantations established on private land by land owners and volunteers, four fire squads established in four municipalities, and 10 native tree nurseries technically and financially supported by LRI. In the scope of this evaluation, field trips were made to nine representative project sites to confirm the project results by direct observation. The selection of these sites and of local stakeholders for interviews was done in close consultation with the LRI project team. The nine planting sites were selected based on their geographic coverage, survival rates of the planted seedlings, and planting models (composition of planted species, irrigation systems, and organizational structure for establishment of plantation, such as collaboration between NGOs and municipalities, twinning, etc.).

During these site visits, Key Informant Interviews (KIIs) were conducted with the presidents or vice presidents of the municipalities, municipal councils, and ECs; community members; and other local stakeholders. The key informants were selected by the evaluation team to ensure participation from men and women having different degrees of participation in the project's activities (see Annex II: Sources of Information, Key Informant Interviews).

Five out of ten nurseries were visited. The production capacity of the selected nurseries was to include large-, medium-, and small-scale production; the visited nurseries planted all types of tree species and had different qualities of produced seedlings. Annex III details the criteria and the selected sites for field visit.

Field visits, scheduling of meetings, and site visits were facilitated by the LRI project staff. During the field mission phase, the evaluation team made use of a data collection instrument / interview questionnaire to elicit stakeholders' feedback on the evaluation questions. The interview questionnaire was based on the evaluation questions that were initially formulated in the Scope of Work (SOW) (Annex IV: Data Collection Instrument).

The evaluation team also met representatives of national-level reforestation stakeholders and other reforestation projects/donors that have implemented similar activities in order to compare program results and opinions, particularly related to seedling propagation, planting techniques, and survival rates.

In total, 39 KIIs were conducted with community groups, project team members, and other local and national stakeholders. The complete list of individuals interviewed and their respective affiliations is available in Annex II: Sources of Information, Key Informant Interviews.

DATA ANALYSIS

The evaluation team prepared a data source matrix (see Annex V: Evaluation Matrix) that clarified how the data was to be collected. It included the evaluation questions and the evaluation tools, data sources, and analysis plan for each question.

This matrix ensured that a multitude of data sources was considered and that the team was able to use triangulation of data to answer each question with more validity. All data collected from different sources was reviewed for reliability and validity, and findings were compared based on multiple methods (desk reviews, KIIs, field observation), form of data (quantitative or qualitative), sources of data, and levels of data (primary or secondary) or respondents. Data was organized to answer evaluation questions in the report.

LIMITATIONS

Initially, proposed data collection methods included focus group (FG) discussions with ECs and community members to assess the social component of the reforestation initiatives. Organization of focus groups proved to be difficult because the evaluation was carried out during Ramadan and field visits were conducted during working hours. Hence, the evaluation team had to substitute originally planned FGs with KIIs conducted with representatives of EC and community members in each locality (Annex II: Sources of Information, Key Informant Interviews). The change to KIIs limited the evaluation outreach to the community at large for its feedback on the social component of the evaluation question. Also due to Ramadan, the participants in focus group discussions (FGDs) were conveniently, not randomly, selected and therefore may not be fully representative of the population as a whole.

The project activities spread all over the country, and with limited time available the evaluation team was not able to visit all the sites of the project during the field trips. The evaluation team had 10 days for field visits while the project was implemented in 10 large sites located all over the country and more than 30 sites in partnership with NGOs, LAF, and the private sector. The evaluation team could only visit sites identified as representative sites (Annex III). Therefore, the situations of some particular sites might not be reflected in this report.

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

FINDINGS AND CONCLUSIONS BY EVALUATION QUESTION

Question 1: To what extent has LRI achieved its outcomes and stated purposes found in the signed agreements and agreement modifications?

Intermediate Result 1

Table 1. IR I: Capacity of Native Tree Nurseries Enhanced

Indicator	Target	Actual Achieved
Percentage of seedlings grown under advanced methods that meet LRI quality standards	70% by 2013 80% by 2014	78% by 2013[3]
Number of native tree nurseries that adhere to standardized protocols and procedures (custom report to USAID)	6 out of 9 by 2014	9 by 2014
Number of native tree nurseries mentored in business planning and development	6 out of 9 by 2014	9 by 2014
Creation of a nursery cooperative that meets regularly to discuss sustainable nursery practices and policies (milestone)	1	1
Number of beneficiaries from nursery technical information dissemination (datasheets, workshops, trainings)	40 per year	2011: 26 2012: 61

Based on the indicators achieved, field verification, and results of the interviews, it can be stated that Intermediate Result I has been achieved (see Table 1). The project provided training workshops on nursery techniques in the first and second year. In subsequent years, technical assistance was provided through regular onsite coaching by project consultants and project staff. Five visited nurseries confirmed that they received onsite coaching. Onsite coaching is not considered a formal output, but it has had a great effect on improving technical skills in native tree nurseries as stated by nursery owners.

Greatest achievements

The capacity of native tree nurseries has been strengthened through training in advanced nursery techniques, study tours, and access to the latest technology and equipment. A cooperative of native tree nurseries has been formed to share knowledge and enable better marketing of native tree seedlings. Document reviews and interviews with project staff found that native tree nurseries were able to produce a large amount of high-quality seedlings of many native tree species. Direct observation and interviews of nursery owners in five native nurseries visited found that these nurseries had good facilities, such as greenhouses, irrigation systems, and a range of sizes of containers, trays etc. These nurseries were able to produce well-hardened seedlings with a good root system within six months, whereas in the past it took one to three years. Annually, each nursery can produce between 100,000 to 300,000 seedlings of 2 to 25 native tree species. In

[3] No data available for 2014 as there were no planting activities conducted in the fall planting season in 2014. Seedlings produced in 2014 were planted in February 2015 but data was not available.

particular, nurseries can produce cedar and juniper seedlings, which are considered difficult to produce due to difficulties in getting seeds to germinate. The owners of native tree nurseries belong to the Cooperative of Native Tree Nurseries and regularly attend meetings in which they share nursery management experience and marketing strategies and decide on cooperative regulations.

Advanced nursery techniques have been successfully adopted and adapted to local conditions (ecological conditions and availability of materials). Direct observation and KIIs showed that high-quality seedlings were produced at a low cost ($0.5 to $0.75 per seedling, excluding infrastructure and asset cost), in a short time (six months), and with consumption of fewer media (less than half when compared to the older plastic-bag technique), were easy to transport and plant (with a lighter, well-developed root system), and were better adapted to natural conditions in reforestation sites than seedlings produced in plastic bags. It was noticeable through visits to a number of reforestation sites that the trees planted in 2012 are growing better than trees planted in 2011 under the same conditions. The seedlings planted in 2011 were produced using conventional techniques, while seedlings planted in 2012 were produced under advanced techniques. Key informants at the Ministry of Agriculture stated that the MoA is considering applying similar seedling standards to those introduced by LRI.

Least achieved

Trainings on business plan development for native tree nurseries were conducted for native tree nursery owners; however, native tree nursery owners have been unable to develop business plans after attending two trainings on business plan development in 2013 and 2014. Nursery owners did not deem business plans critical because in the last few years their seedlings were sold mainly to the LRI and LRI's partners, with any leftover seedlings transferred into large pots or bags and/or sold to individuals and municipalities for planting in gardens, roadsides, and/or recreation areas. As LRI was the main client for the nurseries, the latter relied on LRI to market their production. Adding to this the fact that in Lebanon the markets are not well defined and the demand is not planned ahead, without a business plan, the sustainability of the nurseries remains uncertain. Moreover, with the National 40 Million Forest Tree Planting Program,[4] there is a potential for a high demand for seedlings, yet there is no guarantee that the native nurseries will have access to this market.

The lack of a system for seed storage and quality control in the country could have an effect on the quality of seedlings and the capacity of native tree nurseries to produce seedlings on short notice. The project has provided native tree seed collection protocols without installing a verification system, so there is no way to verify that these seeds were actually collected according to the protocol. Most of the nursery owners collect an amount of seeds annually based on their assumption for the next year's demand. In case of a bad seed year or getting a purchase order after the seed collection season, nursery owners may miss an opportunity, as they do not have seeds ready.

[4] Roadmap 2030 The national 40 Million Forest Trees Planting Program: A practical guide to 7% increase of the forest cover in Lebanon. The program aims to plant 40 million trees in about 70,000 hectares of public land all over the country between 2015 and 2030.

Intermediate Result II

Table 2. IR II: Improving Tree-Planting Practices

Indicator	Target	Actual Achieved
Number of hectares of biological significance and/or natural resources under improved natural resource management as a result of USG assistance (F 4.8.1-26)	610 hectares	767,27 hectares
Total "advanced" tree seedlings planted (disaggregated by species, year, and geographic area); Report to USAID	450,000	539,360
Percent of "advanced" tree seedlings surviving after one growing season in targeted planting areas; Report to USAID	60% end FY12; 65% end FY13; 70% by end of project	56.54% 76.30% 76.30%
Number of people with increased economic benefits derived from sustainable natural resource management and conservation as a result of USG assistance (F 4.8.1-6)	8 guards, 80 short-term employees	2011: 6 forest guards and 130 seasonal employees 2012: 11 forest guards and 481 seasonal employees 2013: 11 forest guards and 114 seasonal employees
Number of individuals trained on outplanting practices	100	557

Based on achieved indicators, field verification, and KIIs, it can be stated that the Intermediate Result II has successfully been achieved (see Table 2). The project has systematically been able to achieve or surpass all the targets set for the chosen indicators. These outputs have transformed into consolidated outcomes as follows:

Greatest achievements

The project has successfully established 767 ha of tree plantations. The planted trees have a high survival rate and are healthy, as they were irrigated for the first two to three years and many sites are well fenced. According to the project baseline information, the survival rate of tree plantation in Lebanon was 25%. The first planting year, the project managed to achieve 56.54% survival for planted trees. The following years the survival rates were constantly 76.30%. (For details refer to the section titled "Factors enabling the achievement of the purposes and intermediate results.")

The project produced several advanced technical documents including "Native Tree Nursery Culturing Practices," "A Guide to Reforestation Best Practices," and "Firewise Lebanon." These documents provide solid knowledge for implementing the 40 million forest trees planting program.

Least achieved

Selection of reforestation sites did not consider habitat connectivity and did not confirm long-term security of selected land for forests plantation. For example, plantation sites in Maqne are in flat land located near residential areas, and sites like this have a high probability of being converted to other land-use purposes in the future.

LRI site selection procedure mainly sought to identify an area that is public land, with no land ownership conflict and approval for reforestation by the land owner (municipality or the Government of Lebanon) without assessing the long-term vision of socioeconomic development or considering the objectives of forest plantations. Objectives of forest plantations could include environmental protection, production of timber, non-wood forest products, cultural recreation, etc. and should have specific criteria that set its prioritization factors. For example, the criteria for the environmental protection objective could include the following: size of plantation area that ensures

an effective protection function, slope conditions of the site, location in watershed areas, protection of agricultural crop, availability of water, proximity to residential areas, conservation of some rare species, and sequestration of carbon. The site selection method adopted by LRI resulted in small and disjointed plantation areas established in Qlaiaa and Ainata municipalities which limit the environmental protection function of the plantation.

Documentation of the main factors that contribute to a high survival rate of the planted seedlings was insufficient. The survival rate of the planted trees varied between sites and species, even though according to the monitoring data the quality of seedlings and planting was good. Survival can be affected by other factors such as site-source (species and provenance) matching. In the project monitoring data, the amount of planted seedling per species was not documented and survival rate per species was not recorded. Therefore, it is impossible to know which species will better survive under what conditions.

Municipality capacity building in reforestation was not targeted and community participation was very minimal in some organizational reforestation models. Three organizational models of reforestation established by the project in particular showed low levels of community participation in reforestation activities:

1. **The project provided funds to a local NGO, which had an agreement with a municipality for using land.** The NGO establishes a tree plantation on the land and solely manages the site for three years before handing it over to the municipality. Moreover, in other sites, Bcharre for example, the NGOs did not even hire local people to plant trees.
2. **The tree plantations belonged to municipalities, though the municipalities were not primarily in charge of plantation establishment**. The project carried out plantations by directly hiring people to plant trees and to protect the plantations. The project also conducted monitoring and supervision of the planting and protection activities without involving the concerned municipalities.
3. **The project provided seedlings and technical assistance.** The project provided seedlings and training for municipalities or LAF members. Plantations were established and managed by municipalities or LAF. (This model is only applied for small-scale plantation sites, with planted seedlings ranging from 500 to 3,000 seedlings per site.)

Intermediate Result III

Table 3. IR III: Long-Term Mechanism(s) for Sustainable Forest Preservation and Reforestation Established

Indicator	Target	Actual Achieved
Growth in members of reforestation network	50 by end FY12; 100 by end FY13 150 by project end	At least 62 by 2015
Reforestation website developed with outreach potential	Website established with outreach potential by end FY13	English and Arabic websites
Identification and development of mechanism(s) to promote sustainable forest preservation and reforestation, including 1) identification of longer-term local and international funding sources and modalities, including private sector; 2) identification of longer-term reforestation TA providers and funding modalities; 3) identification and development of institutional model(s) for fundraising that are broad-based and politically neutral; 4) outreach to local and international constituency groups to promote the importance of longer-term reforestation funding	Last milestone by project end	N/A
Development of networking plan for practitioners, researchers, donors, and other stakeholders	1 by project end	N/A
Number of workshops conducted that link native seedling sellers and buyers (disaggregate by topic)	1 per year in FYs 13 and 14	2013: 1 2014: 1

There are many factors that affected the achievement of this outcome (see Table 3). Several activities were omitted for various reasons (they were no longer relevant, proved to be ineffective, etc.). For example, establishment of a forest management task force was considered ineffective and irrelevant to the project after the project was reoriented to work toward the community level. Furthermore, nursery certification was no longer within the project role.

Some activities under the core activity "financial and program transparency and outreach" were also ceased. Initially, the project intended to develop a reforestation fundraising mechanism that was approved by the Mission and was included in the 2013–2014 work plan under activity 2.1.1.1 "Propose possible longer-term financing and technical assistance mechanisms for reforestation in Lebanon based on unmet needs identified." The mechanism proposed by LRI, which entailed the creation of a new NGO, was not approved by the Mission; as such, this activity was not pursued by the LRI team.

Greatest achievements

The project website (http://lri-lb.org) is a bilingual (English and Arabic) website that provides valuable information, including technical documents and various interactive maps, on reforestation in Lebanon. The interviews with key informants from forestry-related organizations, the Ministry of Agriculture, and the Ministry of Environment revealed that they appreciated the project website and considered it a very useful tool for forest management in the country. The project website provides a great platform for reforestation stakeholders to coordinate and to share information and for educational purposes.

LRI established a link between the private business sector and reforestation organizations to support reforestation. In collaboration with municipalities and NGOs, LRI staff identified suitable plantation sites and developed plantation package (technical and financial required for three years). LRI

organized an event that brought reforestation organizations and private business sector together. During this event, plantation packages were presented and field visits were organized. Private companies and reforestation organizations further discussed collaboration possibilities. As a result, reforestation organizations have successfully raised funds for establishing 30 hectares of tree plantation in five locations.

Least achieved

Documentation of identified long-term mechanism(s) to sustain reforestation efforts was not available. It was not clear what stage each activity had reached as the staff responsible for the activity left the project. The Mission could not contact departed staff, and achievement of activity progress was not described in any reports (including progress reports). Several activities were removed from the work plan or were canceled. These include the creation of a forest management task force that was removed from the 2013–2014 work plan and the development of a nursery certification program that was canceled. LRI did not provide sufficient justification for canceling this activity.

Intermediate Result IV

Table 4. IR IV: Forest Biodiversity Protection Enhanced

Indicator	Target	Actual Achieved
Creation of Burned Area Reflectance Classification (BARC) maps (disaggregate by burned and high watershed value areas)	2 by end FY12	2 by 2013
Number of community volunteer fire response squads created (custom report to USAID)	4	4
Number and type of community awareness activities conducted on wildfire prevention	8	4 for squads 14 schools 2 for Firewise municipalities
Number of person-hours of training provided to LAF members on firefighting response (custom)	3,000 by end FY12	3,456 by 2012

The project has been able to reach most of the indicator targets (see Table 4). However, there is still a good deal of uncertainty regarding the sustainability of biodiversity protection. The indicators are output indicators rather than outcome indicators. The activities completed have yet to demonstrate that they will in fact protect biodiversity, and testing the hypothesis that these activities did effectively enhance biodiversity protection could be done through any follow-on project.

The wildfires being a major threat to forest biodiversity, fire management is crucial for biodiversity protection. The most comprehensive and bottom-up approach to fire management is Firewise; however, Firewise was only piloted in one municipality in 2014, with the concept being scaled up in two other municipalities in May 2015. Currently, most activities are still at the planning stage, and there is no certainty about their effectiveness and sustainability.

Greatest achievements

Fire-management programs have successfully raised the awareness of trained local people in the municipality where they have been implemented. Based on the interviews of mayors and members of fire response squads, it can be said that trained people are conscious of fire danger and the need to change their behavior, from letting forest fires happen so that they can collect charcoal to participating in firefighting. Fire-awareness campaigns were conducted in six municipalities: there was a campaign for members of four fire response squads in four municipalities and a campaign for pupils from 14 schools and community members of the other two municipalities. In some municipalities, community members removed fuel sources along the roadside, created three-meter-wide firebreaks in reforestation sites, and displayed fire ban signs in the fire-prone reforestation sites. Some trained

people said that prior to awareness-raising most people did not know what to do when in the vicinity of a wildfire, but now they know do.

The fire combustibility map and fire hazard map are invaluable tools for fire management in Lebanon. The University of Balamand developed a fire risk map for Lebanon based on the fire combustibility map, the fire hazard map developed by LRI, and a demographic map developed under the USAID-Partnerships for Enhanced Engagement Research (PEER) project in 2013.

Least achieved

Late fire-management intervention has led to poor integration between fire prevention and outplanting activities. Firebreaks were created after trees were planted and inflammable trees such as conifers had already been planted within and/or next to firebreaks. Furthermore, firebreaks were three-meter-wide strips that will not prevent fire from crossing.

The majority of community members were not targeted in the fire-awareness campaigns. In most of municipalities, fire-awareness campaigns were provided for members of fire response squads and school pupils. Interviews with mayors and forest guards revealed that fires were mainly caused by human activities such as burning agricultural residue, burning for grazing or for charcoal, and smoking. However, in order to be efficient and result in fire prevention, the fire-awareness campaigns should have mainly targeted or reached the people responsible for these activities, yet they did not.

Intermediate Result V

Table 5. IR V: Environmental Education and Community Engagement

Indicator	Year	Target	Actual
Number of person-hours of training in natural resources management and/or biodiversity conservation supported by USG assistance (F-indicator 4.8.1-29)	2	830	1589
	3	770	1,461
	4	440	497
	Extension Dec 2014	50	54

Project reforestation activities are ideally supported by environmental education to develop community awareness of forest management, including wildfire and forest biodiversity issues. Initially planned for implementation through education in schools, this activity was later revised to a process of community engagement, trainings, volunteering, and awareness campaigns.

It is clear from Table 5 that over the four years of project implementation, LRI project management has consistently achieved and exceeded planned targets for this indicator. According to project reports, there were larger numbers of training participants / person-hours primarily because there were a large number of students who participated in the environmental outreach programming. However, this IR/F indicator is an *output* rather than an *outcome* indicator and thus does not indicate the intended outcome of the different LRI project trainings. Also, this indicator does not differentiate the type and extent of the role of "community engagement" expected to be played by each community group following the training.

Greatest achievements

Project outreach to different community groups: The project was able to conduct outreach with environmental campaigns and implement awareness events and trainings with multiple community groups, such as municipal leaders, environmental NGOs, women, youth, and students. Additionally, planting and volunteering events were successful in bringing together more than one community and volunteer youth from distant cities to participate in planting and reforestation activities.

Awareness of the value of forestation and forest protection: All interviewed stakeholders—both at the community and national levels—confirmed awareness of the value of reforestation and forest protection for the preservation of the environment. Community events, volunteering campaigns, marathons, theatrical plays, roundtables, and training workshops managed to create an overall awareness of the critical importance of reforestation and forest protection for environmental preservation.

Least achieved

Public outreach limited to the 10 large reforested sites. The project planned and implemented community engagement and outreach for public awareness and education only in the 10 communities with large planting sites. This was implemented in accordance with the project work plan. However, LRI also implemented reforestation activities in around 30 other communities with different partners such as LAF, religious congregations, and NGOs. These communities did not benefit from supportive community engagement and education.

Effectiveness of the outreach and trainings outcomes has neither been identified nor appraised. The project neither identified nor implemented measures to monitor the effectiveness of the various awareness and training activities on the outcome of "instilling awareness and commitment to reforestation, forest protection, and wildfire prevention for each community group." Awareness of the various community stakeholders' groups for reforestation and forest protection has been achieved, but the type and extent of this awareness, commitment, and engagement for each community group has yet to be evaluated. In the absence of a more defined 'Outcome' indicator, the scope of the evaluation was limited to assessing if a general 'environmental awareness' was achieved.

A set of activities rather than a defined plan. The LRI work plan (revised 2014) proposed the development of "an outreach plan for public awareness of forest management, including wild fire and forest biodiversity issues in LRI-selected municipalities." The different community-engagement, education, awareness, and training activities (e.g., theatrical play, marathon and festivals, volunteering events, outplanting, scalping and weeding, roundtables, and training workshops) that have been implemented by the project are more of a set of diverse activities than a well-defined and integrated training plan with a specific objective associated with each community target group and built on a baseline and measures to monitor achievement of objectives.

Intermediate Result VI

Table 6. IR VI: Mapping of Reforestation Sites and Vegetative Cover Produced

Indicator	Target	Actual Achieved
Number of interactive web-based maps of Lebanon's forested sites or potential forested sites produced for educational and/or fundraising purposes available to the general public	8 by end FY12; 15 by end 2FY13; 20 by project end	At least 110 maps by 2015

The project has surpassed the Intermediate Result VI targets (see Table 6). Although there was no data available to assess whether the project has achieved the set targets in a timely way, a series of interactive web-based maps appearing on the project website had more than 8,000 visits between October 2013 and July 2015, which is evidence that this result has been achieved.

Greatest achievements

The project has developed a series of interactive web-based maps that allow users to view specific information such as vegetation, fire risk, reforestation sites, recommended species, climate change impacts on biodiversity and vegetation, etc. This system is a fundamental tool for managing natural resources in the country. According to key informants, the Ministry of Agriculture plans to develop a similar and compatible system under the National Forestry Program; if so, the two systems can potentially be merged in the future. This program is expected to launch in July 2015.

Least achieved

The accuracy of information on such topics as land ownership, geographic areas, recommended species, etc. on the interactive web-based maps is a major concern. In fact, these maps were developed for the entire country based on data generated through modeling methods using different type of information such as remote sensing images, meteorological data, historical data, etc. Moreover, while it is essential to conduct ground-truthing and field verification when carrying out reforestation activities in a new municipality, ground-truthing activities remained very minimal at the project municipality level.

Factors enabling the achievement of the purposes and intermediate results

Selecting the right partners and establishing good collaboration with them enabled the project to identify and improve the most-needed skills and techniques. The project has worked with various partners to build on existing capacity, such as working with existing native tree nurseries to introduce advanced nursery techniques, working with local NGOs to build on their reforestation experience, and working with universities to study and employ appropriate techniques.

The use of appropriate techniques combined with the provision of professional training for project staff, partners, and beneficiaries enabled the project to achieve good results. In particular, the application of GIS for planning, monitoring, and management of forestland and the introduction of advanced nursery techniques inspired (and increased the motivation of) staff and beneficiaries.

Native tree nursery owners were creative, open-minded, and willing to learn new techniques, and always strived to improve their knowledge and skills. One innovation that they have developed is a formula for using local available materials to substitute for imported growth media. Furthermore, native tree nursery owners showed a willingness to work together to strengthen their technical capacity and to promote new standards for seedlings.

The high survival rate of the planted seedlings is due to several factors, among which we cite the high quality of the seedlings, improved planting skills, and site-species matching. All these cited factors have changed over the life of the project and are assessed below:

- **Quality of seedlings improved**. The monitoring data shows that when sites were planted with poor-quality seedlings the survival rate was significantly lower (a survival rate from 16% to 45%). The low quality of seedling was due to various reasons, including poor storage, poor handling, and seedlings that were produced using conventional methods in 2011. When sites were planted with high-quality seedlings the survival rate was very high, ranging from 59% to 95%. High-quality seedlings are those produced by advanced techniques since 2012. Exceptions were in Kfarzabad and Baalbeck: in 2012, high-quality planted seedlings resulted in survival rates of 23% and 44%, respectively. In these cases, the low survival rate was associated with a lower planting quality (planting quality was estimated at 35% and 58% for Kfarzabad and Baalbeck, respectively) (see Annex VI: Quality of Seedling, Quality of Planting, and Survival Rate). Planting quality was assessed based on below-ground soil cover and above-ground finishing of a planted tree. A detailed assessment method was described in the monitoring protocol.
- **Planting skills improved**. Planting skills significantly affect the survival rate of planted seedlings. An experienced planter from Committee for Friends of Cedars (CFC) in Bcharre said that for members of CFC, seedlings produced by advanced techniques and seedlings produced by conventional techniques do not significantly differ in survival rate, provided that they are planted properly by experienced people. (However, he admitted that they do prefer seedlings produced by advanced techniques, as these grow faster after planting, need less water for irrigation, and are easier to carry to the planting site and easier to plant than seedlings produced by the plastic-bag method). The monitoring data shows that as the

quality of planting increases, the survival rate of planted seedlings also increases. There was an exception to this in Kfardebiane (planted in 2012) and Bcharre (planted in 2013), where the quality of planting was rated at 91% and 70%, respectively, but the survival rate was reversed, at 69% and 91%, respectively, even though seedlings of equally good quality were planted at both sites. Other factors could have affected the survival rate in these sites, such as site-species matching.

- **Site-species matching**. Site observation showed that in some reforestation sites the seedlings that survived were mainly conifers and these were healthy, while broadleaf seedlings were very few and mostly in poor health. Due to the high survival rate of conifers, conifer species were planted in replacement of dead broadleaf seedlings (Qlaiaa). This shows that conifer species were better adapted to site conditions than broadleaf species. In Rachaya, conifer species and some broadleaf species were very healthy, while most oaks (*Quercus calliprinos, Quercus infectoria)* were dead and the few survivors were in poor health. In Rmediyeh, only conifer species are surviving in the south aspect, while in the north aspect, both conifer and broadleaf species are growing well. Unfortunately, there was insufficient monitoring data for each species for the team to carry out a robust analysis of site-species matching. According to the project staff, the sample size was insufficient to allow collecting this information. The increase of the number of sample plots or of the size of sample plot from 19.625 m^2 (sample plot radius of 2.5 m) to 100 m^2 (sample plot radius of 5.62 m) would allow collecting data on the survival rate for each species.

Hindering factors resulting in non-achievement of the purposes and intermediate results

Modifications to the agreement affected several project components. The project has had six modifications. Of these, modification two and modification six comprised major changes; some of the components were revised accordingly. In particular, the modification of the scope affected the wildfire prevention and response component, which was later added to the forest biodiversity protection component. A poor integration of this component with the other activities has resulted from the fact that it was added after the other activities had been already initiated in most sites.

The progress of information system development and its coverage were affected and limited by the lack of participation of line ministries and by the limited availability of data in Lebanon, particularly maps and data on administrative land boundaries, land ownership, and land-use planning. As the project cannot use the available maps and other information (e.g., maps, land-use data) from line ministries, the project has to purchase remote sensing images and consume a lot of time verifying and developing new information, which increased the cost of the information system development.

Demand for native tree seedlings varies from year to year and depends on the implementation plans of reforestation organizations. They often do not have implementation plans for as far into the future as one year. As a result, owners of native nurseries do not have a clear idea of how many seedlings should be produced for the current year. The seedlings are often produced based on a rough estimate, and unsold seedlings are transferred into bigger pots or plastic bags and wait for buyers.

Tree plantations were established with high costs which might limit opportunities for wide implementation. The reforestation cost varied between sites and depended upon how much irrigation technology was involved. It was estimated that a planted tree costs between $2.26 to $12.46 USD, averaging $6.75 USD per planted seedling. The high cost of reforestation affected the scale of the project and may prevent the government from fully adopting the project tree plantation models for the national 40 million trees program. In comparison, based on information provided in the Safeguarding and Restoring Lebanon's Woodland Resources project report, the cost of reforestation in many developed countries and countries in the region usually does not exceed $2,000/ha/800 (or $2.5 per planted seedling). The MoE project Safeguarding and Restoring Lebanon's

Woodland Resources had various plantation trials, aiming to achieve tree plantation at the lowest possible cost so the country can implement the 40 million trees program. The project's trials indicated that a promising low-cost plantation model, which involves broadcasting seeds in sandy soil only, is less than $1,500/ha (or 800 seedlings per hectare, where cost per planted survival tree is less than $1.87 USD); however, it is still unclear whether this result can be applied in reality, as the system requires a large number of seeds and site-specific conditions.

The quality of seedlings was affected by storage, handling among the native tree nurseries, and location of nurseries. Specific issues included:

- Some nurseries remove the containers and keep seedlings in plastic bags, which are stacked horizontally in boxes before transporting them to the site. Monitoring data shows that seedlings delivered without containers often lose substrate and have a lower survival rate than seedlings delivered in containers.
- Some nurseries store seedlings for too long in cold storage at the end of the hardening phase. A native nursery in Ramlieh has stored 5,000 seedlings in plastic bags in cold storage since February 2015 (they had been there for about five months by the time of the evaluation) without knowing when these seedlings would be planted. Currently, the seedlings are rotting in cold storage while the cooling system is still operating.
- When a reforestation site was far from the nursery, seedlings were delivered one to two weeks before they could be planted. For economic reasons and to avoid multiple trips and higher transportation costs, seedlings were transported to the reforestation site by a truck containing 4,000 to 5,000 seedlings. In order to plant such quantities, it often takes one to two weeks. It may take longer if weather conditions are unfavorable.

Conclusion: The quantity and quality of the outputs produced are satisfactory, and the project has been able to reach or surpass the set targets for most of the indicators for the various planned outputs. In addition, many of the outputs have transformed into consolidated outcomes, though some outputs need more time to be effective and ensure sustainability in order for the team to state with confidence that outcomes have been met. Although the indicator "Number of beneficiaries from nursery technical information dissemination" did not meet the established target for 2013 and 2014, this non-achievement did not have a strong influence on the overall enhancement of the capacity of the native tree nurseries.

The project has successfully introduced a technical approach to reforestation in Lebanon. Project interventions have made significant influences to changing standards of seedling quality, introducing advanced seedling production techniques, establishment and maintenance of tree plantation, and application of GIS technologies for management of natural resources. The introduced knowledge has quickly been taken up by the project staff, partners, and local NGOs, and some of the results may even be applied at the national level.

Furthermore, the new information management system, which LRI introduced, functions as a great platform for networking between relevant organizations and agencies that need to plan and coordinate forestry and related activities, as well as a place to share experiences and lessons learned.

Finally, whereas LRI environmental awareness, education, and community-engagement activities have achieved and exceeded planned output targets (e.g., "number of person-hours of training in natural resources management and/or biodiversity conservation"), the outcome of these trainings with regard to instilling "commitment and engagement for reforestation, forest management and protection" was neither identified for each community group nor appraised.

Question 2: To what extent has the sustainable management of natural resources in Lebanon been developed?

- *Have key stakeholders and reforestation champions, support for community initiatives, and environmental awareness been identified?*

There are many organizations working on environmental issues at various levels, including international organizations, governmental agencies, universities, and local NGOs. As the setting of LRI prevented it from working with relevant government ministries directly, the review of LRI activities showed that project has been successfully working with universities and several local NGOs to research and implement activities at the municipality level, such as nursery improvement, tree planting, and the application of GIS technologies in natural resource and fire management. Moreover, the community-engagement component has led, with the assistance of a national NGO, roundtable discussions and workshops in 10 LRI-selected communities. This process has identified municipal leaders, key community members, youth clubs, NGOs, and volunteer activists with an interest in reforestation and forest protection and has conducted a stakeholders' analysis to engage them in community initiatives.

- *What is the outlook for sustaining the Cooperative of Native Tree Nurseries?*

The Cooperative of Native Tree Nurseries operates without a headquarters or facilities, and this might affect the long-term sustainability of the Cooperative. Since the Cooperative has been established, many activities have been successfully implemented, including organization of regular meetings for sharing knowledge, developing management regulations, and developing fixed seedling price regulations; however, all these activities were facilitated and supported by the LRI. It is unclear how the Cooperative will operate in the future absence of support from LRI since the Cooperative has no premises or facilities.

At present the market for native tree seedlings in the country is very limited. Most of the native tree nurseries owners stated that their full capacity production came about as a result of the project purchasing seedlings. Only a few nurseries have their own strategy for marketing seedlings. The native tree nursery owned by the CFC tries to raise funds for reforestation in its municipality and the committee has received a great offer to plant one million trees over the next 10 years from an overseas Lebanese (Alfredo Harb). This is the only nursery that sells more seedlings to other projects than to the LRI project; it will have a stable market for seedlings in the coming years. Other native tree nurseries try to sell seedlings to individual households and municipalities through municipality environmental programs. In general, each nursery could sell 5,000 to 10,000 seedlings per year while the capacity of each nursery is about 100,000 to 300,000 seedlings per year. The Ministry of Agriculture is preparing to implement the 40 million forest trees planting program. The program requires two to three million forest tree seedlings annually. In particular, as stated by one of the KI at the MoA, the Ministry may use the same seedling standard as the seedlings produced by the Cooperative. However, the Ministry may choose to produce seedlings from its own nursery. The technical capacity of the Ministry nursery is very limited and the quality and survivability of the seedlings are uncertain, but the seedlings it produces are often given free to municipalities

- *What evidence is there of the sustainability of the 10 planting communities to implement their five-year plans?*

In 2013, LRI implemented a participatory community-engagement process in each of the 10 communities where reforestation works were already ongoing. This process aimed to facilitate the development of a community-engagement five-year action plan designed to guide future activities within the framework of LRI three objectives: 1) protecting existing planting sites so they become thriving forests; 2) promoting community-led programs that replicate tree planting sites on private and municipal lands; and 3) supporting a community "multiplier" effect from the tree planting sites such as ecotourism, environmental education/awareness, parks, and recreational activities. In addition, the community engagement component facilitated the

formation of ECs within municipal councils and empowered these committees with trainings on Project Cycle Management, Project Design and Proposal Writing, Fundraising, and Feasibility Study. The evaluation findings on the likelihood of the 10 planting communities being able to implement their five-year plans are summarized below:

Likelihood of communities protecting LRI forested land is above average. Field visits to LRI-reforested plots of land revealed that seedlings are still irrigated[5] and most forested plots are protected by fences and by signage against trespassing. Guards, originally paid by LRI, are at work in most sites to protect against trespassers. Additionally, mayors interviewed mentioned that agreements were reached with goat herders whereby alternative plots of land for grazing were made available to them. Site visits confirmed that most of these protection measures were applied in most, if not all, sites, equally. Weeding to protect reforested sites from wildfires is still a problem, however. More than one mayor complained that this season late rains caused weeds to continue to grow and had agreed to implement measures to eradicate them.

Likelihood of community sustaining implementation of five-year plans is poor. Besides protection of LRI-reforested lands, the five-year plans also involved the two other objectives noted above: "Promoting community-led programs that replicate tree planting sites on private and municipal lands;" and "Supporting a community 'multiplier' effect from the tree planting sites." The likelihood of community-led programs being able to implement these objectives is poor in light of the following field evaluation findings:

- With the exception of Bcharre Cedar Forest Reserve and Tannourine Nature Reserve, none of the visited communities has planned, are in the process of planning, or are actively seeking funding (outside of LRI) for the implementation of any of the activities listed in their five-year plans under the two objectives.
- With the exception of Makneh and Ainata, which displayed on their respective walls a copy of the five-year plans, none of the visited municipalities[6] was able to provide the evaluation team with a copy of their five-year plan. One municipality, Rmediyeh,[7] allegedly never received a copy of its own plan from LRI.

Interviews with members of some ECs revealed that these committees are rarely meeting officially and that these meetings are not regularly scheduled with specific items on the agenda. Additionally, the responses of those interviewed as to the subject matter or agenda of their meetings were general and never mentioned new community-led initiatives in reforestation, forest protection, or awareness raising.

- *Prospects for scaling up cooperatives and planting communities:*

The existing production capacity of the Cooperative of Native Tree Nurseries is sufficient for seedling demand in the near future. The Cooperative consists of nine native tree nurseries located in all regions of the country. The production capacity of nine nurseries is about two million seedlings per year, while the country reforestation program will require about two to three million seedlings per year.

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[5] Most of the plots are adequately irrigated or the interviewed mayors confirmed they will be irrigating the seedlings in the coming period.

[6] The evaluation visited six out of the ten main communities/planting sites. Qlaiaa is currently experiencing a conflict between the current mayor and the mukhtar. The mukhtar had coordinated reforestation works with LRI during the mandate of the previous mayor.

[7] A list of people interviewed in Rmediyeh in addition to the deputy mayor is found in Annex V.

All interviewed mayors of communities visited during the field evaluation confirmed availability of land suitable for reforestation within their municipal cadastral zones and expressed interest in continuing cooperation with LRI and expanding reforestation in municipal land. LRI outplanting staff were also positive in terms of prospects for expanding planting communities, as new plots have already been assessed and determined appropriate for reforestation.

Conclusion: The project has established a strong partnership with local agencies for the implementation of its activities and has collaborated with international agencies for disseminating lessons learned. The success of the project's activities has been brought up to Ministry level through collaboration with international agencies for organizing knowledge-sharing events. The project was also successful in the identification of local stakeholders and key reforestation champions at the community level.

As a result of the lack of headquarters and facilities of the Native Tree Nurseries Cooperative, it is more likely that any client will directly deal with its member for purchasing seedlings rather than with the Cooperative. This may affect the long-term sustainability of the Cooperative and its role may be negatively impacted. Premises and facilities are important for the Cooperative to show its own identity independently from any of its members. It will require further expenses, but the business plan of the Cooperative should foresee such expenditures.

With the 40 Million Forest Trees Planting Program, there are certainly prospects for high demand for native tree seedlings in the future; however, the Cooperative of Native Tree Nurseries might face obstacles in accessing such a demand. Given that the Ministry has its own nursery with a large production capacity, this poses a threat and challenge to the demand for seedlings from the native tree nurseries.

The prospects for scaling up planting communities are encouraging. Still, it is prudent for LRI to first confirm that municipalities are able to cover costs for later irrigation and protection. Additional reforestation will also mean an additional burden on the municipal resources of these municipalities.

Question 3: What impact did LRI have on the reforestation sector generally and specifically on:

- *Reversing environmental degradation by reforesting previously forested grasslands, shrub-lands, and areas burned by wildfires?*

It is too early to quantify the impact of the project's effect on environmental degradation, as project outputs are achieved over a relatively short time, between one and three years, while the rehabilitation of degraded land can take decades. Planted trees that flourish at first sometimes die after three to five years. There is certainly the prospect of environmental rehabilitation. So far, most of the project reforestation sites visited have a high survival rate (for specific data by planted site, refer to Annex VI: Quality of Seedling, Quality of Planting and Survival Rate) and consist of healthy and well-protected planted trees. Field observation showed that there has been considerable natural regeneration of healthy, high-density tree species in many reforestation sites as a result of abandoning grazing use and controlling wildfires. This mixture of planted trees and naturally regenerated trees promises high biodiversity and well-adapted forests in the near future.

- *Community engagement to protect the community environment?*

Community-led restoration of watershed-level forest bio corridors. LRI introduced a community-engagement process to reforestation. This process facilitated identification of the challenges that previous reforestation efforts faced and assisted the project in successfully addressing them through, for instance, public environmental awareness efforts, agreements with goat herders to

prevent grazing on newly forested land, protection and irrigation measures with municipalities, and planting campaigns by local volunteers to facilitate local ownership of the planted sites. The project has only recently (January 2015) engaged in the strategy of expanding forested land into bio corridors and the impact has yet to be determined.

- *Private-sector engagement through native tree nurseries and private-sector support for outplanting;*

Interviews with native trees owners and/or managers revealed that private native tree nurseries have changed their marketing strategy from treating others as competitors to treating others as collaborators. This will provide a better opportunity for sustaining private native tree nurseries. Previously, there was no collaboration among native tree nurseries as they considered others competitors. However, since these native tree nurseries were formed as a cooperative of native tree nurseries, nurseries have started working together and collaborating to strengthen their technical capacity and to promote new standards for seedlings. If the new seedling standard is adopted by the MoA and considered as a requirement by organizations to fund the National 40 Million Forest Trees Planting Program as mentioned by a key informant, opportunities will be opened up for the nurseries.

Project piloted an effective approach for private-sector engagement. LRI engaged five private-sector partners (Dar El Handassah, Holcim, La Phenicienne Insurance, Byblos Bank, and Tinol Paints Int'l) and raised $170,000 to plant 30 hectares of land.

LRI efforts at private-sector engagement were not pursued beyond the pilot phase. Interviews with private-sector companies that engaged with LRI revealed that, overall, these companies were satisfied with 1) the reforestation projects; 2) their company's contribution to the environment/reforestation sector; and 3) the role that LRI played and continues to play in technical assistance, monitoring, and networking between the partners. Furthermore, these companies confirmed their willingness, if solicited, to consider funding similar future reforestation initiatives. In short, LRI demonstrated a promising potential in private-sector funding of reforestation initiatives, but LRI efforts in this area were not pursued any further.

Institutionalization of a mechanism for private-sector funding has yet to be determined. The establishment of a reforestation fundraising mechanism was approved by the Mission and included in the 2013–2014 work plan. For this purpose, the LRI project had planned the formation of a foundation to sustain fundraising efforts and to institutionalize a mechanism for private-sector engagement in reforestation. In order to avoid the creation of yet another organization the Mission did not approve the proposed mechanism, and the activity was not pursued. According to LRI staff, the project is now looking for alternatives to sustain fundraising efforts and private-sector engagement by considering existing organizations that can take on this responsibility in the future.

- *The impact of advanced planting techniques, resulting cost/benefit, and outplanted seedling survival on reforestation?*

Application of advanced planting techniques resulted in varying costs for planted seedlings; cost depended on employed techniques and site conditions. The cost of each planted seedling ranged from $2.26 to $12.46 per seedling. (The average cost of each planted seedling was $6.75). This cost is much higher than that in most developed countries of the world and countries in the region, where it usually does not exceed $2.5 per seedling. However, it is much lower than the cost estimated by MoE ($8.67 per seedling) as stated in Safeguarding and Restoring Lebanon's Woodland Resources Project. The cost of a planted tree includes its irrigation system, fencing, seedling cost, labor, and equipment. The average cost of irrigation is $2.34 per seedling (min $0.23 - max $6.26 per seedling). The average fencing cost is $1.02 per seedling (min $0 - max $5.12 per seedling). The average seedling price is $1.24 per seedling (min $0.91 - max $1.30 per seedling). The average cost of equipment and labor is $2.15 per seedling (min $0.72 – max $5.79 per seedling). The cost of each surviving planted seedling was much higher, averaging $10.23 per seedling (min $2.45 - max $61.68 per seedling). (Annex VII provides a detailed cost of planted

seedling in the 17 largest plantation sites). The cost varies between sites and infrastructure installation. Notable cost differences between sites are in irrigation and fencing. Irrigation cost was very different between hand-watering and dipping systems. Fencing cost varied because of site conditions and material used.

Among the project plantation sites, high planting cost did not result in a high survival rate. Plantations in Qlaiaa and Ainata have the highest survival rates at 96.46% and 83.18% respectively, while the cost of planting per planted seedling was $4.15 and $2.26 per seedling, respectively, and the cost per surviving seedling was $4.25 and $2.45 per survived seedling, respectively. Refer to Annex VII for a breakdown of cost of planted seedling, cost of surviving seedling and rate of survivability by municipality.

Conclusion: The project delivered on its required outputs, and the result is that there is now a solid knowledge-based foundation for reforestation activities and the management of natural resources in the country. Local stakeholders have had their technical capacity strengthened to the extent that they can now confidently establish tree plantations on degraded land. Currently, most of the trees planted at the sites are growing well and are likely to become good plantation forests if they are well protected, especially from wildfire and grazing.

The current approaches to reforestation were mainly introducing techniques to reestablish forests in Lebanon. We could not sufficiently assess whether the approach would be affordable for the country. Moreover, the involvement of local people was very minimal, though in order to ensure that previous deforestation drivers will not come back again and that established plantation forests will be sustainably managed, the local community needs to be actively involved in every step of plantation establishment.

Community engagement has increased seedling survival chances and thus the potential of the reforested land to grow into a forest. However, it is still too early to assess the impact of community-led restoration of watershed-level forest bio corridors.

LRI management and technical assistance successfully brought together private-sector companies, NGOs, and forest reserves engaged in reforestation, with municipalities in a viable PPP scheme. The piloted system for PPP for reforestation of degraded forestlands was an operational system and an effective approach for private-sector engagement in sustainable reforestation.

Question 4: What are the prospects for the sustainability of LRI's activity results?

- *Which results show the best prospect of being sustained and why?*

  - Currently, seedlings produced under the project standard are considered as being of good quality for reforestation. A key informant from MoA said the Ministry will likely apply the advanced techniques advocated by LRI to its own seedling production. Advanced seedling production techniques will remain in the country as Lebanon is preparing to implement its program to plant 40 million forest trees. This program requires two to three million seedlings annually for the next 15 years. The Ministry will either purchase seedlings from the Cooperative of Native Tree Nurseries or hire technicians from the Cooperative to work in its nursery.
  - KII revealed that municipalities and local people appreciate the plantation sites established by LRI. Field verification confirmed that most of the plantation sites are well-fenced, making the follow-up management manageable for most of the municipalities. Thus, the plantation sites will

be properly managed by the municipalities. Large municipalities such as Rachaiya are able to pay for forest guards who protect and irrigate the newly planted trees, while small municipalities have to organize volunteer workers for irrigation (or they don't irrigate). If trees are not protected and irrigated, the density of the resulting plantation forest might be low. Another potential threat is wildfire in fire-prone municipalities. These municipalities do have fire response squads, and in the last few years these squads provided an effective and timely response to wildfires. One exception was a site in Rachaiya, where wildfire damaged about 10 hectares, and the fire response squad could not access the site because of army operations there.

- According to the Director of Rural Development and Natural Resources, the MoA appreciates the system and considers having a similar system under its National Forestry Program. This KI stated that the Ministry will either develop a compatible system that will be able to merge with the LRI system in the future or use the LRI system itself. The resources for sustaining this system were not identified by the informant.

Conclusion: The likelihood of communities of protecting LRI forested lands is above average due to the fact that initial high costs for protection—fences, signage, and irrigation systems—was covered by LRI. Costs for maintaining protection measures and regular irrigation for the coming two to three years can be covered by municipalities from municipal budgets. This is the case especially with large municipalities that access larger amounts of transfers from the municipal fund.

The prospects of the communities (besides the two forest reserves) expanding on LRI reforestation initiatives without LRI external support are very dim. Protection of lands reforested by LRI is sustained mainly by municipalities and from municipal budgets. Should a change in mayor bring a candidate not in favor of his predecessor's work, even this protection can be endangered, as the new comer may refuse to engage the same persons in these activities. It is safe to say that the community-engagement activities have not *yet* brought about much change with respect to self-engagement of communities in reforestation outside of LRI support.

Finally, the project's information management system is a great platform for the government to coordinate forestry and its related activities with relevant agencies and to share knowledge and thus will likely be retained or adopted by the MoA.

Question 5: What evidence is there that social cohesion has improved as a result of reforestation projects in identified communities?

The LRI project reported unintended outcomes that resulted from community-level reforestation initiatives. Through undertaking joint reforestation efforts, participation in trainings, awareness raising, and volunteering events, the project united different communities and groups around one common issue—the environment. According to project reports, "Such nonpolitical efforts improve livelihoods and promote stability for communities and regions previously torn apart by sectarian conflict and facing the increasing pressures of the Syrian refugee crisis."

Following successful attainment of intended and unintended results, the project was extended for a six-month period to build and expand on these achievements. The six-month extension period was designed to expand reforestation initiatives by establishing watershed-level forest biocorridors in selected areas and through participatory community reforestation "twinning" to promote sectarian harmony, notably in host communities. Evaluation field research into evidence of improved social cohesion as a result of LRI reforestation projects revealed the following:

Anecdotal testimony. Collecting evidence of enhanced social cohesion that resulted from LRI project interventions proved to be quite a challenge. Attempts to elicit evidence based on stories of social cohesion impact were mostly ineffective, as people found it difficult to express with examples or tangible stories the value of the interactions created by the project. Additionally, time and other constraints[8] allowed the team to meet and interview only a limited number of people during the evaluation field visits. Nevertheless, few as they may be, interviewed stakeholders reported consensus, a sense of shared purpose, and, at times, enthusiasm as a result of participation in LRI public awareness events, such as planting campaigns, marathons, and theatrical plays. An example of interaction that did not exist prior to LRI is the theatrical play that brought together children from Ainata (a rural Christian community located at high altitude near the Cedar Mountain) and children from Makneh (a Shiite community in the Beka'a, located an hour and a half from Ainata). An Ainata municipal staff member reported that Ainata children were totally taken aback by the fact that they were actually sitting next to children with names such as Ali and Mohamed.

Twinning increased interaction and enhanced support between communities. It is still too early to assess the extent of impact that twinning will have on the twinned communities in terms of social cohesion since this initiative started just over six months ago and few joint public activities have been implemented so far. According to KIIs, twinning has increased interaction and enhanced support between the two communities, mostly on matters related to reforestation and management of their MOU with LRI. Interviewed mayors of twinned communities reported an increase in communication, a sharing of technical support and experiences between the mentor and the mentee. Most importantly, during the interviews, mayors and EC members relayed a sense of pride at engaging with the program, a feeling of belonging to a group whose members are invited to trainings and are jointly working to improve and protect their community environment.

Twinning potential for cohesion with refugee groups is weak. LRI piloted a twinning initiative in four communities. Kfardenis was twinned with Rachaya, and Rmadieh was twinned with Saddiqine. Visits to these four communities and meetings with the mayors and some of the community activists showed that for reasons listed below, the twinning potential to create cohesion between host communities and refugee groups is very weak.

- *Attitude of municipal leaders.* Mayors are instructed by the central government to monitor and record the presence and numbers of Syrians in their community. Syrians have to register at the municipality where they are given a document confirming their registration at the municipality. Thus, mayors think that their role is *to control and regulate* the presence of these refugee groups in their community and to address any potential for conflict that may arise. The most that mayors of twinned communities are willing to accept is the *attendance* of refugees to community reforestation events rather than having them participating in the decision making.
- *The project's selection of twinned communities relied first on the possibility of watershed-level forest bio corridors and second on refugee presence.* Twinned communities do not have, according to mayors, very large numbers of Syrian refugees relative to host community members and also have not experienced (so far) serious conflicts between Syrians and Lebanese hosts. It is notable that the majority of the twinned communities' refugee population are seasonal workers usually hired on a short-term basis for agricultural work. Due to the war in Syria, these workers brought along their families for security concerns. For mayors, the main concern lies in the fact that this inflated population is taxing on community resources, mainly water and waste collection.

[8] Noted in the evaluation limitations.

- *Challenges of social cohesion.* To assess other actors' experience of social cohesion, the evaluation met with and interviewed the United Nations Development Program's (UNDP) Social Stability Sector Coordinator and Save the Children, an NGO that implemented a project aiming to "increase social cohesion" through the provision of short-term work-income opportunities to both Lebanese and Syrian refugee groups. Both respondents confirmed difficulties and challenges in "actualizing" social cohesion between Lebanese and Syrian refugees. Various projects and donor-funded attempts at social cohesion were met with limited success. These NGOs and projects now aim to instill and/or maintain "social stability" between hosts and refugee communities rather than social cohesion, which proved difficult to attain in the current economic, political, and security environment. Another challenge faced in the UNDP's Social Stability Sector Coordination group is the identification of appropriate indicators—evaluation measurements for social stability. NGO participants in the sector coordination group have used different systems for assessing social stability. These systems often produced different and at times conflicting results for the same community. To address this challenge, UNDP designed a unified questionnaire to evaluate community social stability. We will cover UNDP indicator system in the Recommendations section.

Social stability versus social cohesion. The Lebanese Ministry of Social Affairs (MOSA), which is coordinating on behalf of the Lebanese government with the UN Protection Working Group for Syrian refugees, requested that the term *cohesion* be replaced with *stability*. Seemingly, the reason for change is to avoid sensitive connotations associated with *cohesion*.[9] Other relevant updates in this sector that need to be highlighted in this report are the newly instituted government regulations that control Syrians' presence in Lebanon. Syrians in Lebanon now fall into one of two main categories: 1) registered with the United Nations High Commissioner for Refugees (UNHCR) as displaced, not refugees,[10] signing a pledge not to work in Lebanon and benefiting from UNHCR assistance and 2) "foreign laborer,"[11] sponsored by a Lebanese to work in Lebanon and thus neither qualify to register with UNHCR nor benefit from assistance.

Potential for conflict. LRI reforestation activities provided opportunities for short-term labor/income opportunities. In rural areas where work is seldom available, these opportunities can be the cause for conflict over who will be working in LRI outplanting (and thus earn income). The interviews with both Qlaiaa mayor and mukhtar revealed that this is in most likelihood the cause for the current conflict in Qlaiaa between the mayor who wants to recruit his own team of out planters and the mukhtar who coordinated the previous outplanting team with LRI.

> **Conclusion:** The LRI reforestation and forest protection initiatives enhanced interaction and support between diverse communities and groups around a common issue. The extent of how much this interaction developed into social stability is difficult to assess without an initial baseline assessment and indicator system. The project's attempt at persuading mayors to include Syrian refugees in the community-engagement process was doomed to fail and is risky at best in consideration of the current "high alert" security and political environment. Presently, there are no indications that the twinning will have a positive impact on social stability between host communities and Syrian refugees.

[9] *Cohesion* can be misconstrued as a precursor to the eventual integration of Syrians in Lebanon.

[10] Lebanon is not a state party to the 1951 Geneva Convention relating to the Status of Refugees or to its 1967 Protocol.

[11] A list of requirements for Syrians to reside in Lebanon can be found on the UNHCR Lebanon website.

Question 6: Did LRI enhance a more active environmental awareness and economic involvement of women in the communities where the activities were implemented?

Project enhanced women's access to leadership positions. LRI opened access for women to participate in all project activities, more specifically membership in the municipal ECs. These committees, which were formed in 2013, aim to support mayors / municipal councils in reforestation and forest protection work and coordinate with LRI for community environment–related activities and events. According to project reports: "The environment committee members are identified after the workshop, and that to be one member from the municipality, and another three interested people from the community, among them at least one woman." Furthermore, interviewed EC women members reported having equal status as men in committee meetings and during committee discussions.

The project also provided opportunities for local women—environmental activists and via environmental NGOs—to play an active role in the reforestation of community land. Such is the case in Majdel Ba'ana, where women activists have coordinated reforestation efforts between LRI, LAF, and Majdel Ba'ana municipality. In Makneh, a women activist found the ideal opportunity to support her community's environmental efforts through the project by participating in municipal EC and coordinating LRI activities there. Finally, a women's environmental NGO in Kfardebian was able to enhance its leadership position within the community as a direct result of cooperating with the LRI project in reforestation activities. Though some women leaders have emerged as a result of LRI reforestation initiatives, this number is still comparatively small. According to project records,[12] LRI formed 10 ECs for the 10 main planting sites. The total number of members in the committees is 34, of whom 25 (74%) are men and only nine (26%) are women. One EC, Tannourine, is entirely composed of male members (five total).

Project facilitated access to women in project activities. In addition to encouraging the participation of women in environmental committees, LRI opened access to women for participation in all project activities with invitations to events including the following note: "LRI encourages women's participation in the workshop/training". Project's activities included community roundtable discussions, training events and workshops, volunteering campaigns, and marathons. LRI's indicator for "number of person-hours of training in natural resources management" is not disaggregated by gender, and thus does not report on percentage of women to men participants in LRI activities.

Project constraints to women's economic empowerment. The LRI project provided short-term and at times longer-term economic opportunities in the 10 targeted communities. These opportunities consisted mainly of short-term labor for planting tree seedlings during reforestation and employing forest guards for a limited period of time, following which the guards will be contracted directly by the municipality. Both of these projects produced economic opportunities that are, according to interviews with community activists "hardly suitable for women" and thus did not open much access for economic empowerment. Inquiries with project staff, validated in community interviews, confirm the attitude of women as well as men on the general inappropriateness of these jobs, which produce physical stress and are not readily accepted as viable work for women. There were some exceptions, though: in Ainata, Rmadieh, Maqne, Qlaiaa, and Tannourine a total of 22 women (out of a reported total of 725 seasonal employees)[13] participated

[12] A list of LRI ECs can be found in Annex VIII.

[13] LRI PMP indicators and targets are until the end of 2014.

in outplanting and monitoring activities and earned short-term income. The share of women who reaped economic benefits from the project is small.

Project constraints to women in decision making. LRI's community-engagement strategy has clearly formulated the aim of empowering the municipality, the government entity in charge of development of the locality. Decision making at the municipal level is legally the prerogative of the mayor or municipal council. Mayors of LRI-targeted communities are without exception men. The ECs, where women have been involved, are more of a consultative body to the mayor and do not have effective decision-making powers except as delegated by the mayor. Though LRI has opened access and provided space for women's involvement in leadership positions, these positions are still coordinating rather than decision-making activities.

> **Conclusion:** The project enhanced a more active involvement of women in environmental awareness and marginally in economic activities. The project facilitated women's access to leadership in local area forest management through the ECs and the project's consultative process, but decision making is still the prerogative of the mayor or municipal council. Most importantly, facts inherent to LRI livelihood opportunities (outplanting) have "culturally" inhibited women from participating in and benefiting from economic/income-generating activities. The team found it difficult to assess the extent of women's empowerment in LRI as the project did not set targets against which to measure.

RECOMMENDATIONS

Technical Aspects

Selecting reforestation sites by means of participatory land-use planning will enhance the sustainability of plantations and enhance plantation habitat connectivity. A land-use plan can be developed with the participation of local people, particularly landowners. Land use can be designed at the landscape or municipality level. Each type of land use / land area should be set clearly as a land-use option for a certain time period. Reforestation sites should be selected based on a set of criteria to ensure that the land is earmarked for the purpose of long-term reforestation.

The objectives of particular reforestation sites should be specific and set for both the short and long term and agreed to by community members. Private land owners should be encouraged to share their land-use vision and land-management objectives in order to assess the potential for setting common land-use objectives. Habitat connectivity in the region could be enhanced if private landowners were willing to reforest their land next to public reforestation sites.

Any opportunities to reduce the cost of setting up a plantation should be taken, and potentially low-cost sites should be given priority for reforestation. The current cost of a plantation varies ranging from $2.26 to $12.46 per seedling. The cost of a plantation includes the cost of labor, equipment, irrigation, fencing and protection; irrigation and fencing share 50% of the total cost. Making use of appropriate irrigation techniques will improve cost-effectiveness—for example, hand watering, which is much cheaper than a drip system—while still producing a very high survival rate. The project should also study the "no irrigation" option for certain types of soil such as sandy soil. The selection of appropriate sites could mean that no or only low-cost fencing is required. Furthermore, selecting sites that have good potential for natural tree regeneration will mean that only a low density of planted trees is required to result in good forest cover.

Any opportunities to increase the survival rate of planted trees should be taken. Apart from appropriate measures introduced by the project, there are several other opportunities to increase survival rate of planted seedlings, including a) ensuring quality of seedlings delivered on sites, especially seedlings delivered in containers, b) improving coordination between seedling delivery and planting activities, and c) increasing the number of tree planters when a large amount of seedlings is received.

Reforestation and fire management and prevention should be integrated further. All reforestation sites are dominated by conifer species, and these are especially vulnerable to fire. As such, designing an appropriate fire prevention system, especially a firebreak system, is very important. A firebreak system should be designed as part of every large-scale reforestation site and be designed to prevent fire in the long term. Inflammable species should not be planted near firebreaks and, if possible, fire-resistant species (both tree and shrub) should be identified and planted in firebreak belts.

Networking and Fundraising

The project should resume its private-sector engagement, further improve the PPP mechanism, and raise additional funds for continued reforestation in regions not currently targeted in LRI-selected sites. Meanwhile, LRI ought to continue its search and assessment of national organizations that are interested and willing to host and sustain this effort in the future. Considering the difficulty in identifying a commonly perceived "national organization," LRI might consider in the next project phase to assess the potential and willingness of the Cooperative of Native Tree Nurseries (already established by the project) to be entrusted with this PPP fundraising mechanism. LRI will build the capacity of the Cooperative for private-sector engagement and assist the Cooperative in establishing internal project management systems to monitor and sustain reforestation and fundraising mechanisms.

Strengthening the reforestation network will enhance the capacity of the Cooperative of Native Tree Nurseries. The reforestation network will be a great platform for the Cooperative to promote its products with reforestation organizations, particularly with decision makers and influential organizations such as donors, UN agencies, and Ministries. Furthermore, networking events will help the Cooperative to understand potential seedling demand and possibly to forge links with reforestation organizations.

Community Participation

The municipality should be primarily in charge of reforestation and management activities. The project should play a minimal role in the management of plantations in order to build the management capacity within the municipality and encourage the municipality to take ownership responsibilities. However, the project should play a central role in technical support and supervision to ensure quality achievements.

It is important to identify and pilot mechanisms that encourage private landowners, and the private sector generally, to reforest on private land. This will be a way to speed up forest cover and to ensure that reforestation sites are properly managed. Reforestation has been more successful on private land than on public land in many developing countries.

It is recommended that the project amend its community engagement approach to improve community self-engagement and, consequently, the sustainable management of natural resources. Following are possible suggestions to be considered:

- Expand and formalize Environmental Committees: Expand EC membership to include a wider base of community volunteer leaders, local NGOs, and environmental activists. Municipal councils *should formalize the formation and internal workings of this committee* by formal decree. It is deemed that this committee, when formed and formalized, can potentially survive a change of mayor and municipal council.
- The EC should have equal signatory status to the MOUs currently signed by LRI and the municipality (represented by the mayor). MOUs should specify the responsibilities of each of the three parties to the agreement (LRI, municipality, and EC on behalf of the community). Examples of EC responsibility include conducting awareness and volunteering campaigns; monitoring the protection of reforested land; and educating youth, students, and community members on fire risks and fire prevention and response. Training and capacity building of ECs should be conditional and include specific deliverables post-training that are related to the training topic, e.g., writing a project proposal when the training is on proposal writing, developing a fundraising campaign, or conducting a festival/environmental campaign.

Social Cohesion/Stability

LRI's approach to social stability—between community groups, with neighboring communities, and with Syrian refugees—follows the roundtable approach to jointly work with community leadership to identify impediments and challenges to social stability particular to each community or group of communities. Following this assessment, activities designed to improve social stability would be formulated jointly with local leaders of host communities, possibly using the reforestation activities as the convener.

Conduct baseline assessment and design indicators to track and measure social stability. A possible monitoring system is Knowledge, Attitudes, and Practices (KAP), which measure change across a set of indicators. These indicators can be adapted to measure social change. Another suggested system is the one developed by UNDP for the Protection Working Group of NGOs working with Syrian refugees. This system tracks change in social stability across 18 indicators that measure tension and

cover seven main social categories. A copy of UNDP's Rapid Tension Assessment Tool is attached in Annex IX for reference.

Care is needed in future LRI projects to avoid possible sources of conflict by adopting an objective and transparent process for selecting and recruiting outplanters to avoid claims of nepotism. LRI should follow up with the UNDP Protection Working Group to share experiences on effective and not-so-effective approaches and receive updates on the legal and relevant country context.

Women's Empowerment

The team recommends that USAID/LRI future projects make better use of women's inherent potential to improve economic benefits and enhance the leadership role of women at the community level. For example, women are ideally positioned to implement house-to-house awareness campaigns, to educate students and children, and to monitor residents and local community conformity to forest protection measures. This can be done by training women trainers / community mobilizers in each locality and planning with them how to disseminate awareness messages to the various community groups and/or how to monitor forest protection. Moreover, LRI needs to expand women's participation in ECs and develop targets and indicators for women's social and economic empowerment.

ANNEXES

ANNEX I: EVALUATION STATEMENT OF WORK

LRI Evaluation SOW.docx

ANNEX II: SOURCES OF INFORMATION

1. Key Documents Reviewed

Type of Document	
1. Contract & Modifications	USFS Agreement
	Modification 1
	Modification 2
	Modification 3
	Modification 4
	Modification 5
	Modification 6
	Project description—6 months extension
2. Work plans & PMP	LRI Strategy, Work Plan, Budget and Project Monitoring Plan (May 26, 2010)
	LRI Revised Program Strategy and Work Plan October 2010–September 2012
	LRI Revised Program Strategy and Work Plan October 2013–September 2014
	LRI Performance Management Plan (December 5, 2012)
	LRI Baseline and Targets; January–March 2014
	LRI Baseline and Targets; July–September 2014
3. Progress Reports	January – –March 2012 (final)
	April – –June 2012 (final)
	July – –September 2012 (Final)
	October – –December 2012 (Final)
	January – –March 2013
	April – –June 2013
	July – –September 2013
	October – –December 2013
	January – –March 2014
	April – –June 2014
	July – –September 2014
	October – –December 2014 with Annexes (on CD)
	January – –March 2015 with Annexes (on CD)
	Best Practice Guidelines for Wildfire Risk Management at the Local Level
4. LRI Produced Documents	A Guide To Container Tree Seedling Production Best Practice Guidelines for Wildfire Risk Management at the Local Level
	A Guide To Reforestation Best PracticesA Guide To Container Tree Seedling Production
	Firefighting Volunteers Squads Creation in 4 of LRI VillagesA Guide To Reforestation Best Practices
	Native Tree Nurseries Culturing Practices and Results Firefighting Volunteers Squads Creation in 4 of LRI Villages

	Proposed Reforestation Sites Map Native Tree Nurseries Culturing Practices and Results
	List of Species offered for planting in Qlaiaa- Fall 2011/Spring 2012 Proposed Reforestation Sites Map
	Outplanting Summary Chart May 2015List of Species offered for planting in Qlaiaa- Fall 2011/Spring 2012
	Outplanting Monitoring and Inspection Practices and Results 2014Outplanting Summary Chart May 2015
	Outplanting Monitoring and Inspection Practices and Results 2015Outplanting Monitoring and Inspection Practices and Results 2014
	Firewise-Lebanon Site Selection Report 2015Outplanting Monitoring and Inspection Practices and Results 2015
	Case Study: Firefighting Volunteers Squads Creation in 4 Villages Firewise-Lebanon Site Selection Report 2015
	Vegetation map of Lebanon final report Case Study: Firefighting Volunteers Squads Creation in 4 Villages
	Site selection report Vegetation map of Lebanon final report
	Community Engagement Best Practices (PPT)Site selection report
	LRI Community Strategy Community Engagement Best Practices (PPT)
	Micro Grants Guidelines LRI Community Strategy
	LRI Reforested Communities: List of EC members Micro Grants Guidelines
	LRI Assessment report (evaluation)LRI Reforested Communities: List of EC members
	CE Best Practices (PPT)LRI Assessment report (evaluation)
	10 Community Engagement Action Plan for Sustainable & Replicable Reforestation Initiatives: Ainata, Anjar, Bcharreh, Kfardebian, Makneh, Qlaiaa, Rachaya, Rmediyeh, Tannourine Kfarzabed. CE Best Practices (PPT)
	LRI Criteria for site selection during the six month extension 10 Community Engagement Action Plan for Sustainable & Replicable Reforestation Initiatives: Ainata, Anjar, Bcharreh, Kfardebian, Makneh, Qlaiaa, Rachaya, Rmediyeh, Tannourine Kfarzabed.
	Roadmap 2030: A Practical guide to 7% increase of the forest cover in Lebanon (MoA/FAO)LRI Criteria for site selection during the six month extension
	"Recommendations for Improving Reforestation Practices in Lebanon Based on Results of Field Trials - Safeguarding and Restoring Lebanon's Woodland Resources Project (MoE/UNDP/GEF)Roadmap 2030: A Practical guide to 7% increase of the forest cover in Lebanon (MoA/FAO)
5. Related docs/reports	USAID Social Forestry Policy Recommendations for Improving Reforestation Practices in Lebanon Based on Results of Field Trials - Safeguarding and Restoring Lebanon's Woodland Resources Project (MoE/UNDP/GEF)
	Harb, C, & Saab, R. (2014). Social Cohesion and CLI assessment – Save the Children Report USAID Social Forestry Policy
	Rapid Tension Assessment Tool - Lebanon Crisis Response Plan: Social Stability Working GroupHarb, C, & Saab, R. (2014). Social Cohesion and CLI assessment – Save the Children report

	Casual Labour Based Interventions: Tip Sheet – Save the Children Lebanon Rapid Tension Assessment Tool - Lebanon Crisis Response Plan: Social Stability Working Group
	USAID Gender Equality and Female Empowerment Policy – March 2012Casual Labour Based Interventions: Tip Sheet – Save the Children Lebanon USAID Gender Equality and Female Empowerment Policy – March 2012

2. Key Informant Interviews

Date	Organization/Village and Site	Interviewed Individual Position/Role
15-Jun-15	USFS	All the team
16-Jun-15	USFS/LRI	Mapping component manager
		Outplanting component manager
		Fire prevention component manager
17-Jun-15	USFS/LRI	Community engagement component manager
	Jouzour Loubnan / BLC bank	Member and co-founder of Jouzour Loubnan
18-Jun-15	USAID	LRI Coordinator
		DG program officer
	AFDC	Members
19-Jun-15	Tinol	CEO
	La Phenicienne	CEO
22-Jun-15	Balamand University	Director of the Biodiversity Program
	Byblos bank	Head of Corporate Communication Unit
	Tannourine Reserve	Vice Mayor and President of Reserve Committee
		Member of Reserve Committee
23-Jun-15	Qlaiaa	Mayor
		Mukhtar
		Community activist/Teacher
		Antonine School Director
24-Jun-15	USFS/LRI	Nursery component manager
	Ramlieh / Native Nursery	Owner
	Ramlieh / AFDC Nursery	Manager
	Majdel Baana	Mayor
		Community activist
25-Jun-15	Bcharreh/ Friends of Cedars Forest Nursery	Manager
	Bcharreh	Friends of Cedars Forest - Member
		Friends of Cedars Forest - Member
		Friends of Cedars Forest - Member
26-Jun-15	Ministry of Agriculture	Director of Rural Development and Natural Resources
	UNDP office at Ministry of Environment	UNDP Project Coordinator
	Italian Cooperation	Environmental Programme Officer

29-Jun-15	Rachaya Planted Site	Forest Guard
	Rachaya Municipality	Mayor
		Municipality treasurer
		Director of Municipal Department
	Kfardenis Plante Site	Forest Guard
	Kfardenis Municipality	Mayor
		Municipality treasurer
		Council Member
		Policeman
		Community activist
	Majdel Balhis	Guard
30-Jun-15	Bkassine - Bkessine Nursery Bkessine Planted Site	Owner of Bkassine Nursery and President of the Cooperative of Native Tree Nurseries
	Bkessine Municipality	LRI Fire Component
	JAZ - Jezzine	Operations manager
01-Jul-15	Rmadieh Municipality	Vice Mayor
		Municipal employee
		Municipal employee
		Environment Activist
		Environment Activist
		Environment Activist
	Rmadieh Planted Site	LRI Technical Support Staff
	Saddiqin	Mayor
		Municipal employee
		Municipal employee
		Environment Activist
02-Jul-15	Deir El Ahmar - Kouroum Nursery	Nursery Manager
	Maqne Municipality	Mayor
		EC president
		Community Member
		Community Volunteer
		Community Volunteer
		EC member & Municipal staff
		Council Member
	Maqne Planted Sites (x2)	LRI Outplanting Component Manager
	Ainata Municipality	Mayor
		Municipal Clerk
03-Jul-15	FAO	FAO Representative
	UNDP	Peace and Development Officer - Social Stability Sector Coordinator

ANNEX III: CRITERIA AND THE SELECTED SITES FOR FIELD VISIT

Plantation sites

- Selected sites have to be located in all the region of the countries
- Selected sites have to be representatives for different attitudes (low, medium and high)
- Selected sites have to be wide range of survival rates (low, medium and high survival rate of planted seedlings)
- Selected sites have to be representatives for different planting models (plantations were established by different NGOs, by municipalities, twinning)
- Selected sites have to be representatives for different culture, religions
- Selected sites have to be representatives for different livelihood activities (shepherd, agricultural crops etc..)
- Sites that most of the project activities were implemented there

Native tree nurseries

- Visited nurseries have to be including large scale, medium and small scales (in term of number of seedling production)
- All visited nurseries should produce all types of tree species that the project planted
- Visited nurseries should have different quality of produced seedlings (Good, medium and poor)

Selected and Visited Plantation Sites and Native Tree Nurseries

No	Site	Activities	Description
1	Qlaiaa	Plantation	• One of the oldest sites- has 2 sites: a sand quarry and a limestone site that used to be covered with a pine forest- very high survival rate • Recipient of a sub-grant to develop a recreational area within the site • Received volunteer squad training
2	Ramlieh	2 nurseries	• AFDC nursery has high diversity of species and very good production quality. AFDC is working with several donors, several technical experts and a multitude of customers. Manager is very well informed and very scientific in his approach. This nursery focuses on developing new germination protocols for species hard to germinate • A private nursery has high diversity of species and good seedling quality. The manager is knowledgeable of nursery techniques and also of outplanting practices. Seedling quality is improving through the years. The manager is very innovative in seedling production and focusing also on developing new protocols
3	Majdal Baana	Plantation	• This plantation site was planted during the LAF campaign by army officers and local community volunteers- Green Hand partnered on planning the volunteering day with LRI and the municipality
4	Bcharee	Nursery	• This nursery is producing high elevation species- very good seedling quality and focusing on developing protocols for

			new species that are hard to germinate like Juniper • Part of nursery funded by other donor and designed by a Swedish company
		Plantation	• Plantations were carried out by an NGO "Friends of the Cedar Forests of Bcharre" (CFC). This NGO has long experience in reforestation • Outplanting sites were located on high elevations, including diversity of slopes, aspects and soil types. Irrigated from a hill lake located above the site. Option to see different ages of cedars planted by CFC - located on the Bcharre-Tannourine biocorridor • High survival rate
5	Rachaya	Plantation	• Rachaya is largest and one of the oldest planting sites and has good diversity of species planted. the municipality with internal conflicts but still involved in the project • Part of twinning project (twinned with KfarDinis) • Druze and Christian denomination • Part of land was burned and local volunteer squad created under the program were able to stop the fire
6	KfarDenis	Plantation	• KfarDenisis a new plantation sites. 5500 seedlings were planted in beginning 2015 • Active municipality • Part of twinning project (twinned with Rashaya) • Sunni denomination
7	Bkassine	Nursery	• A small local nursery produces mostly Pinus pinea. Seedling quality was improving every year. The nursery owner is the president of the nursery Cooperative • FireWise program was implemented in the municipality of Bkassine
8	Rmadiye	Plantation	• The plantations were begun in 2012 in low elevation sites with Carob and other hardwoods and pines • part of twinning project twinned with Saddiqine • (Shiite denomination)
9	Saddiqine	Plantation	• Saddiqine was a new site selected for planting in 2015 however, planting was canceled due to internal land conflicts • Part of twinning project (twinned with Rmadieh • Shiite denomination) • one of the towns in Tyre that has the highest number of Syrian refugees
10	Ainata	Plantation	• The plantation is located in high elevation with Eastern exposure, gravel surface and high risk of erosion. Limited number of species that were identified as suitable for this site and the survival rate was average
11	Maqne	Nursery	• A medium size nursery, owned by private company that produced several species with average quality
		Plantation	• Maqne planting site is one of the most arid planting sites, rocky surface that required the use of a ripper in soil preparation. The survival rate was high • Women was leading the environmental committee

ANNEX IV: DATA COLLECTION INSTRUMENT

Evaluation questions and extended questions

1. To what extent has LRI achieved its outcomes and stated purposes found in the signed agreements and agreement modifications?

What were the factors influencing the achievement or non-achievement of these purposes and intermediate results?

Overall project achievements:

- In which areas (geographic, sectoral issue) does the LRI project have the greatest achievements?
- Why is this?
- What have been the supporting factors?
- What were the arrangements made by the LRI contributing the achievements?
- In which areas does the LRI project have the least achievements?
- What have been the constraining factors and why?

Questions for result area:

Have LRI enhanced the capacity of native nurseries?

- Have advanced nursery techniques been widely applied?
- How much percentage of seedlings produced under advanced techniques?
- What changes have advanced nursery techniques brought in (in term of quality, quantity, time span, cost effective, increasing survival rate?
- How often is Cooperative of Native Tree Nurseries meeting conducted?

Has tree planting practice been improved?

- How many people have been trained in tree planting?
- How much seedlings have been planted? And total area?
- How was the survival rate of planted seedlings under advanced techniques versus conventional planting techniques?

Has long-term mechanism for sustainable forest preservation and reforestation been established?

- Has reforestation website developed and outreached?
- Have models for fundraising and technical support been developed?
- Have groups/ individual made use of models?
- How many group/individuals have successfully raised fund?

Has forest and biodiversity protection been enhanced?

- Has fire prevention been improved after establishment of fire voluntary groups/ individual, fire awareness, firefighting?
- Are there any fire-management regulations in communities?
- Were forest fire incidents in the last few years? If yes how many, how large were the damaged areas? and how were fire controlled?
- Have the people known what and how to do when they see a fire incident?

2. To what extent has the sustainable management of natural resources in Lebanon been developed?

a. Have key stakeholders and reforestation champions, support for community initiatives, and environmental awareness been identified?

- Which are the project stakeholders at national level, local level?
- Are the stakeholders sufficient for implementing activities on the municipality and at the national level?
- What are the constraints in working with the stakeholders?

b. What is the outlook for sustaining the Cooperative of Native Tree Nurseries;

- What are potential reforestation projects/ programs in Lebanon?
- Who will be implementing agencies?
- What are potential seedling demands?
- Have any potential seedling purchasers been identified?

- Have nursery cooperative discussed with any organizations about seedling demand and supply?
- Are a platform/ network available for cooperative to marketing?

c. What evidence is there of the sustainability of the 10 planting communities to implement their five-year plans.

- Did the community develop with the help of LRI a five year plan for the management of community natural resources?
- What activities (how much of the overall plan) have been implemented with the support -financial and technical- assistance of LRI?
- Is there any activity (of the 5 year plan) that has been implemented only with the technical support of LRI?
- Is there any activity (of the five-year plan) that has been implemented without any support from LRI? What are these activities? What is the value so far of these activities/projects (in-kind and monetary)? How and from which sources did the municipality/ EC committee cover the cost of these activities / projects? Did community follow up the same reforestation protocol applied by LRI?
- Is the Environmental Committee(s) meeting regularly? How often? On average how many members attend each meeting? What are the topics discussed in these meetings? Are there minutes of meeting taken during these meetings? Can you share with us some of these minutes of meetings?
- Is the municipality/Environmental Committee actively pursuing implementation of activities under the five-year plan? How? What sources of funds / resources are they targeting? Did they prepare and submit project proposals to potential funders? Did they already manage to leverage resources other than those of LRI? How much so far? Would the municipality/EC actively pursue implementation of the five-year plan in the future? Why and why not? If yes, how do they intend to go about it? What are the major impediments?
- What are suggested recommendations that can help/assist municipality/EC/community to pursue implementation of the five-year plan

d. Prospects for scaling up cooperative and planting communities?

- Does the Municipality / Environment Committee intend to scale up the reforestation work initiated by LRI? Does the municipality / Environment Committee intend to scale up the environmental awareness activities initiated by LRI? Why and why not?
- What are the major impediments to scaling up these LRI initiated activities? What are factors that will facilitate scaling up of these activities at the community level?
- What are recommendations that can address impediments/challenges to scaling up of LRI initiated environmental awareness and reforestation activities at the community level?
- What is seedling production capacity of the Cooperative of Native Tree Nurseries?
- Which seedlings of native tree species can they propagate?
- Do they have access to seed bank?

3. What impact did LRI have on the reforestation sector generally and specifically on:

a. reversing environmental degradation by reforesting previously forested grasslands, shrub-lands, and areas burned by wildfires;

- What have been the impacts of the LRI project?
- What are the future likely impacts? in term of environment, biodiversity, carbon emissions, water resources, land-use rights and land-use conflicts, land ownership, traditional land-management practice,
- What are the emerging impacts of LRI project and the changes that can be causally linked to LRI project interventions?
- In how far has LRI project made a contribution to the broader, longer-term Lebanon reforestation strategy?

Has the LRI project identified opportunities for it to be scaled up? If so, how should future the project objectives and strategies be adjusted?

b. community engagement to protect the community environment;

i. community-led restoration of watershed-level forest biocorridors;

- What changes did the LRI project bring about in terms of approach to community engagement for 1- restoration of community forests and 2- protection of community forests? (changes from the way previous reforestation activities have been implemented)

- In your opinion, did LRI community engagement approach ensure better results / impact on reforestation and forest protection? Why or why not?
- Please relate success stories of LRI community engagement approach?
- Is there any impediment to LRI community engagement approach?
- Please suggest recommendations as to how this community engagement approach can be improved for increased impact on reforestation and forest protection.

c. private sector engagement through native tree nurseries, and private sector support for outplanting;

- What changes did the LRI project bring about in terms of Private Sector engagement through: 1- native tree nurseries and 2- Private Sector companies; to support outplanting of community forests?
- In your opinion, did LRI Private Sector engagement approach ensure better results / impact for outplanting? Why or why not?
- Please relate success stories of LRI Private Sector (nurseries and companies) engagement approach?
- Is there any impediment to LRI private sector engagement approach?
- Please suggest recommendations as to how private sector (nurseries and companies) engagement approach can be improved for increased impact on reforestation and forest protection.

d. the impact of advanced planting techniques, resulting cost/benefit, and outplanted seedling survival on reforestation;

- How were the survival rates of planted seedlings applying advanced and conventional techniques?
- What were the costs of a surviving planted seedling applying advanced and conventional techniques?
- What were the factors influencing survival rate of planted seedlings?
- What are relationship between cost and survival rate of different reforestation models

4. What are the prospects for the sustainability of the LRI's activity results?

a. Which results show the best prospect of being sustained and why?

- What activities are municipalities and implementing partners (IPs) able, willing and committed to continue?
- What is the main purpose of reforestation? Will municipalities and IPs be able to maintain reforestation sites? And why?
- Has tree plantation established on long-term security confirmed land?
- Which areas, the LRI project has effectively built national ownership and capacity?
- Has the Project successfully built or strengthened an enabling environment (policies, technical capacities, local knowledge, people's attitudes, etc.)?
- Are the impacts of the project sustainable and what have been key factors to ensure sustainability of impact?

b. Provide recommendations on how the activity design could be enhanced to improve the sustainability of results, and any additional programming or support in the upcoming years that would improve LRI's results sustainability

- How have activities been designed?
- What were the problems and constraints?
- How were the problems settled?
- Are better ways to settle the problems? If yes how?
- Will the problems likely relapse in the future? If yes, why
- How should the problems been prevented?

5. What evidence is there that social cohesion has improved as a result of reforestation projects in identified communities?

- What are LRI' communities identified inter community groups (religious, political, livelihood, social, refugees...)
- What are LRI communities intra community groups- surrounding communities (religious, political, livelihood, refugees) (question valid only for the 2 most recent communities for the extension period – twinning and biocorridor)
- Did LRI initiate activities/events that involved all or most of the community groups? If yes, what are these activities? What were the activities which were most successful in bringing community groups together? And why?

- Are there challenges involved in bringing together differing community groups? How did LRI address these challenges? What have been most successful strategies that addressed those challenges? Can they be replicated in other communities? And with Syrian refugees groups? Why and why not?
- Success Stories: Evidence of LRI environment activities bringing together differing community groups to work for a common goal in the management of environmental resources.
- What is the impact of LRI activities / events on Social Cohesion of inter community groups and intra community groups (only for the 2 new communities- extension) such as:
- Change (increase/decrease) in the total number of interactions between differing community(ies) groups and with Syrian refugees in the community. (number of interactions over a period of time)
- Improved quality of the interaction between differing community(ies) groups and with Syrian refugees in the community e.g. less conflicts, altercations... etc. (quality of interactions)
- Change in individuals' perception of other community groups (neutrality of the negative bias or initial perception of threat)
- Change in individuals' attitudes towards other community groups (neutral, or supportive rather than opposing)
- Changes in behavior of individuals towards other community groups (neutral, or supportive rather than opposing)

6. Did LRI enhance a more active environmental awareness and economic involvement of women in the communities where the activities were implemented?

a. Did women actively participate in local decision making, e.g., in the municipal environment committees?

b. Were women encouraged to take on leadership roles in local forest area management?

- How many women members in each community Environment Committee? What is the percent of women compared to men in each community Environment Committee?
- What is the decision-making process within ECs? i.e., how is consensus reached? Do women have equal decision-making status as male members? And why?
- Is there a specific role or tasks assigned specifically to women within EC committees and or in LRI environment / reforestation / awareness activities? What are these role/tasks and why? How many women in leadership roles? How does this number compare to men in leadership roles? And why? Are women involved in environment related economic activities at the community level? What are these activities?
- How many women / percent of participants in LRI trainings, community environment awareness and reforestation events (if any)? And why?
- what are suggestions to enhance a more active participation of women in awareness and environment economic activities
- Questions specific to "community" focus group specifically addressing women: Assess if they know about the LRI project, did they participate with the project activities? Why and why not? Would they like to participate in future similar projects? What do they see their role/tasks in future similar projects?

ANNEX V: EVALUATION MATRIX

Evaluation Criterion	Evaluation Question Related to the Criteria	Data Sources	Data Collection Methods, Sample ,and Tools	Data Analysis Plan
Effectiveness	1. To what extent has LRI achieved its outcomes and stated purposes found in the signed agreements and agreement modifications? a. What were the factors influencing the achievement or non-achievement of these purposes and intermediate results?	• LRI's Staff; and technical experts • Key stakeholders at USAID; • Native trees nurseries, municipalities, NGOs, and project partners • Project Documents and M&E Plan. • Implementation sites	• Interviews • Desk review • Direct observation	Qualitative data analysis of the KII interviews and Quantitative analysis of project's reported data/indicators and comparison with the results from the field visits
Effectiveness	2. To what extent has the sustainable management of natural resources in Lebanon been developed? a. Have key stakeholders and reforestation champions, support for community initiatives, and environmental awareness been identified? b. What is the outlook for sustaining the Cooperative of Native Tree Nurseries; c. What evidence is there of the sustainability of the 10 planting communities to implement their five-year plans. d. Prospects for scaling up cooperative and planting communities?	• Project staff • Project documents • Country strategy documents (Roadmap 2030) • Key stakeholders, organizations involved in reforestation • Cooperative of Native Tree Nurseries, nurseries community five-year plans. • Municipality/ Mayor, municipal council members • Environment Committee	• Interview • Desk review • Direct observation	Qualitative data analysis of the KII interviews and Quantitative analysis of project's reported data/indicators and comparison with the results from the field visits

Sustainability	3. What are the prospects for the sustainability of the LRI's activity results? a. Which results show the best prospect of being sustained and why? b. Provide recommendations on how the activity design could be enhanced to improve the sustainability of results, and any additional programming or support in the upcoming years that would improve LRI's results sustainability	• LRI's Staff; and technical experts • Key stakeholders at USAID; • Representatives of Municipalities, partners, NGOs; Ministry of Environment and of Agriculture. • Project documents, Financial audits of reforestation sites, country strategy document • Similar projects	• Interview • Desk review	Qualitative data analysis of the KII and Quantitative analysis of project's indicators
Impact, General	4. What impact did LRI have on the reforestation sector generally and specifically on: a. reversing environmental degradation by reforesting previously forested grasslands, shrub-lands, and areas burned by wildfires; b. community engagement to protect the community environment; i. community-led restoration of watershed-level forest biocorridors; c. private sector engagement through native tree nurseries, and private sector support for outplanting; d. the impact of advanced planting techniques, resulting cost/benefit, and outplanted seedling survival on reforestation;	• National Reforestation Strategy. • Project documents. Lebanese experts in reforestation. • Beneficiaries, NGOs representatives. • Residents of the planted areas. • Technical documents, national studies and reports. • Municipality/ Mayor, municipal council members, Environment Committee	• Interview • Desk review	Qualitative analysis and narrative report of the results.
Impact, Social Cohesion	5. What evidence is there that social cohesion has improved as a result of reforestation projects in identified communities?	• LRI staff • Municipality/ Mayor, municipal council members	• Interview • Desk review	Qualitative analysis of KIIs and project' reports

		• Environment Committee • Community members • Project documents		
Impact, Gender	6. Did LRI enhance a more active environmental awareness and economic involvement of women in the communities where the activities were implemented? a. Did women actively participate in local decision making, e.g., in the municipal environment committees? b. Were women encouraged to take on leadership roles in local forest area management?	• LRI staff • Municipality/ Mayor, municipal council members, • Community members including women • NGOs, , community partners • Project documents, List of EC members, lists of participants	• Interview • Desk review	Qualitative analysis of KIIs and project reports

ANNEX VI: QUALITY OF SEEDLING, QUALITY OF PLANTING, AND SURVIVAL RATE*

No	Site	Year of planting											
		2011				2012				2013			
		Amount of seedlings	Quality of seedlings	Survival rate %	Planting quality	Amount of seedlings	Quality of seedlings	Survival rate %	Planting quality	Amount of seedlings	Quality of seedlings	Survival rate %	Planting quality
1	**Aanjar**	16,500	poor	18	N/A	21,940	good	59.49	72.7	7,500	good	91.47	
2	**Baalbeck**					22,811	good	43.8	57.58	11,250	good	83.18	85.95
3	**Bcharre**					25,286	good	82.04	81.79	12,920	good	90.64	70
4	**Kfardebiane**					41,350	good	68.65	90.61	2,210	poor	45	N/A
5	**Kfarzabad**	16,500	poor	16	N/A	21,540	good	22.97	35.36				
6	**Maqne**					22,430	good	79.8		15,400	good	84.74	
7	**Qlaiaa 1**	2,700	good	42	N/A	30,015	good	95.62	80.59	4,800	good	95.14	80.59
7	**Qlaiaa 2**		good	84	N/A		good	93.85			good	94.1	N/A
8	**Rachaya**	27,000	average	58	N/A	45,823	average	68.68	87.82	6,700	good	73.2	N/A
9	**Rmadiye**					32,118	average	51.32	64.38	11,500	good	62.68	72.34
10	**Tannourine**	3,680	average	30	N/A	4,009	good	47.83	83.54	3,875	good	61.17	N/A

**Data derived from the project inspection and monitoring report 2014*

ANNEX VII: COST OF PLANTATION

Project Code	Village	Cost of Seedling / Seedling (USD)		Cost of Labour, Equipment, Shelter etc. / Seedling (USD)		Cost of Irrigation/ Seedling (USD)		Cost of Fencing/Seedling (USD)		Survival Rate	Total Cost per Planted Seedling (USD)	
		Planted Seedling	Surviving Planted Seedling	Planted Seedling	Surviving Planted Seedling	Planted Seedling	Surviving Planted Seedling	Planted Seedling	Surviving Planted Seedling		Planted Seedling	Surviving Planted Seedling
1	Ainata	1.25	2.08	1.70	2.83	1.51	2.52	0.20	0.33	60.06%	4.66	6.93
2	Ainata	1.30	1.56	0.73	0.87	0.23	0.28	0.00	0.00	83.18%	2.26	2.45
3	Maqne	1.25	1.57	2.29	2.88	3.39	4.25	2.41	3.02	79.80%	9.34	11.39
4	Bcharre	1.25	1.52	3.28	4.00	1.44	1.76	2.17	2.64	82.04%	8.14	9.65
5	Tannourine	1.30	4.33	5.80	19.34	0.51	1.71	0.00	0.00	30.00%	7.61	22.34
6	Tannourine	1.25	2.61	3.17	6.63	1.17	2.45	0.00	0.00	47.83%	5.60	10.34
7	Tannourine	1.25	2.04	1.43	2.33	0.57	0.93	0.00	0.00	61.17%	3.24	4.51
8	Kfardebiane	0.91	1.33	2.14	3.12	4.28	6.24	5.12	7.46	68.65%	12.46	17.74
9	Aanjar	1.27	7.07	2.79	15.52	4.12	22.90	0.00	0.00	18.00%	8.19	39.69
10	Aanjar	1.30	2.19	1.35	2.28	0.88	1.48	0.08	0.13	59.49%	3.61	5.18
11	Kfar Zabad	1.30	8.13	3.41	21.33	6.28	39.26	0.00	0.00	16.00%	10.99	61.89
12	Kfar Zabad	1.30	5.66	1.40	6.10	0.59	2.56	0.25	1.08	22.97%	3.54	11.04
13	Rachaya	1.30	2.24	4.00	6.89	4.03	6.94	0.00	0.00	58.00%	9.32	15.13
14	Qlaiaa	1.30	2.06	3.04	4.83	3.13	4.97	0.63	1.00	63.00%	8.10	12.09
15	Qlaiaa	1.30	1.35	1.13	1.17	1.00	1.04	0.72	0.75	96.46%	4.15	4.25
16	Rmadiye	1.25	2.44	1.06	2.06	1.22	2.38	0.17	0.32	51.32%	3.69	6.01
17	Rachaya	1.25	1.82	1.61	2.34	1.55	2.26	0.12	0.17	68.68%	4.53	6.02
	Average Cost	**1.24**	**2.02**	**2.15**	**3.51**	**2.34**	**3.82**	**1.02**	**1.67**		**6.75**	**10.23**
	Min	**0.91**	**1.33**	**0.73**	**0.87**	**0.23**	**0.28**	**0.00**	**0.00**		**2.26**	**2.45**
	Max	**1.30**	**8.13**	**5.80**	**21.33**	**6.28**	**39.26**	**5.12**	**7.46**		**12.46**	**61.89**

ANNEX VIII: LIST OF ENVIRONMENTAL COMMITTEE MEMBERS

LRI REFORESTED COMMUNITIES

Commmunity	Name of EC members	Title
Aanjar	Municipality	
	Garabet Panboukian	Mayor
	Lena Ashkerian	Teacher
	Wajdi Berberi	Engineer
	Hrair Kurdian	Youth
Aineta	Municipality	
	Fawze Rahme	Mayor
	Marlene Rahme	Municipality employee
	Ellen Rahme	Municipality employee
Bcharre	Municipality	
	Antoine Tawk	Mayor
	Roula Nahhas	Municipality member
	Charles Chediak	Municipality member
	Kozhaya Hanna	Municipality member
	Elie Rahme	Friends of Cedar Forest Reserve member
Kfardebyen	Municipality	
	Jean Akiki	Mayor
	Josephine Zoughbi	Municipality membeer
	Joumana billeh	Women Development Office member
Kfarzabad	Municipality	
	Salloum Salloum	Mayor
	Omar Khatib	Union of Municipalities
	Dalia Jawhari	SPNL
Maqneh	Municipality	
	Fadi Mokdad	Mayor
	Jaafar Mokdad	Municipality member
	Hoda Raad	EC member
Qlaiaa	Municipality	
	Hanna Daher	Mayor
	Amin Said	Moukhtar
	Charbel Rizk	Municipality member
	Ibrahim Al Haj	Activist from the community
Rashaya	Municipality	
	Saad Mhana	Mayor
	Nadim Hjeili	EC member
	Souhayl Kadamani	Activist from the community
Rmediyeh	Municipality	
	Fadi Baidoun	Mayor
	Hassan Tahtah	Municipality member
	Amal Roumieh	Activist from the community
	Ibrahim Roumieh	Vice Mayor
Tannourine	Municipality	
	Mounir Torbay	Mayor
	Nehme Harb	Nature Reserve Committee
	Nabil Nemer	Nature Reserve Committee
	Challita Tanios	Nature Reserve Committee
	Issam Akiki	Activist from the community

ANNEX IX: RAPID TENSION ASSESSMENT TOOL[14]

Lebanon Crisis Response Plan -Social Stability Working Group

Rapid Tension Assessment Tool

Background and Rationale

The Lebanon Crisis Response Plan puts an increase emphasis on Monitoring and Evaluation and impact measurement. As such, every sector is developing a detailed results framework including indicators at outcomes, outputs, and activities level. The social stability sector will notably be measuring its impact at outcome level by monitoring and evaluating changes in the level of tension(related to negative perceptions, competitions over livelihoods opportunities, pressure on access to public services and natural resources, and perception of unbalance assistance) between communities targeted by partners.

Moreover, the sector has already been reviewing at the way partners are evaluating at the impact of their respective programs, and assessing social stability in general. The sector held a working group on 24th June 2014 which focused on impact measurement, using the example of Save the Children evaluation report of their Casual Labour Initiatives by AUB.[15] The conclusion of the meeting is that few partners were conducting systematic assessment of the social stability impact of their different projects[16] (this is even more the case in other sectors) and that social stability assessment tend to focus on different aspects, from the number of security incidents in one location to perception of threats posed by other communities, or frequency of contact. As a result, different assessments can reach very different conclusion regarding the level of tensions. While the general discourse tend to continuously emphasize that tensions 'are increasing', other assessment and findings point out that relations between communities are not necessarily tense.[17]

In order to do bridge this gap and ensure adequate measurement of the results of the overall work of the sector, the social stability core group is proposing to adopt 18 standard indicators measuring tensions, for each partner to use in their respective projects for baseline and annual evaluation purposes. The indicators will cover seven main social categories to give an overview of the situation in each location targeted by partners. They will allow to monitor the evolution of social stability for both the specific issues targeted by partners (for example mitigating tensions related to access to basic services) and issues not targeted by their program but relevant to social stability in general.

The 18 indicators are designed to be easily measurable by partners though Key Informant Interviews (KIIs) to be triangulated through Focus Group Discussions (FGDs) and to be generic enough to be integrated in any pre-existing methodologies and questionnaire already used by partners. Key informants are generally characterized as individuals with good knowledge and influence in their communities, such as local leaders, municipal officials, mukhtars, teachers/school principals, shawish. Partners should aim at gathering different perspectives and therefore interview different type of key

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[14] Source: UNDP, Lebanon Protection cluster, 2015.

[15] Harb & Saab (2014) Social Cohesion and CLI assessment – Save the Children Report

[16] Results of the questionnaire distributed to working group members on 24 June and to the Bekaa Social Cohesion working group on 8 July.

[17] A registration update presented during a recent Protection Working Group noted that most people interviewed estimated relation between Host Community and displaced Community were good and 61.5% estimate relations did not deteriorate over the past 2 months.

informants, from different communities (host/displaced), economic, social and political background. To facilitate productive discussions, FGD should gather between 5-10 people and be more homogeneous in their composition, so that participants are comfortable sharing their opinions publicly. This would require having different FGD by community (host/displaced) and preferably by gender and age. In any case partners should be mindful of the sensitivities of social stabilities issues in general. In addition to being clear and transparent about the purpose of the exercise, and adhering to do-no-harm principles, partners should only implement this questionnaire in communities in which they are already known to avoid fueling suspicion and defiance. Partners should abstain to ask questions if they feel they could be misinterpreted or even contribute to raising tensions between communities. Partners are also encouraged to use existing structures or committees for their assessments, using the coordination structure to know who is already active in the area, particularly in the social stability or protection sector. Refugee Outreach Volunteers would also be particularly useful to outreach to the Syrian communities.

The indicators will be the basis to come with a score for each key category, based on detailed 1-5 scale, to facilitate comparison. Each partner should hold at least 5 KII and 2 FGDs per municipality/community targeted. The FGD should primarily help control the answers provided by key informant interviews.

The seven categories are: Quality and frequency of inter-community contact; relation and trust with local institutions; perception related to assistance provided by various organizations since beginning of the Syrian Crisis; causes of tensions; support for restrictions on displaced persons; existence of conflict management mechanisms; and presence of connectors between groups.

Social interaction: Quality and frequency of contact between groups.
Social interaction has been found both globally and in the context of the displaced Syrians to have the strongest correlation to increased perception and trust of 'the other' community. In the case of the Syrian presence in Lebanon, Mercy Corps found out that *"a higher level of social interaction between the two groups is also associated with a decrease in the likelihood of propensity towards violence."*[18] **Social interaction** is defined here as non-essential/non-economic engagements, ranging from informal discussions of community problems and sharing childcare or attending religious/social gatherings. Therefore, programming should seek to increase the levels of social interaction between divided communities, and thereby overcome the misperceptions and misinformation that leads to the dehumanization of other groups, and ultimately the justification of the use of violence against them.

Category—overall scale	
Scale	**Description for each level**
1	Social interaction between members of both communities occurs daily
2	Social interaction between members of both communities occurs every week
3	Social interaction between members of both communities occurs every month
4	Social interaction between members of both communities occurs less than once a month
5	There is no social interaction between members of both communities

- **Key question 1**: Has the **frequency of social interaction** increased/decreased?

Question for KII:
How do you perceive the level of social (non-economic) interaction between the Lebanese and Syrian communities? How frequently do Lebanese and Syrian interact? Is that an increase or decrease from the previous 3 months period?
Equivalent question for FGD:
Has there been a change in your own social (non-economic) interaction with Lebanese/Syrians? Do you think that you are interacting socially with Lebanese/Syrians more/less regularly? Why?

- **Key question 2**: Has the **type of social interaction** increased/decreased?

Question for KII:
What are the types of social (non-economic) interaction between the Lebanese and Syrian communities are increasing? Do you think that Lebanese and Syrians are interacting socially through an increased number of channels?
Equivalent question for FGD:
Do you perceive any change in your own social (non-economic) interaction with Lebanese/Syrians? Do you think that you are interacting socially with Lebanese/Syrians through an increased/decreased number of channels? Why?

- **Trust and confidence in public institutions**

The relation with the public institutions –in particular municipalities and other local institutions like Social Development Centers, but also with government representatives at the national and local

[18] Mercy Corps, Things Fall Apart, June 2013, p.3. The report further states that "This finding was of medium confidence, and resonates with Gordon Allport's "intergroup contact theory" which posits that under appropriate conditions, interpersonal contact is one of the most effective ways to reduce prejudice between majority and minority group members."

level – is a key issue in terms of social stability. Tensions will be naturally mitigated if the community members trust public institutions ability to understand, address and respond to key concerns – particularly related to tensions in the current context. Recent reports on the topic all underlined that a strong local government performance significantly reduces the risk of community violence.[19] The following questions aim at measuring the level of trust and satisfaction toward the key public institutions in the host communities.

Category—overall scale		
Scale	**Aggregate score (total score of each questions below)**	**Description for each level**
1	4–6	Residents are at the center of local governance - they trust public institutions and are regularly consulted and participate in the identification of priorities, their needs are addressed.
2	7–10	Residents trust most public institutions, and are generally consulted in the local planning, and their priority needs are addressed.
3	11–14	Residents trust only some public institutions and are mixed on their ability to address social tensions and resource strain, and are consulted only on some priority needs that are generally addressed.
4	15–17	Residents lack confidence in most public institutions and on their ability to address key issues – they are rarely involved or consulted on local decision making, and local institutions are rarely able to respond to their needs.
5	18–20	Residents have negative perception of nearly all public institutions, are never involved or consulted in local decision making, and local institutions are generally unable to respond to their needs.

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- **Key question 3:** Perception of public institutions

Question for KII: How would you rate your community's perception of the following institutions:	Very positive = score 1	Positive = score 2	Neutral = score 3	Negative = score 4	Very negative = score 5
• National Lebanese Government					
• Local government/Mukhtar					
• Local Political Parties					
• Local religious groups/authorities.					
Based on the score for each, calculate an average score for this question: Total score for each answer/6					
Question for FGD: How would you rate your perception of the following institutions:					
National Lebanese Government					
Local government/Mukhtar					

[19] Mercy Corps, ibid,p.4, Search for Common Ground, Dialogue and Local Response Mechanisms to Conflict between Host Communities and Syrian Displaced persons in Lebanon, 2014, p.10

Local Political Parties	
Local religious groups/authorities	

- **Key question 4:** Confidence in ability of local institutions to face the current crisis

Question for KII: Are you confident in the ability of government and local institutions to respond to social tensions and resource strain?	Very confident = score 1	Confident = score 2	Neither confident nor not confident = score 3	Not confident = score 4	Not confident at all= score 5
Score for this question					
Equivalent question for FGD: Are you confident in the ability of government and local institutions to address social tensions and resource strain, and provide basic services or maintain infrastructure?					

- **Key question 5:** The level of consultation by local government

Question for KII: How often are community members consulted by the municipality on their needs and on priorities of the municipality?	Always = score 1	Most of the time = score 2	Sometimes = score 3	Rarely = score 4	Never = score 5
Score for this question					
Equivalent question for FGD: How often are you consulted by the municipality on your needs and on priorities and plans of the municipality?					

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- **Key question 6:** Satisfaction with responsiveness of local institutions

Question for KII: How satisfied are you with the ability of local institutions to respond effectively to the needs of your community? How satisfied are community members?	Very satisfied = score 1	Satisfied = score 2	Neutral = score 3	Dis-satisfied = score 4	Very dis-satisfied = score 5
Score for this question					
Equivalent question for FGD: How satisfied are you with the ability of local institutions to respond effectively to your needs?					

Perception related to international assistance

The assistance provided by various organizations since beginning of the Syrian Crisis has been mostly humanitarian and focused on the needs of displaced Syrians. Recent assessments all underlined

tensions related to the perception that humanitarian aid disproportionately benefits Syrian displaced persons.[20]

[20] REACH, Akkar Host Communities Assessment, June 2014, AUB/Save the Children, SFCG

Category—overall scale		
Scale	**Aggregate score (total score of each questions below)**	**Description for each level**
1	4–7	The assistance is perceived as addressing the needs of all communities
2	8–11	The assistance is perceived as addressing most urgent needs of the different communities
3	12–14	The assistance is perceived as benefitting primarily one community but still able to address some of the most urgent needs of others communities
4	15–17	The assistance is perceived as benefitting almost exclusively one community, with little provided to others
5	18–20	The assistance is perceived as benefitting only one community

- **Key question 7**: Satisfaction with assistance provided by various organizations since beginning of the Syrian Crisis

Question for KII: How satisfied are you and your community with assistance provided by various organizations since beginning of the Syrian Crisis in Lebanon? (select one)	Very satisfied = score 1	Satisfied = score 2	Neutral= score 3	Dis-satisfied= score 4	Very dis-satisfied= score 5
Score for this question					

If unsatisfied or very unsatisfied, why? (check all that apply, do not prompt answers)

- Aid agencies are corrupt
- Not meeting priority needs
- Aid delivery is slow and delayed
- One group is prioritized over others
- Have not addressed needs of local community/development of Lebanon
- Prioritization of certain political affiliation/religious affiliation
- Prioritization of certain areas
- Response does not use local knowledge/capacity
- Encouraging settlement/extended stay of displaced populations
- Other (specify)

Equivalent question for FGD:

a. How satisfied are you with the international response in Lebanon?

b. If unsatisfied or very unsatisfied, why? (check all that apply, do not prompt answers)

- Aid agencies are corrupt
- Not meeting priority needs
- Aid delivery is slow and delayed
- One group is prioritized over others
- Have not addressed needs of local community/development of Lebanon
- Prioritization of certain political affiliation/religious affiliation
- Prioritization of certain areas
- Response does not use local knowledge/capacity
- Encouraging settlement/extended stay of displaced populations
- Other (specify)

- **Key question 8:** Impact of assistance on inter-group relations. Does the assistance contribute to improve relationship between groups?

Question for KII: What is the impact of international assistance on relationships between groups in your community?	Very Positive = score 1	Positive = score 2	Neutrally/ no impact = score 3	Negative = score 4	Very negative = score 5
Score for this question					
Equivalent question for FGD: What is the impact of international assistance on your relationships with other groups in your community? Why?					

- **Key question 9:** Effectiveness of the assistance in addressing needs of different communities.

Question for KII: Is the humanitarian response addressing the needs of these groups?	0: do not know	1: needs fully met	2: needs nearly fully met	3: needs partially met	4: needs barely met	5: needs not met at all
Host communities						
Displaced and displaced persons.						
Average score for the question						
Equivalent question for FGD: Is the humanitarian response addressing the needs of the different groups of the community (host communities, displaced and displaced persons)?						

Social fragmentation: Causes and severity of tensions and divisions and potential for conflict

While most assessment concluded that the primary sources of tensions are related to competition for livelihoods opportunities, strain on natural resources, pressure on public service delivery, negative perceptions, and perceptions of unbalanced assistance, the cause and level of tensions can differ widely from community to community. In addition to the key reasons already mentioned, tensions can also be related to the legacy of the civil war, to local political divisions, or to pre-existing grievances that have not been resolved. While most of the current tensions occur between host and displaced communities, there are also many older divisions that pre-exists the crisis and have been revived. Finally, not all causes of tensions or divisions mean that these will result in violence if they reach a high level. This category therefore aims at assessing the degree of social fragmentation by looking at the different causes of divisions, their potential to lead to conflict or collective action, as well the number of groups divided by the tensions.

Category—overall scale		
Scale	**Aggregate score (total score of each questions below)**	**Description for each level**
1	4–7	There are limited divisions, causes of tensions and potential for violence in the community
2	8–11	Some issues are causing division with limited potential for violence
3	12–14	Multiple causes of divisions between groups and some potential for violence
4	15–17	Many issues are causing divisions between different group and violence is likely
5	18–20	Community is highly fragmented, with many causes of divisions and high risk of violence

- **Key question 10:** Cause of tensions/divisions

Question for KII: What issues are *causing division* between in your community? (***Do not*** *read the options, allow up to 5 options*)

1. There are no division
2. Housing shortages/rent increase
3. Job shortages
4. Overstretched resources (water, food, electricity, land, etc.)
5. Overstretched/lower quality of public services (garbage collection, public health)
6. Overstretched/ lower quality of education resources
7. Targeted aid and foreign assistance
8. Youth unemployment
9. Violence/crime (theft, vandalism, beatings, sexual assault, verbal/physical harassment)
10. Political affiliations
11. Historical problems between Syrian and Lebanese
12. Historical problems related to Palestine refugees
13. Religious/ideological differences
14. Cultural differences (such as traditional gender roles)
15. General poverty
16. Other specify:_____

Score for this question	Score 1 for 0/1 reason	Score 2 for 2 reasons	Score 3 for 3 reasons	Score 4 for 4 reasons	Score 5 for 5 reasons or more
Equivalent question for FGD: What issues are *causing division* between you and other members of the community? Follow up question: can you give examples of such issues in your communities					

- **Key question 11:** Support for collective action

Question for KII:

Do you think that any of the issues of the last question is likely to lead to peaceful collective action (protest, demonstration) in your community? (Do not read the options, allow up to 5 options score 1 for 0/1 reason, 2 for 2 reasons, 3 for 3 reasons, 4 for 4 reasons, 5 for 5 reasons or more)

1. There are no division
2. Housing shortages/rent increase
3. Job shortages
4. Overstretched resources (water, food, electricity, land, etc.)
5. Overstretched/lower quality of public services (garbage collection, public health)
6. Overstretched/ lower quality of education resources
7. Targeted aid and foreign assistance
8. Youth unemployment
9. Violence/crime (theft, vandalism, beatings, sexual assault, verbal/physical harassment)
10. Political affiliations
11. Historical problems between Syrian and Lebanese
12. Historical problems related to Palestine refugees
13. Religious/ideological differences
14. Cultural differences (such as traditional gender roles)
15. General poverty
16. Other specify:_____

Score for this question	Score 1 for 0/1 reason	Score 2 for 2 reasons	Score 3 for 3 reasons	Score 4 for 4 reasons	Score 5 for 5 reasons or more
Equivalent question for FGD: Would you support collective action on these causes of conflict? If no, why? If yes, why? Follow up question: would you personally support collective action on these questions personally? Have peaceful actions already occurred in your community? Why?					

- **Key question 12:** Potential for tensions and divisions to result in violence

Question for KII:

Do you think that any of the issues of the last question is likely to lead to violence (blood) right now? *(**Do not** read the options, allow up to 5 options;* score 1 for 0/1 reason, 2 for 2 reasons, 3 for 3 reasons, 4 for 4 reasons, 5 for 5 reasons or more)

1. There are no division
2. Housing shortages/rent increase
3. Job shortages
4. Overstretched resources (water, food, electricity, land, etc.)
5. Overstretched/lower quality of public services (garbage collection, public health)
6. Overstretched/ lower quality of education resources
7. Targeted aid and foreign assistance
8. Youth unemployment
9. Violence/crime (theft, vandalism, beatings, sexual assault, verbal/physical harassment)
10. Political affiliations
11. Historical problems between Syrian and Lebanese

12. Historical problems related to Palestine refugees 13. Religious/ideological differences 14. Cultural differences (such as traditional gender roles) 15. General poverty 16. Other specify:_____					
Score for this question	Score 1 for 0/1 reason	Score 2 for 2 reasons	Score 3 for 3 reasons	Score 4 for 4 reasons	Score 5 for 5 reasons or more
Equivalent question for FGD: Which of these issues from the last question do you think is most likely to lead to violence (blood) right now? Have violent incidents already occurred in your community? Why?					

- **Key Question 13:** Communities affected by the tensions

Question for KII: Between who are tensions and divisions occurring in the community *(**Do not** read the options, allow up to 5 options)* 1. Lebanese vs Syrians 2. Lebanese vs Lebanese 3. Syrians vs Syrians 4. Lebanese vs Palestinians 5. Syrians vs Palestinians 6. Palestinians vs Palestinians 7. Security agencies vs. Syrians 8. Local authorities vs Syrians 9. Etc…					
Score for this question	Score 1 for 0/1 divisions	Score 2 for 2 divisions	Score 3 for 3 divisions	Score 4 for 4 divisions	Score 5 for 5 divisions or more
Equivalent question for FGD: Between who are tensions and divisions occurring in the community?					

Support for restrictions on displaced community.
Some of the restrictions faced by Syrians in Lebanon include issues around **protection, insecure living conditions, and livelihood opportunities**. While a lack of access to facilities can be largely, but not wholly, attributed to scarcity in resources, the recent imposition of curfews and to a lesser extent a lack of secure living conditions is a sign of increasing community tensions.

- **Protection:** ***curfews and other restrictions in movement of displaced persons, or municipalities that do not accept any new displaced persons.***
- **Insecure living conditions:** Displaced population have been facing ***renting*** and ***eviction*** issues,
- **Livelihood opportunities:** High cost of living in Lebanon and the prolonged nature of the crisis has left significant economic impact on displaced Syrian families. Several reports have noted that in order for Syrian displaced persons to survive, they have been taking on livelihood opportunities at ***lower wages*** than the normal market. To minimize competition and hence

tensions with host communities, more ***restrictions on livelihoods*** has been imposed for income generation.

Category—overall scale	
Scale	**Description for each level**
1	No restrictions
2	No restrictions on displaced community but no new displaced persons allowed
3	Restrictions/ support for restriction on the freedom of movement (night curfews, scooters)
4	High restriction / support for restriction on freedom of movement and insecurity of tenure (evictions)
5	Restriction on freedom of movement, shelter and livelihoods.

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- **Key question 14**: Is there any restrictions already in place (curfews, renting, scooter, evictions, jobs, shops…)?

Question for KII:
What types of restrictions do Syrian displaced persons face in your community? Please choose as relevant: (a) curfews; (b) identification papers; (c) employment restrictions; (d) residency restrictions; (e) restrictions on hosting displaced persons; (e)others/specify:_
Equivalent question for FGD:
Do Syrian displaced persons face certain types of restrictions in your community? Can you please describe what types of restrictions?

- **Key question 15:** Is there community support for restrictions?

Question for KII:
To host community: Do you think there are other alternatives for managing conflict than resorting to restrictions? Yes or No. Please elaborate why - what other alternatives can be used?
Equivalent question for FGD:
To host communities: What are the best ways to mitigate the tensions between Syrian displaced persons and host communities?? If they name the restrictions mentioned above then probe further with the following question: In your opinion, what other alternatives can be used to ensure more effective results in terms of conflict mitigation?

Existence of conflict mitigation/participatory mechanisms

This category aims at identifying if any kind of mixed local conflict response mechanisms (formal or informal) is already present that organizations should strengthen through their social cohesion programming in order to improve context and conflict sensitivity and avoid duplication.

Category—overall scale	
Scale	**Description for each level**
1	Presence of effective formal local conflict response mechanisms
2	Presence of effective informal local -conflict response mechanisms
3	Presence of ineffective formal local conflict response mechanisms
4	Presence of ineffective informal local conflict response mechanisms
5	No local conflict response mechanisms

- **Key questions 16:** Existence of mechanisms to address communal issues or conflict

Question for KII: Are you aware of any mechanism, formal or informal, within your community addressing communal issues or conflict? If yes, who is part of this mechanism? Which type of issues it addresses and how does it proceed?
Equivalent question for FGD: Are you aware of any mechanism, formal or informal, within your community addressing communal issues or conflict? If yes, who is part of this mechanism? Which type of issues it addresses and how does it proceed?

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- **Key question 17**–Effectiveness of the mechanisms

Question for KII: How effective is this group/mechanism in addressing tensions? Very effective/somewhat effective/somewhat ineffective/very ineffective What would you advise to strengthen it?
Equivalent question for FGD: According to you, what are the strengths and weaknesses of this mechanisms? What would you advise to strengthen it?

Existence of connectors between groups.

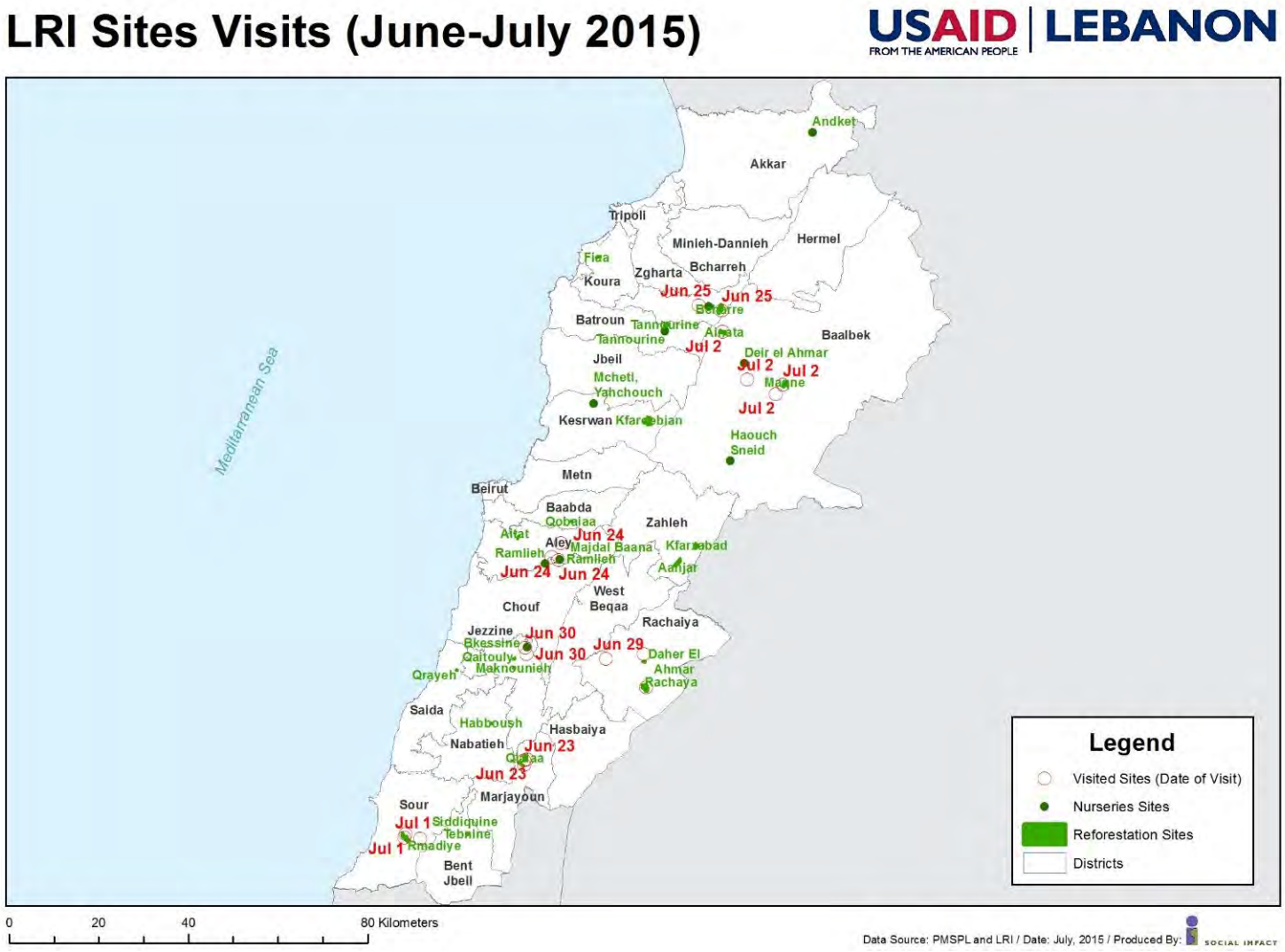
This category aims at identifying to which extent respondents can identify connectors between the two groups in order to improve context and conflict sensitivity and avoid duplication.

Category—overall scale for connectors	
Scale	**Description for each level**
1	Very strong connectors identified
2	Strong connectors identified
3	Weak connectors identified
4	Very weak connectors identified
5	No connectors identified

- **Key questions 18:** Commonality between people

Question for KII: According to you, are there commonalities between the different groups residing in the community, in terms of identity and living conditions? If yes, can you explain what do you think they have in common and why?
Equivalent question for FGD: What do you have in common with the other group that could make you feel connected to them? On what kind of communal issues do you think that people could be more active in addressing?

ANNEX X: MAP OF THE VISITED SITES



ANNEX XI: STATEMENT OF DIFFERENCES

United States Forest Service (USFS) comments came to the Evaluation Team long after the final report was submitted and the team's technical experts were no longer available to respond. Nevertheless the comments represent valuable stakeholder contributions to the principles of collaborating, learning and adapting (CLA). This Annex, "Statements of Differences", has been prepared by SI's PMSPL II staff in Lebanon who supported the original evaluation. USFS' comments originally appearing alongside the text of the report are transferred into this Annex citing the page and section reference where they originally appeared. Responses to USFS comments are given, as needed, in the last column.

Page	Section	Finding/Statement	USFS Comments	Social Impact Reply
Page v	Executive summary Evaluation purpose and evaluation questions	Were women encouraged to take on leadership roles in local forest area management?	*Forest management was not a specific objective of LRI. We would suggest replacing this with "LRI planting and related activities"*	The question noted was one of the evaluation SOW questions. These questions were reviewed by LRI when the SOW was being prepared.
Page vii	Executive summary Findings, conclusions and recommendations. Question 1.	Trainings on business plan development for native tree nurseries were ineffective as native tree nursery owners have been unable to develop business plans after attending two trainings.	*We respectfully disagree with this conclusion. There were several reasons why business plans were not developed, the most notable of which was simply the pace of institutional development of the cooperative and its relationship to each of its constituent nurseries. Categorizing the trainings as ineffective doesn't seem well-supported.*	Trainings on business plans should eventually prepare the trainees on business plans development; yet none of the interviewees said he was able or willing to prepare one; mainly not seeing its importance for the nursery but rather for the cooperative.
Page vii	Executive summary Findings, conclusions and recommendations. Question 1.	Documentation of the main factors that contribute to high survival rates was limited.	*We find this conclusion curious considering the extensive project technical documentation that underpinned the technical trainings that took place in each of the ten planting communities. The high survival rates in most of those ten communities that resulted from that ongoing training and the underlying documented methods speaks for itself.*	There was a lack of documentation on the correlation between the survivability and the species. The survival rates are not traced by species. This is further detailed in the report p.11, acknowledged by USFS.
Page vii	Executive summary Findings, conclusions	Capacity building for municipalities in reforestation was not targeted and community participation was very	*We respectfully disagree with this conclusion and are not clear on what "reforestation models" connotes. Reforestation capacity building was quite targeted, starting with the members*	Reforestation models are further explained in the body of the report. Through interviews conducted, apart

Page	Section	Finding/Statement	USFS Comments	Social Impact Reply
	and recommendations. Question 1.	minimal in some reforestation models.	*of the municipalities who were trained on modern planting practices.*	from the 10 large planted sites, the evaluation found that municipalities had limited, or no participation.
Page vii	Executive summary Findings, conclusions and recommendations. Question 1.	Late fire-management intervention has led to poor integration between fire prevention and outplanting activities.	*We respectfully disagree. Fire management activities were supported with separate funding from the initial LRI project and were only integrated relatively late in the project on the initiative of USAID and LRI project managers. In addition, most of the fire prevention programming was/is focused in forested areas that are quite separate from the project outplanting areas that are largely unforested.*	
Page viii	Executive summary Findings, conclusions and recommendations. Question 2.	Prospects of the communities (besides the two Forest Reserves) to expand on LRI reforestation initiatives without LRI external support are very dim.	*We respectfully disagree with this characterization. Already several LRI-supported communities have succeeded in attracting additional reforestation funding from other external sources, including other international donors and the private sector. Yes, cash-strapped municipalities are largely dependent on external support for reforestation – like most other municipal services – but the LRI-supported municipalities have their successful planting models and approaches to market for continued reforestation funding. Other donors have taken notice.*	During interviews conducted as part of this evaluation, few said that they would expand the reforested areas without the LRI support.
Page ix	Executive summary Findings, conclusions and recommendations. Question 3.	The average cost of each planted seedling was USD 6.75 which is higher than in most developed countries in the world and countries in the region (it does not exceed $2,000/ha/800 seedlings or $2.5 per planted seedling).	*We caution against including this type of cost comparison since costs are widely divergent from one country context to another depending on seedling type (whether native species or industrial species), growing conditions, market factors, etc. Leading forestry experts who advised LRI took issue with these types of cost comparisons across countries. We do not believe they are helpful.*	
Page x	Executive summary	Reforestation sites should be selected based upon a set of criteria to ensure that the land is earmarked for the	*Specific selection criteria used under the project included factors supporting long-term reforestation such as public land status and commitment of the local community to plant on*	In the body of the report, a specific example is given, i.e. plantation sites in flat land located near residential areas have a high probability of being

Page	Section	Finding/Statement	USFS Comments	Social Impact Reply
	Recommendations. Technical Aspects.	purpose of long-term reforestation.	*those lands.*	converted to other land-use purposes in the future.
Page 10	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 1 Intermediate result II Least Achieved.	Selection of reforestation sites did not consider habitat connectivity and did not confirm long-term security of selected land for forests plantation. For example, plantation sites in Maqne are in flat land located near residential areas, and sites like this have a high probability of being converted to other land-use purposes in the future.	*We respectfully disagree. Selection of planted areas in all communities was done only after written commitment from the municipality was received that lands planted were community lands and that the municipality committed in writing to not convert them into the future. In the case of Maqne, the land planted was adjacent to other lands planted by the municipality many years earlier and showed the commitment of the community to maintain the valuable tree-planted lands as such. Moreover, the municipality, with its own funding, paid to install a permanent water tower on the reforested land that also reflected their commitment to keep the land reforested.*	
Page 11	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 1 Intermediate result II Least Achieved.	Documentation of the main factors that contribute to a high survival rate of the planted seedlings was insufficient. The survival rate of the planted trees varied between sites and species, even though according to the monitoring data the quality of seedlings and planting was good. Survival can be affected by other factors such as site-source (species and provenance) matching. In the project monitoring data, the amount of planted seedling per species was not documented and survival rate per species was not recorded. Therefore, it is impossible to know which species will better survive under what conditions.	*Again we respectfully disagree for reasons set out in an earlier comment. We stand by the robust extent of the monitoring and evaluation of tree planting and nursery provenance and the documentation – as described on page 10 – that captured it. Leading USFS tree planting experts developed and positively evaluated the monitoring plan that was utilized. We believe it represents best practice. Additional monitoring aspects could certainly be incorporated – such as more specific species/site variables – but the time and financial resources needed to do so must be balanced against other implementation considerations and resource limitations.*	This comment confirms the finding that was rejected in comment #3.

Page	Section	Finding/Statement	USFS Comments	Social Impact Reply
Page 11	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 1 Intermediate result II Least Achieved.	Three organizational models of reforestation established by the project in particular showed low levels of community participation in reforestation activities: - **The project provided funds to a local NGO, which had an agreement with a municipality for using land.** The NGO establishes a tree plantation on the land and solely manages the site for three years before handing it over to the municipality. Moreover, in other sites, Bcharre for example, the NGOs did not even hire local people to plant trees. - **The tree plantations belonged to municipalities, though the municipalities were not primarily in charge of plantation establishment**. The project carried out plantations by directly hiring people to plant trees and to protect the plantations. The project also conducted monitoring and supervision of the planting and protection activities without involving the concerned municipalities. - **The project provided seedlings and technical assistance.** The project provided seedlings and training for	*We believe these are overly simplified descriptions of how these approaches were implemented community-by-community. In practice, municipalities were involved much more than is suggested here. Environment committee members were engaged throughout the process – admittedly to varying degrees community by community – and partner NGOs worked closely with municipalities throughout the process. Nothing is mentioned here of the extensive outreach with which the project engaged local municipalities and community members. We respectfully disagree with what we believe is an overly simplified and inaccurate characterization.*	This finding is limited to the three cited organizational models of reforestation. The examples provided are specific and support the statement.

Page	Section	Finding/Statement	USFS Comments	Social Impact Reply
		municipalities or LAF members. Plantations were established and managed by municipalities or LAF. (This model is only applied for small-scale plantation sites, with planted seedlings ranging from 500 to 3,000 seedlings per site.)		
Page 13	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 1 Intermediate result III Greatest achievements	LRI organized an event that brought reforestation organizations and private business sector together. During this event, plantation packages were presented and field visits were organized.	*Several of these events were held over the course of the project, at least on an annual basis during the last years of the project.*	Private Sector Representatives interviewed by the evaluators referred to a single LRI event "Building Linkages for Sustainable Reforestation" that brought together potential private sector investors with reforestation practitioners. This event introduced private sector donors to the land where their contribution to reforestation was to be realized. They were then invited to visit the sites. They only referred to one event and one wave of fund raising. There may have been other events that were not related to private sector engagement.
Page 13	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 1 Intermediate result III Least achieved	These include the creation of a forest management task force that was removed from the 2013–2014 work plan and the development of a nursery certification program that was canceled LRI did not provide sufficient justification for canceling this activity.	*These activities were removed from the work plan in consultation and with the agreement of USAID staff for reasons discussed with them. In the case of the long-term financing mechanism, USAID specifically asked LRI management not to pursue the activity. In the case of the nursery certification program, USFS nursery expert Anthony Davis provided reasoned justification, conveyed to USAID, that such a program was not recommended. That recommendation was not contested.*	During the interviews, LRI staff indicated that these activities were canceled. USAID/Lebanon contradicted this comment saying "These activities were not removed from the work plan. They were refined and readjusted and remained part of the work plan.

Page	Section	Finding/Statement	USFS Comments	Social Impact Reply
	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 1 Intermediate result IV	The activities completed have yet to demonstrate that they will in fact protect biodiversity, and testing the hypothesis that these activities did effectively enhance biodiversity protection could be done through any follow-on project.	*Indeed, measuring biodiversity protection in connection with slow-growth tree planting is a long-term proposition by its very nature. However, achievement of widespread multiple species planting (overall more than 20 native species planted under the project – and not as monocultures) is, ipso facto, an indicator of biodiversity protection. Detailed and ongoing species diversity planting data from the project supports that conclusion.*	
Page 14	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 1 Intermediate result IV Least achieved	Late fire-management intervention has led to poor integration between fire prevention and outplanting activities	*See earlier comment.* *(We respectfully disagree. Fire management activities were supported with separate funding from the initial LRI project and were only integrated relatively late in the project on the initiative of USAID and LRI project managers. In addition, most of the fire prevention programming was/is focused in forested areas that are quite separate from the project outplanting areas that are largely unforested.)*	
Page 14	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 1 Intermediate result IV Least achieved	However, in order to be efficient and result in fire prevention, the fire-awareness campaigns should have mainly targeted or reached the people responsible for these activities, yet they did not.	*The project did not have sufficient funding for widespread community fire education, nor was fire prevention education a focus of the project. Rather, the project was focused on technical training of first responders and, in most cases, communities where planting was located were not heavily forested, thus the modest size of the fire component.*	
Page 15	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 1	LRI also implemented reforestation activities in around 30 other communities with different partners such as LAF, religious congregations, and NGOs. These communities did not benefit from supportive community engagement and	*These small community plantings with the LAF were an add-on to the work plan and were not intended to be carried out with the same level of time and resources as the core 10 communities. However, they were viewed as an important avenue to help promote small-scale reforestation efforts with a dependable partner (the LAF) that engages yearly in reforestation projects, thereby helping to make their ongoing*	

Page	Section	Finding/Statement	USFS Comments	Social Impact Reply
	Intermediate result V Least achieved	education.	*efforts more effective with higher survivability and incidental community awareness raising.*	
Page 17	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 1 Hindering Factors	A poor integration of this component with the other activities has resulted from the fact that it was added after the other activities had been already initiated in most sites.	*As previously noted, the fire component was incorporated late as a way to bring together two separately funded projects that both USAID and USFS agreed merited being more closely integrated. "Poor integration" gives the false impression that integration was not well executed, when in fact, two separately administered projects and their underlying funding streams were brought together for positive reasons.*	
Page 17	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 1 Hindering Factors	In comparison, based on information provided in the Safeguarding and Restoring Lebanon's Woodland Resources project report, the cost of reforestation in many developed countries and countries in the region usually does not exceed $2,000/ha/800 (or $2.5 per planted seedling).	*For reasons previously mentioned, such cost comparisons are misleading and not very useful.*	
Page 19	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 2	Most of the owners of the native tree nurseries came about as a result of the project purchasing seedlings	Not accurate. All nurseries, with the exception of one new startup, were in existence prior to the LRI project.	Agreed, the expression "the native tree nurseries came about as a result" is inappropriate. What is meant here and explained in this paragraph is that all the nursery managers/owners said that LRI was <u>their main (or only) client for large-quantity purchases of seedlings</u>. The text is replaced with: Most of the native tree nurseries owners stated that their full capacity production came about as a result of the project

Page	Section	Finding/Statement	USFS Comments	Social Impact Reply
				purchasing seedlings.
Page 20	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 2	One municipality, Rmediyeh, allegedly never received a copy of its own plan from LRI.	*This is not accurate. The Rmediyeh five-year plan, like all community plans, was drawn up through a community roundtable made up of community members. Whomever expressed this view was simply not well informed.*	As listed in Annex V, persons interviewed in Rmediyeh are individuals active in the municipality such as the Vice Mayor and 2 municipality employees, besides 3 environment activists.
Page 22	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 3	In short, LRI demonstrated a promising potential in private-sector funding of reforestation initiatives, but LRI efforts in this area were not pursued any further.	*The project was mandated only to identify models of private-sector funded reforestation initiatives, which it did successfully. In turn, it put these models forward to USAID as the basis for scaling up the project in Phase II. The conclusion that LRI efforts were not pursued any further is a mischaracterization.* Elias Haddad: These private partnership models will be pursued in Phase II.	
Page 22	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 3	This cost is much higher than that in most developed countries of the world and countries in the region, where it usually does not exceed $2.5 per seedling.	Same comment as made previously. (*such cost comparisons are misleading and not very useful.)*	
Page 24	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 4	The prospects of the communities (besides the two forest reserves) expanding on LRI reforestation initiatives without LRI external support are very dim.	Same comment as earlier in the document. (*We respectfully disagree with this characterization. Already several LRI-supported communities have succeeded in attracting additional reforestation funding from other external sources, including other international donors and the private sector. Yes, cash-strapped municipalities are largely dependent*	This was revealed during the interviews. Few said that they would expand the reforested areas without the LRI support.

Page	Section	Finding/Statement	USFS Comments	Social Impact Reply
	Conclusion		*on external support for reforestation – like most other municipal services – but the LRI-supported municipalities have their successful planting models and approaches to market for continued reforestation funding. Other donors have taken notice.*	
Page 24	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 4 Conclusion	Should a change in mayor bring a candidate not in favor of his predecessor's work, even this protection can be endangered, as the new comer may refuse to engage the same persons in these activities.	*This potential scenarios is true of all rural development projects and isn't specifically germane to reforestation projects and the likelihood that they will or will not be sustained/expanded.*	Recommendations are given in the section that followed to avoid this scenario.
Page 26	FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS. Question 5 Conclusion	Presently, there are no indications that the twinning will have a positive impact on social stability between host communities and Syrian refugees.	*We believe this is an overstatement, since there are numerous incremental efforts that are possible – such as bringing together young school-age children who are more amenable to positive interaction and who can influence their elders; in addition, where there are similar sectarian bonds between inhabitants and Syrian refugees, twinning activities can potentially be more effective. These efforts have only just begun.*	

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