



## Participatory Reforestation Plan of Anjar

Prepared by the:

The Association for Forests, Development and Conservation (AFDC)  
And  
The Municipality and the local community of Anjar.

## Table of Contents

I. Background and Objectives of the Reforestation .....	3
II. Main Stakeholders and Reforestation Experience.....	3
III. Site Attributes .....	7
IV. Potential Schemes for Reforestation Blocks.....	22
V. Livelihoods and Research Activities.....	28
VI. Budget.....	31
VII. Hazards and mitigation options.....	32
VII. Pictures.....	33
Table 1. Schedule and purpose of visits to Anjar .....	3
Table 2. The main reforestation supporters in Anjar .....	5
Table 3. The main land users within the Anjar site .....	6
Table 4. Reforestation experience of Anjar community .....	7
Table 5. Site factsheet.....	8
Table 6. Characteristics of patch 1.....	10
Table 7. Characteristics of patch 2.....	11
Table 8. Characteristics of patch 3.....	12
Table 9. Characteristics of patch 4.....	13
Table 10. Characteristics of patch 5.....	14
Table 11. Characteristics of patch 6.....	15
Table 12. Characteristics of patch 7.....	16
Table 13. Characteristics of patch 8.....	17
Table14 . Grouping of the patches into reforestation blocks; patches of same color belong to the same block.....	20
Table 15. Schemes for reforestation block of patches 1, 4, 7 (low slope, flat, slope 0-10%, low stoniness, high rockiness).....	22
Table 16. Reforestation schemes for patch 2/reforestation block 2 (Terrace, flat, deep soil, moderate stoniness and low rockiness .....	22
Table 17. Reforestation schemes for patches 5 and 6 (Mid and upper slope, Convex shape, 10-30% slope, moderate soil) .....	23
Table 18. Reforestation scheme for patch 3/reforestation block 3 (Road and surrounding water tank).....	23
Table19 . Comparative summary of actions per scheme for patches 1, 4 and 7 .....	24
Table20 . Comparative summary of actions per scheme for patch 2. ....	25
Table21 . Comparative summary of actions per scheme for patches 5 and 6. ....	26
Table22 . Comparative summary of actions per scheme for patch 3 .....	27
Table 23. Support activities for main land users.....	28
Table 24. Activities aimed at reforestation supporters and to increase the chances of reforestation success .....	29
Table 25. Proposed R&D activities.....	29
Table 26. Cost of reforestation based on chosen schemes.....	30
Table27 . Total number of species to be used in the project .....	30
Table 28. Overall cost of livelihoods support and para-reforestation activities .....	31
Table 29. Total cost of R&D activities .....	31
Table 30. Total afforestation cost .....	32
Table 31. The main hazards and mitigation options for the Anjar site .....	32

## I. Background and Objectives of the Reforestation

Much of the western flanks of the Anti-Lebanon mount chain within the area of Anjar, Kfarzabab and beyond were forested or supported denser vegetation than the current status. Due to years of abuse such as cutting, conversion of lands, expansion of habitations and abusive grazing, the forest cover was gradually lost. Nowadays, the municipality of Anjar is keen on restoring parts of this forest cover for a multitude of reasons including scenic beauty, protection of fragile soils, preservation of downstream water resources especially the Anjar and Chamsine springs which feeds much of the area.

More importantly, the community, and consequently the municipality, is keen to reforest and restore the green cover as part of its long term vision of Anjar. In fact, culturally, the community has a sense of green stewardship, and the Armenian refugees that have settled in the area over 90 years ago transformed Anjar into a lush green community. Now they are keen to green the surrounding mountains. Strategically, the community understands that long term investment in green spaces and forests will leverage Anjar's potential as a distinguished eco-touristic destination in the Anti-Lebanon mountain range able to accommodate for a multitude of activities such hiking, biking, rafting, nature observation among many other activities.

During the meetings with the local community members and municipality representatives, these aspirations were highlighted and can be inspected in table 2.

## II. Main Stakeholders and Reforestation Experience

To properly engage the community, AFDC, assisted by the SPNL, worked on determining the stakeholders that are relevant to the reforestation project. For this end, AFDC made several visits to the Anjar community the dates of which are presented in the table below.

Table 1. Schedule and purpose of visits to Anjar

Date of visit	Purpose of visit
October 7, 2015	Validation of the reforestation schemes with the municipality and local community
September 15, 2015	Reforestation blocks determination and site visit
August 26, 2015	Meeting with the local committee and stakeholders mapping
August 6, 2015	Meeting with the municipality to discuss the possible members of the local committee and site visit
August 3, 2015	Introductory meeting with the municipality

Based on these meetings and consultation with the local community, it was possible to determine the main stakeholders within Anjar, divided as supporters of reforestation and land users.

In the supporters group, the following were determined:

- The municipality
- Red Cross
- Water Users Association
- SPNL
- Environment committee
- Schools
- Scouts/Homentmen scouts.

In the land users category, the following were determined:

- Farmers
- Shepherds
- Bekaa Water Utility.

Table 2 represents the main reforestation supporters located within Anjar municipality and lists their main aspirations regarding the reforestation process.

Table 3 on the other hand, represents the main current land users that might have a negative impact on the reforestation process.

Table 2. The main reforestation supporters in Anjar

أنصار عملية التشجير: المتطوعين المهتمين في عملية التشجير						
إسم المجموعة	عدد الأعضاء	الوظائف الحالية والأنشطة الحالية (المتعلقة بالموارد الطبيعية التي يمكن أن تعزز عملية إعادة التحريج)	الدور (خلال التحريج)	الإستخدام المرغوب من التشجير ( إنتاج، ترفيه وسياحة، حماية، إنتاج العسل، منع إنجراف التربة)	أنواع المفضلة	الأنواع غير المستحبة
البلدية	15	الاهتمام العام الذي توليه البلدية للبيئة في المحلة	الأشراف والمتابعة	تخزين المياه/ حماية الإنتاج/سياحة	جوز/لزاب/لوز/أرز/ سماق/أنواع	لا يوجد
الصليب الأحمر	200	مستوصف/ مركز أشغال يدوية/ توعية وارشاد	نشر التوعية / تصريف انتاج الحمى	انتاج / تربية نحل/ حماية الموقع / حماية المنظر	توت شامي/ برقوق/ اجاص بري/ صنوبر جوي	لا يوجد
لجنة المياه	7	ادارة مياه الري في عنجر	تطوع / تأمين المياه	زيادة مخزون المياه	أشجار منتجة	لا يوجد
SPNL	1	حماية الطبيعة ومراقبة الحياة البرية / سياحة بيئية	التعاون مع الجمعية / ادارة العمال	انتاج / حماية / تسليية	انواع مناسبة للتربة	لا يوجد
لجنة البيئة	11	توعية بيئية/ تنسيق النشاطات	إشراف ومساعدة / توعية في المدارس	توعية/حماية الموقع/سياحة	دائمة الخضرة / كستنا	لا يوجد
مدارس	ثلاث مدارس	تعليم	تأمين متطوعين	حماية الموقع	انواع مناسبة للتربة	لا يوجد
كشاف / جمعية هوماتمن	200	جمعية كشفية	تأمين متطوعين	حماية الموقع / مكان للتخييم	انواع مناسبة للتربة	لا يوجد

Table 3. The main land users within the Anjar site

الأنواع غير المستحبة	الأنواع المفضلة	الإستخدام المفضل من التحريج ( إنتاج، تسليية، حماية، إنتاج العسل، منع إنجراف التربة)	ما هي التدابير التي يمكن اتخاذها للتخفيف والحد من الخلافات المحتملة؟	هل هم مهتمين بالمشاركة بعملية التحريج؟ كيف يمكن أن يشاركوا بها؟	أي من المواقع المحرّجة تتعارض مع موارد رزقهم؟ كيف ستتأثر نشاطاتهم بعملية التحريج؟	الوظائف الحالية والأنشطة الحالية (المتعلقة بالموارد الطبيعية)؟ وصف صغير لهذا النشاط	عدد الأعضاء	إسم المجموعة
لا يوجد	الأصناف المنتجة	حماية، والإنتاج	عدم التحريج في الارض المتنازع عليها	كلا	Patch 8 a	زراعة فواكة	5	مزارعين
لا يوجد	الأصناف العاشبة	إنتاج	البلدية ستلجأ الي منع دخولهم للموقع	كلا	Patch 8 b	رعي	غير محدد	الرعاة
غير معني	غير معني	غير معني	عدم الزرع بشكل كثيف في هذه الرقعة	نعم	Patch 3	تشبيد خزان مياه شرب لبلدة عنجر والجوار		مصلحة مياه البقاع

In recent years, Anjar's local community benefitted from a strong relationship with the Lebanese Reforestation Initiative which selected a site within the community to conduct a large scale reforestation. As a result of this intervention, the community built its experience in reforestation and within few years from now, the reforested site will become a true and verdant forest. Table 4 gives ample information on the experience of the local community with regards to reforestation.

Table 4. Reforestation experience of Anjar community

الأجوبة	الأسئلة
مشروع تحريج لمدة ثلاث سنوات بالشراكة مع البلدية واليد العاملة محلية من شباب القرية	وصف عام عن تجربة سابقة
الوكالة الاميركية للتنمية	مصدر التمويل
جمعية تحريج لبنان وبلدية عنجر	الهيئة المنقذة
30% انحدار ، غربي، 1000م عن سطح لبحر، جبل	الميزات الرئيسية للموقع ( الإنحدار، جانب، إرتفاع، الجغرافيا الطبيعية)
42 هكتار	المساحة المحرّجة
صنوبر جوي، صنوبر بروتي وحلبي، دردار، ميس، سرو – عمر سنة واحدة – طول 20سم مزروع في كوتنيزر، – AFDC – Native – تنويرين	الأنواع المستعملة ( الصنف، العمر، الشكل، المشتل)
حفر يدوي – ري بالتنقيط – ازالة الاعشاب حول الغرسة في السنة التالية	تقنيات الزرع المعتمدة ( التربة، الري، الأعشاب الضارة)
20% دردار وميس (عدم وجود نظام ري) 75%	معدّل النجاح لكلّ صنف
قرار مجلس بلدي/ وحراس	التدابير المتخذة لمنع الرعي
البلدية ، متطوعين من البلدة، تأمين العمال ومراقبة عملية التحريج	من هم الجهات الفاعلة ( مستخدمى الأراضي، الجمعيات) المعنية خلال التخطيط، التنفيذ، ومراقبة عملية التحريج؟ ما كان دورهم؟
تحضير الارض بشكل جيد زراع تقنيين ازالة الاعشاب الحرص على نوعية الشتول السرو ذات نمو سريع	• ما هي الدروس المستفادة الإيجابية التي تعتبر يجب أن تتكرّر • • • •
توقيت جيد للزرع (الزرع باكرا) مراقبة نوعية الشتول تجنب زرع البلوط بواسطة شتول	• ما هي الدروس المستفادة التي يجب تجنبها • • • •
ري الشتول لمدة ثلاث سنوات	معلومات أخرى ذو صلة

It is evident from the table above that the experience amassed during these years would surely be helpful in making subsequent reforestation projects more amenable to success. Moreover, it is worth noting that although most of the reforestation experience of Anjar involves only one site, the site reforested was large enough to allow for a rich and informative learning experience.

### III. Site Attributes

The Anjar community is well laid out and one can distinguish easily between the residential, agricultural and the mountainous areas. The mountainous area is the one

that is of interest to reforestation. Through the scattered trees these mountains hold, it could be estimated that in the distant past, the area was forested. The no man’s land between Lebanon and Syria, juxtaposing Anjar, covered with a denser vegetation of mainly oak forests confirms this.

The site is located on public land. The area is called Wadi Anjar. Currently, the land is not heavily used and the close proximity to the Syrian borders limits human activities. An army base is located just at the foot of the mountainous site and the army regularly conducts surveillance patrols within the site, in addition to having a permanent checkpoint midway up the mountain.

Table 5 goes over some of the main site attributes that pertain to the reforestation activities.

Table 5. Site factsheet

Name of the Municipality	Anjar
<b>BIOCLIMATIC INFORMATION</b>	
¿Which are the Bioclimatic step/s and series of vegetation present in your municipality?	Mediterranean: Eumediterranean and Supramediterranean
Bioclimates: Mediterranean: thermomediterranean; Eumediterranean; Supramediterranean; Montane-Mediterranean; Oromediterranean; Presteppic: Mediterranean Presteppic; Presteppic supramediterranean; Presteppic montane Mediterranean; Presteppic oromediterranean	
Vegetation series	Mediterranean series of <i>Q. calliprinos</i> and <i>Q. calliprinos</i>
<b>CLIMATE INFORMATION</b>	
Annual average rainfall (mm)	768 mm
Monthly average rainfall (mm)	Data unavailable, but there’s a net drought season from June till September/October.
During which months does the snow cover the ground normally?	Snow cover is not permanent and is storm dependent.
Is there any other particular climate event (e.g. strong prevailing wind, moving fogs)? If so, describe	Low humidity, high evapotranspiration levels
<b>SOIL</b>	
pH	Soil samples sent to laboratory, awaiting result analysis.
Texture	
Are active limestone, gypsum or salinity a problem?	
<b>FLORA</b>	
Tree and shrub species (see list below*) currently present in the area to reforest	Dominant species on site are herbaceous and annual plants.
Tree and shrub species (see list below*) in surrounding areas (including neighboring municipalities) with similar features	Oak species, wild maple and pistachio trees. Water dependent species near the wetlands such as <i>Platanus orientalis</i> and others.
Tree and shrub species (see list below*) previously present in the area and surrounding areas with similar features (historical records) <sup>1</sup>	Not available
<b>OTHERS</b>	
Water collection and/or storage facilities (mapped)	Main water reservoir, part of the water network of Anjar.

Given the overall site attributes, it’s pretty clear that it’s amenable to reforestation since the overall precipitation is acceptable and while the soil is poor and shallow in



some spots, overall it would allow the establishment of native forest trees. The current status of the soil's fertility was not known up till the date when this report was written, however, it should be noted that soil samples were sent to the laboratory and the soil characteristics will be determined once the results are in.

The AFDC and the local community thought carefully on how to understand the site's micro-attributes to come up with planting sub-units.

After several considerations nine patches were defined as a preliminary attempt to understand the details and realities of the site as shown in figure 1.

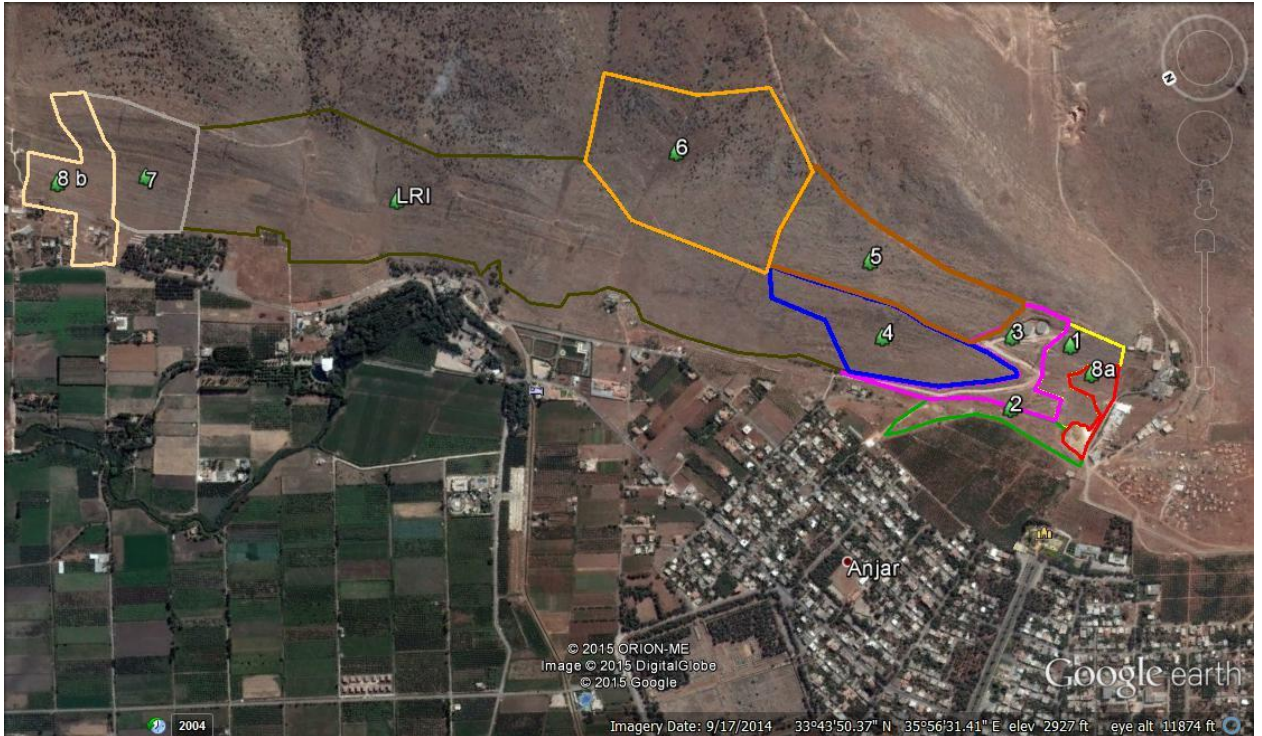
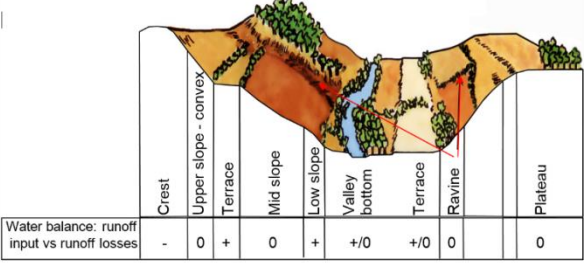


Figure 1. Reforestation patches within the Anjar site

Besides the patches numbered from one to eight, the LRI patch represents the land that was planted through the collaboration of the LRI and the municipality of Anjar along the support of the SPNL.

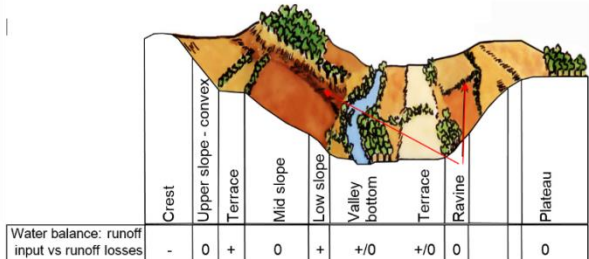
To better understand these patches and how similar and dissimilar they are their major characteristics are presented in the following tables.

Table 6. Characteristics of patch 1

<b>Name of the Municipality</b>	Anjar										
<b>Reforestation Compartment</b>											
<b>Reforestation Patch<sup>1</sup></b>	<b>Patch 1</b>										
<b>GPS track / code</b>	33.7221995°, 035.9361742°										
<b>PHYSIOGRAPHIC INFORMATION (GIS, confirmed with on-field work)</b>											
Average altitude	995										
Position at the slope (Figure adapted from Gonin et al, 2013)	 <table border="1" data-bbox="842 705 1428 750"> <tr> <td>Water balance: runoff input vs runoff losses</td> <td>-</td> <td>0</td> <td>+</td> <td>0</td> <td>+</td> <td>+/0</td> <td>+/0</td> <td>0</td> <td>0</td> </tr> </table> <p><b>Low slope</b></p>	Water balance: runoff input vs runoff losses	-	0	+	0	+	+/0	+/0	0	0
Water balance: runoff input vs runoff losses	-	0	+	0	+	+/0	+/0	0	0		
Prevailing Aspect/s	N / <b>NW / W</b> / SW / S / SE / E / NE / flat										
Steepness range (%)	0-10 / <b>10-30</b> / 30-60 / +60										
<b>SOIL (field work)</b>											
Depth (cm)	<30 / <b>30-50</b> / 50-80 / >80										
Stoniness (sized 0,2-20 cm Ø) (%)	<b>0-15</b> / 15-40 / >40										
Rockiness (%)	0 / 1-15 / <b>15-40</b> / >40										
<b>FLORA (field work + consultation)</b>											
Current land-use											
Previous land-use	For grazing										
Present species	Herbaceous plants										
Previous species	Herbaceous plants										
<b>OTHERS (during field work + GIS + consultation)</b>											
Traces / evidences of livestock	Severe / Present / <b>Absent</b>										
Accessibility to the perimeter of the patch	All vehicles / <b>4x4 &amp; caterpillars</b> / inaccessible										
Accessibility within the Patch	All vehicles / 4x4 & caterpillars / <b>inaccessible</b>										
Signs of erosion	<b>No</b> / slight / moderate / severe										
Key remarks (signs of flooding, average height or density of shrubs, vulnerable / indicative species, type of landscape – grassland, shrubland)	It's a grass land with little shrubs. It leans towards being a rocky site.										

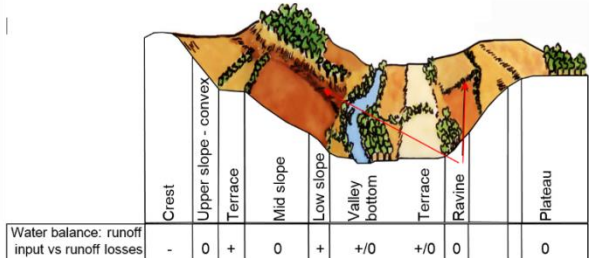
<sup>1</sup> Attached a map with the location of each patch

Table 7. Characteristics of patch 2

<b>Name of the Municipality</b>	Anjar										
<b>Reforestation Compartment</b>											
<b>Reforestation Patch<sup>2</sup></b>	<b>Patch 2</b>										
<b>GPS track / code</b>	33.7242859°, 035.9361356°										
<b>PHYSIOGRAPHIC INFORMATION (GIS, confirmed with on-field work)</b>											
Average altitude	959										
Position at the slope (Figure adapted from Gonin et al, 2013)	 <table border="1" data-bbox="837 728 1428 772"> <tr> <td>Water balance: runoff input vs runoff losses</td> <td>-</td> <td>0</td> <td>+</td> <td>0</td> <td>+</td> <td>+/0</td> <td>+/0</td> <td>0</td> <td>0</td> </tr> </table>	Water balance: runoff input vs runoff losses	-	0	+	0	+	+/0	+/0	0	0
Water balance: runoff input vs runoff losses	-	0	+	0	+	+/0	+/0	0	0		
	<b>Terrace</b>										
Prevailing Aspect/s	N / NW / W / SW / S / SE / E / NE / <b>flat</b>										
Steepness range (%)	<b>0-10</b> / 10-30 / 30-60 / +60										
<b>SOIL (field work)</b>											
Depth (cm)	<30 / 30-50 / 50-80 / <b>&gt;80</b>										
Stoniness (sized 0,2-20 cm Ø) (%)	<b>0-15</b> / 15-40 / >40										
Rockiness (%)	0 / <b>1-15</b> / 15-40 / >40										
<b>FLORA (field work + consultation)</b>											
Current land-use											
Previous land-use	For grazing										
Present species	Herbaceous plants										
Previous species	Herbaceous plants										
<b>OTHERS (during field work + GIS + consultation)</b>											
Traces / evidences of livestock	Severe / Present / <b>Absent</b>										
Accessibility to the perimeter of the patch	<b>All vehicles</b> / 4x4 & caterpillars / inaccessible										
Accessibility within the Patch	All vehicles / <b>4x4 &amp; caterpillars</b> / inaccessible										
Signs of erosion	<b>No</b> / slight / moderate / severe										
Key remarks (signs of flooding, average height or density of shrubs, vulnerable / indicative species, type of landscape – grassland, shrubland)	It's a flat grass land and deep soil										

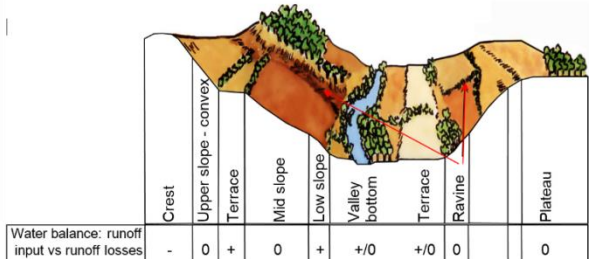
2 Attached a map with the location of each patch

Table 8. Characteristics of patch 3

<b>Name of the Municipality</b>	Anjar										
<b>Reforestation Compartment</b>											
<b>Reforestation Patch<sup>3</sup></b>	Patch 3										
<b>GPS track / code</b>	33.7253583°, 035.9394205°										
<b>PHYSIOGRAPHIC INFORMATION (GIS, confirmed with on-field work)</b>											
Average altitude	975										
Position at the slope (Figure adapted from Gonin et al, 2013)	 <table border="1" data-bbox="837 660 1428 705"> <tr> <td>Water balance: runoff input vs runoff losses</td> <td>-</td> <td>0</td> <td>+</td> <td>0</td> <td>+</td> <td>+/0</td> <td>+/0</td> <td>0</td> <td>0</td> </tr> </table>	Water balance: runoff input vs runoff losses	-	0	+	0	+	+/0	+/0	0	0
Water balance: runoff input vs runoff losses	-	0	+	0	+	+/0	+/0	0	0		
	<b>Low Slope</b>										
Prevailing Aspect/s	N / <b>NW / W</b> / SW / S / SE / E / NE / flat										
Steepness range (%)	0-10 / <b>10-30</b> / 30-60 / +60										
<b>SOIL (field work)</b>											
Depth (cm)	<30 / <b>30-50</b> / 50-80 / >80										
Stoniness (sized 0,2-20 cm Ø) (%)	<b>0-15</b> / 15-40 / >40										
Rockiness (%)	0 / 1-15 / <b>15-40</b> / >40										
<b>FLORA (field work + consultation)</b>											
Current land-use											
Previous land-use	No specific use										
Present species	Herbaceous plants										
Previous species	Herbaceous plants										
<b>OTHERS (during field work + GIS + consultation)</b>											
Traces / evidences of livestock	Severe / Present / <b>Absent</b>										
Accessibility to the perimeter of the patch	All vehicles / <b>4x4 &amp; caterpillars</b> / inaccessible										
Accessibility within the Patch	All vehicles / 4x4 & caterpillars / <b>inaccessible</b>										
Signs of erosion	<b>No</b> / slight / moderate / severe										
Key remarks (signs of flooding, average height or density of shrubs, vulnerable / indicative species, type of landscape – grassland, shrubland)	It's a grassland with little shrubs. It leans to being a rocky site.										

<sup>3</sup> Attached a map with the location of each patch

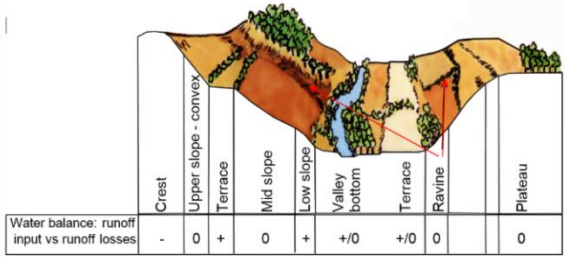
Table 9. Characteristics of patch 4

<b>Name of the Municipality</b>	Anjar																				
<b>Reforestation Compartment</b>																					
<b>Reforestation Patch<sup>4</sup></b>	Patch 4																				
<b>GPS track / code</b>	33.7247976°, 035.9411115°																				
<b>PHYSIOGRAPHIC INFORMATION (GIS, confirmed with on-field work)</b>																					
Average altitude	975																				
Position at the slope (Figure adapted from Gonin et al, 2013)	 <table border="1" data-bbox="837 728 1428 772"> <tr> <td></td> <td>Crest</td> <td>Upper slope - convex</td> <td>Terrace</td> <td>Mid slope</td> <td>Low slope</td> <td>Valley bottom</td> <td>Terrace</td> <td>Ravine</td> <td>Plateau</td> </tr> <tr> <td>Water balance: runoff input vs runoff losses</td> <td>-</td> <td>0</td> <td>+</td> <td>0</td> <td>+</td> <td>+/0</td> <td>+/0</td> <td>0</td> <td>0</td> </tr> </table>		Crest	Upper slope - convex	Terrace	Mid slope	Low slope	Valley bottom	Terrace	Ravine	Plateau	Water balance: runoff input vs runoff losses	-	0	+	0	+	+/0	+/0	0	0
	Crest	Upper slope - convex	Terrace	Mid slope	Low slope	Valley bottom	Terrace	Ravine	Plateau												
Water balance: runoff input vs runoff losses	-	0	+	0	+	+/0	+/0	0	0												
	<b>Mid Slope</b>																				
Prevailing Aspect/s	N / <b>NW / W</b> / SW / S / SE / E / NE / flat																				
Steepness range (%)	0-10 / <b>10-30</b> / 30-60 / +60																				
<b>SOIL (field work)</b>																					
Depth (cm)	<30 / <b>30-50</b> / 50-80 / >80																				
Stoniness (sized 0,2-20 cm Ø) (%)	0-15 / <b>15-40</b> / >40																				
Rockiness (%)	0 / 1-15 / 15-40 / <b>&gt;40</b>																				
<b>FLORA (field work + consultation)</b>																					
Current land-use																					
Previous land-use	No specific use																				
Present species	Herbaceous plants																				
Previous species	Herbaceous plants																				
<b>OTHERS (during field work + GIS + consultation)</b>																					
Traces / evidences of livestock	Severe / Present / <b>Absent</b>																				
Accessibility to the perimeter of the patch	All vehicles / <b>4x4 &amp; caterpillars</b> / inaccessible																				
Accessibility within the Patch	All vehicles / 4x4 & caterpillars / <b>inaccessible</b>																				
Signs of erosion	<b>No</b> / slight / moderate / severe																				
Key remarks (signs of flooding, average height or density of shrubs, vulnerable / indicative species, type of landscape – grassland, shrubland)	It's a grassland with little shrubs. It leans to being a rocky site.																				

<sup>4</sup> Attached a map with the location of each patch

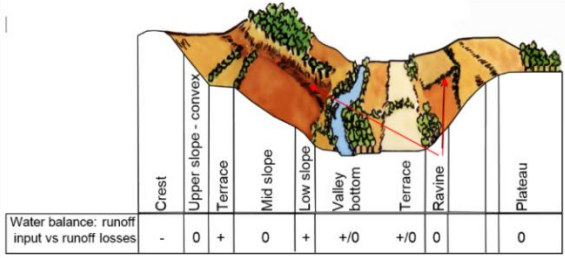


Table 10. Characteristics of patch 5

<b>Name of the Municipality</b>	Anjar																				
<b>Reforestation Compartment</b>																					
<b>Reforestation Patch<sup>5</sup></b>	<b>Patch 5</b>																				
<b>GPS track / code</b>	33.7234724°, 035.9372133°																				
<b>PHYSIOGRAPHIC INFORMATION (GIS, confirmed with on-field work)</b>																					
Average altitude	975																				
Position at the slope (Figure adapted from Gonin et al, 2013)	 <table border="1" data-bbox="837 683 1404 739"> <tr> <td></td> <td>Crest</td> <td>Upper slope - convex</td> <td>Terrace</td> <td>Mid slope</td> <td>Low slope</td> <td>Valley bottom</td> <td>Terrace</td> <td>Ravine</td> <td>Plateau</td> </tr> <tr> <td>Water balance: runoff input vs runoff losses</td> <td>-</td> <td>0</td> <td>+</td> <td>0</td> <td>+</td> <td>+/-0</td> <td>+/-0</td> <td>0</td> <td>0</td> </tr> </table>		Crest	Upper slope - convex	Terrace	Mid slope	Low slope	Valley bottom	Terrace	Ravine	Plateau	Water balance: runoff input vs runoff losses	-	0	+	0	+	+/-0	+/-0	0	0
	Crest	Upper slope - convex	Terrace	Mid slope	Low slope	Valley bottom	Terrace	Ravine	Plateau												
Water balance: runoff input vs runoff losses	-	0	+	0	+	+/-0	+/-0	0	0												
	<b>Terrace</b>																				
Prevailing Aspect/s	N / <b>NW / W</b> / SW / S / SE / E / NE / flat																				
Steepness range (%)	0-10 / <b>10-30</b> / 30-60 / +60																				
<b>SOIL (field work)</b>																					
Depth (cm)	<30 / <b>30-50</b> / 50-80 / >80																				
Stoniness (sized 0,2-20 cm Ø) (%)	0-15 / 15-40 / <b>&gt;40</b>																				
Rockiness (%)	0 / 1-15 / 15-40 / <b>&gt;40</b>																				
<b>FLORA (field work + consultation)</b>																					
Current land-use	Functions as a road leading to the water tank																				
Previous land-use	Grazing																				
Present species	Herbaceous plants																				
Previous species	Herbaceous plants																				
<b>OTHERS (during field work + GIS + consultation)</b>																					
Traces / evidences of livestock	Severe / Present / <b>Absent</b>																				
Accessibility to the perimeter of the patch	All vehicles / <b>4x4 &amp; caterpillars</b> / inaccessible																				
Accessibility within the Patch	All vehicles / 4x4 & caterpillars / <b>inaccessible</b>																				
Signs of erosion	<b>No</b> / slight / moderate / severe																				
Key remarks (signs of flooding, average height or density of shrubs, vulnerable / indicative species, type of landscape – grassland, shrubland)	This patch mostly consists of a road leading to the three water tanks delivering drinking water for the region. One is under construction and will serve Anjar, while the other two serve the nearby regions.																				

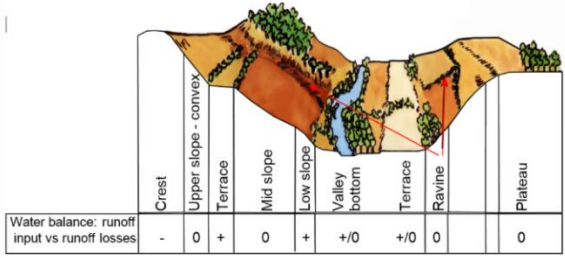
<sup>5</sup> Attached a map with the location of each patch

Table 11. Characteristics of patch 6

<b>Name of the Municipality</b>	Anjar																				
<b>Reforestation Compartment</b>																					
<b>Reforestation Patch<sup>6</sup></b>	<b>Patch 6</b>																				
<b>GPS track / code</b>	33.7272073°, 035.9457530°																				
<b>PHYSIOGRAPHIC INFORMATION (GIS, confirmed with on-field work)</b>																					
Average altitude	975																				
Position at the slope (Figure adapted from Gonin et al, 2013)	 <table border="1" data-bbox="837 660 1404 705"> <tr> <td>Water balance: runoff input vs runoff losses</td> <td>Crest</td> <td>Upper slope - convex</td> <td>Terrace</td> <td>Mid slope</td> <td>Low slope</td> <td>Valley bottom</td> <td>Terrace</td> <td>Ravine</td> <td>Plateau</td> </tr> <tr> <td></td> <td>-</td> <td>0</td> <td>+</td> <td>0</td> <td>+</td> <td>+/0</td> <td>+/0</td> <td>0</td> <td>0</td> </tr> </table>	Water balance: runoff input vs runoff losses	Crest	Upper slope - convex	Terrace	Mid slope	Low slope	Valley bottom	Terrace	Ravine	Plateau		-	0	+	0	+	+/0	+/0	0	0
Water balance: runoff input vs runoff losses	Crest	Upper slope - convex	Terrace	Mid slope	Low slope	Valley bottom	Terrace	Ravine	Plateau												
	-	0	+	0	+	+/0	+/0	0	0												
	<b>Terrace</b>																				
Prevailing Aspect/s	N / NW / W / SW / S / SE / E / NE / flat																				
Steepness range (%)	0-10 / 10-30 / 30-60 / +60																				
<b>SOIL (field work)</b>																					
Depth (cm)	<30 / 30-50 / 50-80 / >80																				
Stoniness (sized 0,2-20 cm Ø) (%)	0-15 / 15-40 / >40																				
Rockiness (%)	0 / 1-15 / 15-40 / >40																				
<b>FLORA (field work + consultation)</b>																					
Current land-use	Grazing; non specific																				
Previous land-use	Grazing																				
Present species	Herbaceous plants; Quercus trees																				
Previous species	Herbaceous plants; Quercus trees																				
<b>OTHERS (during field work + GIS + consultation)</b>																					
Traces / evidences of livestock	Severe / Present / <b>Absent</b>																				
Accessibility to the perimeter of the patch	All vehicles / 4x4 & caterpillars / inaccessible																				
Accessibility within the Patch	All vehicles / 4x4 & caterpillars / <b>inaccessible</b>																				
Signs of erosion	<b>No</b> / slight / moderate / severe																				
Key remarks (signs of flooding, average height or density of shrubs, vulnerable / indicative species, type of landscape – grassland, shrubland)	High land contains some Quercus trees and various herbaceous plants. Due to the current situation and the war in neighboring Syria, reforestation might be risky in this zone due to its proximity to the borders.																				

<sup>6</sup> Attached a map with the location of each patch

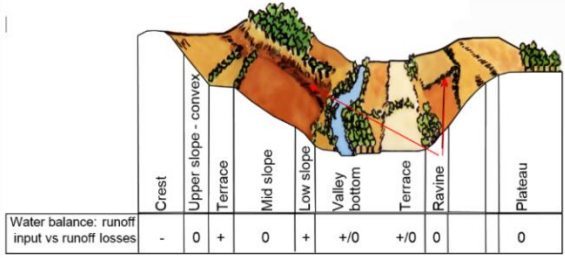
Table 12. Characteristics of patch 7

<b>Name of the Municipality</b>	Anjar																				
<b>Reforestation Compartment</b>																					
<b>Reforestation Patch<sup>7</sup></b>	Patch 7																				
<b>GPS track / code</b>	33.7377250°, 035.9532323°																				
<b>PHYSIOGRAPHIC INFORMATION (GIS, confirmed with on-field work)</b>																					
Average altitude	930																				
Position at the slope (Figure adapted from Gonin et al, 2013)	 <table border="1" data-bbox="837 660 1404 705"> <tr> <td>Water balance: runoff input vs runoff losses</td> <td>Crest</td> <td>Upper slope - convex</td> <td>Terrace</td> <td>Mid slope</td> <td>Low slope</td> <td>Valley bottom</td> <td>Terrace</td> <td>Ravine</td> <td>Plateau</td> </tr> <tr> <td></td> <td>-</td> <td>0</td> <td>+</td> <td>0</td> <td>+</td> <td>+/0</td> <td>+/0</td> <td>0</td> <td>0</td> </tr> </table> <p><b>Ravine</b></p>	Water balance: runoff input vs runoff losses	Crest	Upper slope - convex	Terrace	Mid slope	Low slope	Valley bottom	Terrace	Ravine	Plateau		-	0	+	0	+	+/0	+/0	0	0
Water balance: runoff input vs runoff losses	Crest	Upper slope - convex	Terrace	Mid slope	Low slope	Valley bottom	Terrace	Ravine	Plateau												
	-	0	+	0	+	+/0	+/0	0	0												
Prevailing Aspect/s	N / <b>NW / W</b> / SW / S / SE / E / NE / flat																				
Steepness range (%)	0-10 / <b>10-30</b> / 30-60 / +60																				
<b>SOIL (field work)</b>																					
Depth (cm)	<30 / <b>30-50</b> / 50-80 / >80																				
Stoniness (sized 0,2-20 cm Ø) (%)	<b>0-15</b> / 15-40 / >40																				
Rockiness (%)	0 / 1-15 / 15-40 / <b>&gt;40</b>																				
<b>FLORA (field work + consultation)</b>																					
Current land-use	Grazing, non-specific; near the cemetery																				
Previous land-use	Grazing																				
Present species	Herbaceous plants																				
Previous species	Herbaceous plants																				
<b>OTHERS (during field work + GIS + consultation)</b>																					
Traces / evidences of livestock	Severe / Present / <b>Absent</b>																				
Accessibility to the perimeter of the patch	All vehicles / <b>4x4 &amp; caterpillars</b> / inaccessible																				
Accessibility within the Patch	All vehicles / 4x4 & caterpillars / <b>inaccessible</b>																				
Signs of erosion	<b>No</b> / slight / moderate / severe																				
Key remarks (signs of flooding, average height or density of shrubs, vulnerable / indicative species, type of landscape – grassland, shrubland)	It's a rocky land but the soil is good and productive as evidenced by the higher grass compared to the nearby patches.																				

<sup>7</sup> Attached a map with the location of each patch



Table 13. Characteristics of patch 8

<b>Name of the Municipality</b>	Anjar																				
<b>Reforestation Compartment</b>																					
<b>Reforestation Patch<sup>8</sup></b>	Patch 8																				
<b>GPS track / code</b>	33.7393063°, 035.9537903°																				
<b>PHYSIOGRAPHIC INFORMATION (GIS, confirmed with on-field work)</b>																					
Average altitude	910																				
Position at the slope (Figure adapted from Gonin et al, 2013)	 <table border="1" data-bbox="837 660 1404 705"> <tr> <td></td> <td>Crest</td> <td>Upper slope - convex</td> <td>Terrace</td> <td>Mid slope</td> <td>Low slope</td> <td>Valley bottom</td> <td>Terrace</td> <td>Ravine</td> <td>Plateau</td> </tr> <tr> <td>Water balance: runoff input vs runoff losses</td> <td>-</td> <td>0</td> <td>+</td> <td>0</td> <td>+</td> <td>+/0</td> <td>+/0</td> <td>0</td> <td>0</td> </tr> </table>		Crest	Upper slope - convex	Terrace	Mid slope	Low slope	Valley bottom	Terrace	Ravine	Plateau	Water balance: runoff input vs runoff losses	-	0	+	0	+	+/0	+/0	0	0
	Crest	Upper slope - convex	Terrace	Mid slope	Low slope	Valley bottom	Terrace	Ravine	Plateau												
Water balance: runoff input vs runoff losses	-	0	+	0	+	+/0	+/0	0	0												
	<b>Ravine</b>																				
Prevailing Aspect/s	N / NW / W / SW / S / SE / E / NE / flat																				
Steepness range (%)	0-10 / 10-30 / 30-60 / +60																				
<b>SOIL (field work)</b>																					
Depth (cm)	<30 / 30-50 / 50-80 / >80																				
Stoniness (sized 0,2-20 cm Ø) (%)	0-15 / 15-40 / >40																				
Rockiness (%)	0 / 1-15 / 15-40 / >40																				
<b>FLORA (field work + consultation)</b>																					
Current land-use	Grazing																				
Previous land-use	Grazing																				
Present species	Herbaceous plants																				
Previous species	Herbaceous plants																				
<b>OTHERS (during field work + GIS + consultation)</b>																					
Traces / evidences of livestock	Severe / Present / <b>Absent</b>																				
Accessibility to the perimeter of the patch	All vehicles / 4x4 & caterpillars / inaccessible																				
Accessibility within the Patch	All vehicles / 4x4 & caterpillars / <b>inaccessible</b>																				
Signs of erosion	<b>No</b> / slight / moderate / severe																				
Key remarks (signs of flooding, average height or density of shrubs, vulnerable / indicative species, type of landscape – grassland, shrubland)	Grazing area																				

<sup>8</sup> Attached a map with the location of each patch

In review, some of these patches show enough similarities to be treated as one block during reforestation and are marked using the same color code in the table below. In total, only 4 sub-planting units remain after this grouping.



Table 14. Grouping of the patches into reforestation blocks; patches of same color belong to the same block

Patch	Slope position	Horizontal shape	Slope (%)	Aspect	Soil depth (cm)	Stoniness (%)	Rockiness (%)	Land use/species	Accessibility	Erosion
1	Low slope	Flat	10-30	NW/W	30-50	0-15	15-40	Abandoned	4x4& caterpillars	No
2	Terrace	Flat	0-10	Flat	> 80	0- 15	1-15	Abandoned	All	No
3	Low slope	Flat	0-10	NW/W	30-50	15-40	>40	Road sides and water tank	4x4& caterpillars	No
4	Low slope	Flat	10-30	NW/W	30-50	0-15	15-40	Abandoned	4x4& caterpillars	No
5	Mid slope	Flat-convex	10-30	NW/W	30-50	15-40	>40	Abandoned	4x4& caterpillars	No
6	Upper slope	convex	10-30	NW/SW	30-50	15-40	>40	Abandoned	4x4& caterpillars	No
7	Terrace	Flat- convex	10-30	NW/W	30-50	0-15	>40	Abandoned	All	No

Of the current land uses, grazing is not a severe issue and is confined to a particular area of the site. Additionally, the municipality already limits the movement of the shepherds and bans their access to most of Anjar's lands.

Critical information on grazing is presented in the table below.

خارجي		محلي		عدد القطيع
موسمي	دائم	موسمي	دائم	نوع القطيع
			1200	ماعز غنم
في الربيع والصيف يتم نقل المواشي عبر القرية		يتم الرعي في السهل، يتم تأجير 400 دلووم للرعي		في حال كان موسمي، ما هو طول الموسم؟ (تحديد الأشهر)
		Patch 8 b علف، ماء و مأوى/ تقع المزارع في		هل لديهم أي نوع من الإتفاق مع البلدية (عقد)؟ في حال نعم تحديد خصائص الإتفاق؟
		في السهول الزراعية أو في اعالي الجبال حيث لا يوجد تحريج		ما هي الموارد التي يستعملوها وأين موقعها على الخريطة ( علف، ماء، مأوى)
		لا يوجد		هل هناك أي مواقع أخرى، على مستوى البلدية، التي يمكن أن تكون بديلاً للأراضي المستخدمة حالياً، (تقدم خدمات مماثلة)؟
		Patch 8 b فقط في الموقع		ما هي المسارات التي يستخدمونها (النمط اليومي)؟ (تحديد على الخريطة)
		انها تقلص المساحات المستعملة للرعي بشكل مؤقت حتى تصبح الاشجار كبيرة فيعود الرعاه لتخفيف اثر الحرائق		هل يوجد مسارات بديلة التي يمكن أن يستعملها الرعيان؟
		قرار منع الرعي / محاضر ضبط بالاضافة الى وجود سياج على حدود المنطقة		هل هناك مجالات أخرى أو موارد بديلة لمنع الرعي في هذا الموقع؟
		حجز الرعاه وتخريمهم		هل يمكن أن تشرح الأثر المحتمل لإعادة التحريج على الرعي؟(محاولة تحديده)
				هل هناك أي طريقة ممكن أن تساهم في تخفيض هذا الأثر؟

In patch 8a some individuals are farming the land against the will of the municipality; legal action was resorted to in order to solve the issue.

## IV. Potential Schemes for Reforestation Blocks

The various patches were grouped into 4 main reforestation blocks. For each block, two or three reforestation schemes were devised:

- A conservative scheme with a low budget and limited activities
- A moderate scheme with a higher budget and more activities
- A lucrative scheme with the highest budget and more expensive options in reforestation.

The choice of each scheme depended not just on budget considerations but whether the scheme actually meets the needs of the local community, therefore, even if one scheme demanded more funding to be done but responded accurately to the needs of the community it was selected.

Table 15. Schemes for reforestation block of patches 1, 4, 7 (low slope, flat, slope 0-10%, low stoniness, high rockiness)

مخطط التحريج 3	مخطط التحريج 2	مخطط التحريج 1	Reforestation Block 1,4,7
انتاج/حماية/منظر	انتاج/حماية/منظر	انتاج/حماية/منظر	هدف التشجير ( إنتاج، حماية، ترفيه، مناظر الطبيعية..)
صنوبر/لوز/ سماق	سماق/ جوز/ لوز صنوبر/ زيتون/ توت شامي	سماق/ جوز/ لوز صنوبر/ زيتون/ توت شامي	الأنواع
700/هكتار	700 / هكتار	500/ هكتار	الكثافة
يدويا	يدويا	يدويا	تحضير التربة ( يدويًا، ميكانيكيًا..)
بدون ري	بدون ري	بدون ري	الري
ناطور من قبل البلدية*	تسييج الارض من جهة واحدة	ناطور من قبل البلدية*	وصف حماية الأشجار (لا حماية، حماية فردية، سياج..)
ازالة الاعشاب بشعاع 150 سم	تغطية كرتون 1*1 متر	ازالة الاعشاب بشعاع 150 سم	تقنيات الزرع (تغطية، مكيفات التربة..)
ازالة الاعشاب في محيط الارض لحمايتها من الحريق	ازالة الاعشاب في محيط الارض لحمايتها من الحريق	ازالة الاعشاب في محيط الارض لحمايتها من الحريق	صيانة أول 5 سنوات (إزالة الأعشاب الضارة، تقليم، تطعيم..)
تقليم كل خمسة سنوات/ السماح للرعي عندما تصبح الاشجار مرتفعة/ جمع المحاصيل	تقليم كل خمسة سنوات/ السماح للرعي عندما تصبح الاشجار مرتفعة/ جمع المحاصيل	تقليم كل خمسة سنوات/ السماح للرعي عندما تصبح الاشجار مرتفعة/ جمع المحاصيل	إدارة متوقعة خلال الـ 25 سنة (وصف الأنشطة الإدارية)
2400	5040	3240	تقدير تكاليف التنفيذ خلال السنة الأولى
200	200	200	تقدير تكاليف التنفيذ خلال السنة الثانية والخامسة (\$/هكتار)

\* اجار الناطور \$500 بالشهر الواحد على مدى ثلاث سنوات مساهمة المشروع وبعدها مساهمة البلدية  
زيادة نظام ري للتوت الشامي والزيتون \$200 للهكتار الواحد

Table 16. Reforestation schemes for patch 2/reforestation block 2 (Terrace, flat, deep soil, moderate stoniness and low rockiness)

مخطط التحريج 2	مخطط التحريج 1	Reforestation Block( 2)
----------------	----------------	-------------------------

انتاج/حماية/منظر	انتاج/حماية/منظر	هدف التشجير ( إنتاج، حماية، ترفيه، مناظر الطبيعية..)
صنوبر/جوز	جوز / زيتون/ توت شامي/ كستنا	الأنواع
300/هكتار	300/ هكتار	الكثافة
يدويا	حراثة بالجرافة	تحضير التربة( يدويًا، ميكانيكيًا..)
نظام تنقيط	نظام تنقيط	الريّ
ناطور من قبل البلدية	ناطور من قبل البلدية	وصف حماية الأشجار (لا حماية، حماية فردية، سياج..)
ازالة الاعشاب بشعاع 1.5 حول الغرسة		تقنيات الزرع (تغطية، مكيفات التربة..)
ازالة الاعشاب	حراثة الارض لحمايتها من الحريق وتخفيف المنافسة	صيانة أول 5 سنوات (إزالة الأعشاب الضارة، تقليم، تطعيم..)
تقليم / جمع المحاصيل / حمايتها من الحريق	تقليم / جمع المحاصيل / حمايتها من الحريق	إدارة متوقعة خلال الـ 25 سنة (وصف الأنشطة الإدارية)
3350	4200	تقدير تكاليف التنفيذ خلال السنة الأولى \$/هكتار
200	400	تقدير تكاليف التنفيذ خلال السنة الثانية والخامسة (\$/هكتار)

Table 17. Reforestation schemes for patches 5 and 6 (Mid and upper slope, Convex shape, 10-30% slope, moderate soil)

مخطط التحريج 3	مخطط التحريج 2	مخطط التحريج 1	Reforestation Block (5,6)
انتاج/حماية/منظر	انتاج/حماية/منظر	انتاج/حماية/منظر	هدف التشجير ( إنتاج، حماية، ترفيه، مناظر الطبيعية..)
صنوبر/سنديان	صنوبر/سنديان/سماق	صنوبر/سنديان/سماق	الأنواع
250 + 250 بذرة بلوط	500	500	الكثافة
يدويا	يدويا	يدويا	تحضير التربة( يدويًا، ميكانيكيًا..)
بدون ري	ري 5 مرات يدويا	بدون ري	الريّ
ناطور من قبل البلدية	ناطور من قبل البلدية	ناطور من قبل البلدية	وصف حماية الأشجار (لا حماية، حماية فردية، سياج..)
ازالة الاعشاب بشعاع 1.5 حول الغرسة	ازالة الاعشاب بشعاع 1.5 حول الغرسة	ازالة الاعشاب الضارة في شعاع 1.5م	تقنيات الزرع (تغطية، مكيفات التربة..)
ازالة الاعشاب	ازالة الاعشاب	ازالة الاعشاب	صيانة أول 5 سنوات (إزالة الأعشاب الضارة، تقليم، تطعيم..)
تقليم / جمع المحاصيل / حمايتها من الحريق	تقليم / جمع المحاصيل / حمايتها من الحريق	تقليم / جمع المحاصيل / حمايتها من الحريق	إدارة متوقعة خلال الـ 25 سنة (وصف الأنشطة الإدارية)
1900	3900	2400	تقدير تكاليف التنفيذ خلال السنة الأولى \$/هكتار
200	200	200	تقدير تكاليف التنفيذ خلال السنة الثانية والخامسة (\$/هكتار)

Table 18. Reforestation scheme for patch 3/reforestation block 3 (Road and surrounding water tank)

مخطط التحريج 2	مخطط التحريج 1	Reforestation Block (3)
انتاج/حماية/منظر	انتاج/حماية/منظر	هدف التشجير ( إنتاج، حماية، ترفيه، مناظر الطبيعية..)
لوز وسماق / زعرور وبرقوق	نباتات عطرية	الأنواع
500	5000	الكثافة
يدويا	يدويا	تحضير التربة ( يدويًا، ميكانيكيًا..)
بدون ري	تنفيط	الريّ
ناطور البلدية	ناطور البلدية	وصف حماية الأشجار (لا حماية، حماية فردية، سياج..)
ازالة الاعشاب	ازالة الاعشاب	تقنيات الزرع (تغطية، مكيفات التربة..)
ازالة الاعشاب	ازالة الاعشاب	ازالة الاعشاب
تقليم / جمع المحاصيل / حمايتها من الحريق	صيانة/ جمع المحاصيل	إدارة متوقعة خلال الـ 25 سنة (وصف الأنشطة الإدارية)
2650	3700	تقدير تكاليف التنفيذ خلال السنة الأولى \$/هكتار
200	300	تقدير تكاليف التنفيذ خلال السنة الثانية والخامسة (\$/هكتار)

زيادة نظام ري و 30 شجرة سماق في الهكتار \$1600 / هكتار

For easier comparison between the various schemes for each reforestation blocks, the tables below offer a summary of the intended actions per scheme and accompanying cost.

Table 19. Comparative summary of actions per scheme for patches 1, 4 and 7

Schemes designed for patches 1, 4 and 7 (15.6 Ha)	Cost per Ha	Total Cost
Sumac/ Walnut/ Almonds/ Pinus pinea /Olive/ Chestnut/ Blueberry, Low density, Municipal Forest guard, weed control Add drip irrigation for the Mulberry trees (\$200/ha)	3640	56784
Sumac/ Walnut / Almonds/ Pinus pinea /Olive/ Chestnut / Mulberry , Med density, fence, carton board mulch	5240	81744
Sumac/ Almonds/ Pinus pinea , Med density, Municipal Forest guard, weed control	2600	40560

The most desirable option for this block is the first option, highlighted in red which offers locals with the opportunity to benefit more from productive fruit trees in addition to forest ones.





Figure 2. Map of patches 1,4 and 7

Table 20. Comparative summary of actions per scheme for patch 2.

Schemes designed for Patch 2 (2.4 Ha)	Cost per Ha	Total Cost
Walnut/ Olive/ Chestnut /Mulberry Low density, Municipal Forest guard, cultivating by truck, drip irrigation,	4600	11040
Walnut/ Pinus pinea, Low density, Municipal Forest guard, drip irrigation,	3550	8520

The first option was the one most desired by the local community which welcomed the addition of more productive species that could benefit the community. This patch, which is the closest to the community and on a flat land, is well suited for such productive plant species.



Figure 3. Map of patch 2

Table 21. Comparative summary of actions per scheme for patches 5 and 6.

Schemes designed for patches 5 and 6 (25 Ha)	Cost per Ha	Total Cost
Sumac/ Pinus pinea / Quercus calliprinos Med density, No irrigation, Municipal Forest guard, weed control	2600	65000
Sumac/ Pinus pinea / Quercus calliprinos Med density, irrigation 5 times, Municipal Forest guard, weed control	4000	100000
Pinus pinea / Quercus calliprinos, seeding acorns Med density, Municipal Forest guard, weed control	2100	52500

In this reforestation block, the community along with the reforestation partner preferred the use of lower cost option given that this block will constitute the core of the reforestation area given its large area in comparison to other blocks.



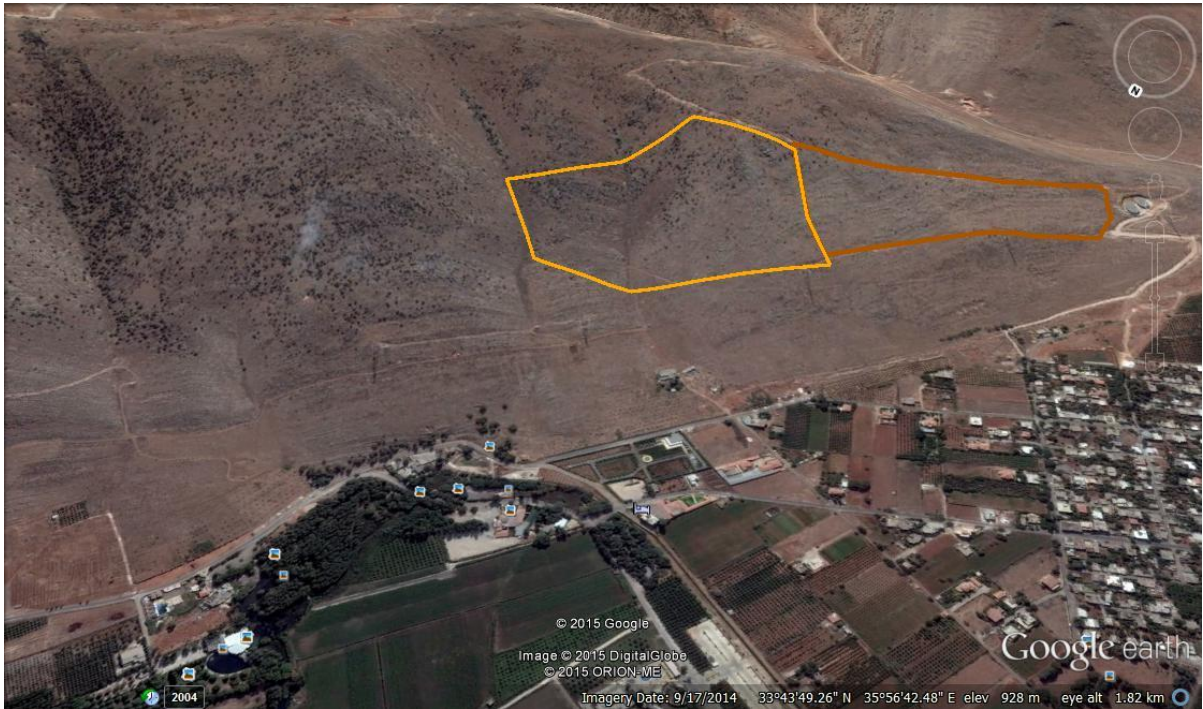


Figure 4. Map of patches 4 and 5

Table 22. Comparative summary of actions per scheme for patch 3

Schemes designed for Patch 3(2 Ha)	Cost per Ha	Total Cost
Origanum syriacum and Lavendula sp. High density, Municipal Forest guard, weed control, drip irrigation <b>Add drip irrigation and 30 Sumac trees</b>	<b>5600</b>	<b>11200</b>
Sumac/ Almonds/ Crataegus / Prunus ursina Med density, Municipal Forest guard, no irrigation, weed control	2850	5700

In this reforestation block, the species that were preferred were the aromatic shrubs and sumac. This choice was stipulated by the site constraints given that it has an open road and poorer soil. Therefore, large trees might not be suitable for this open road on the long run. Additionally, the use of aromatic shrubs provides more diversity on the site, a longer flower season for bees and the possibility of locals collecting and drying the leaves and flowers of these plants.



Figure 5. Map of patch 3

## V. Livelihoods and Research Activities

The livelihoods and research activities were mostly prepared during the concept note phase. Back then, they were discussed with the municipality. During this phase, they were re-discussed with the community.

Budget considerations played a decisive role in choosing the proposed activities as most of them were seen as highly desirable by the community.

Additionally, the activities were seen as crosscutting with all of the reforestation blocks and sometimes independent of them, therefore, they were not matched with a specific block but were seen as general support activities that benefit the community.

Assistance to farmers and shepherds were the two main beneficiaries of support activities in the land users categories. The activities targeting farmers were seen more desirable, however, given that the combined budget of all activities remained within the allocated percentage, all of the proposed activities were chosen as shown in table 23.

Table 23. Support activities for main land users

وصف النشاط	المستفيدين المباشرين	المعنيين المشاركين	وصف الأثر والتهديدات التي	وصف الأثر الذي يشكّله النشاط على التحريج	الميزانية التقديرية	التصنيف حسب (الأفضلية)
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			ممكن أن تؤثر على المستفيدين			
++++	1000	لا يوجد	لا يوجد	البلدية، اللجنة AFDC البيئية، وال SPNL	عشرة مزارعين على الأقل من عنجر	مساعدة المزارعين بشتول السماق و توت شامي لقيم زرعها في اراضي خاصة Farmers' assistance through the distribution of sumac and mulberry trees for private lands
++++	2000	لا يوجد	لا يوجد	البلدية، اللجنة AFDC البيئية، وال SPNL	المزارعين والجمعيات	تدريب المزارعين والمهتمين عن الزراعة المستدامة والزراعة الحراجية Training sessions on sustainable agricultural practices and on agro- forestry
++	2500	لا يوجد	لا يوجد	البلدية، اللجنة AFDC البيئية، وال SPNL	رعاة الاعنام	توزيع ادوية لمعالجة الاعنام Distribution for medicine for shepherds
++	2000	لا يوجد	لا يوجد	البلدية، اللجنة AFDC البيئية، وال SPNL	رعاة الاعنام	تحسين المراعي Rangeland improvement

For the reforestation supporters, several options were chosen and they were all accepted given that they too fell within the general percentage allocated for these activities.

Table 24. Activities aimed at reforestation supporters and to increase the chances of reforestation success

التصنيف	وصف الحاجة للدعم	وصف الأثر الذي يشكّله النشاط على التحريج	المعنيين المشاركين	وصف النشاط
++++	4000	تحفيز المجتمع المحلي على حماية الاحراج	جمعيات ومزارعين	ورشة تدريبية حول منتوجات الغابات واستثمارها بطريقة مستدامة Sustainable use of forest products workshop
+++	700	زيادة الوعي حول اهمية الغابات	الكشاف، المدارس، الصليب الاحمر	تنظيم يوم تطوعي للتحريج Voluntary open reforestation day
++++	800	زيادة الجهوزية حول حماية المناطق المحرجة من الحريق	الكشاف و لجنة البيئة	دورة تدريب حول تقنيات مكافحة الحرائق Forest fire management workshop
++++	1000	زيادة الوقاية من جطر الحرائق حول منطقة التحريج	الكشاف ولجنة البيئة	تخفيف المواد القابلة للاشتعال في محيط منطقة التحريج Reduction of flammable biomass near reforestation zone

The proposed research and development activities were devised in a way to maximize learning opportunities from this reforestation project and help to promote best practices in reforestation across the country.

Table 25. Proposed R&D activities

Importance	Budget	Comment	Involved Stakeholders	Activity
++++	6000 (first year and last year of project)	To be done twice during the project: first year, to validate baseline data and last year to build a comprehensive monitoring program	Scouts, SPNL, Municipality	مراقبة التطور الطبيعي في الغابات المزروعة Forest Ecosystem monitoring
++++	2000	Especially interesting for broad leaved species such as Quercus.	Municipality, SPNL	دراسة فعالية التحريج بالبذور لبعض الأصناف الحرجية Seeding vs. seedling planting for specific species
++++	5000	Especially important to reduce irrigation cost. Physical means include the use of mulches.	Municipality	ادارة الاعشاب الضارة: بالوسائل الكيميائية والفزيائية Competing vegetation management: through physical and chemical means

Given that the overall cost of these activities fell within the accepted percentage to be allocated for R&D, they were all chosen for completion.

## VI. Budget

### a. Plantation cost

The total cost of plantation is presented in the table below based on the schemes chosen for each reforestation block.

Table 26. Cost of reforestation based on chosen schemes

\$ Total	Seedlings #	Cost /Ha	Area/Ha	Scheme #	Reforestation Block (X)
56,784	7800	3640	15.6	1	Reforestation block 1,4,7
11040	720	4600	2.4	1	Reforestation block 2
52,500	6250	2100	25	3	Reforestation block 5, 6
11200	60	5600	2	1	Reforestation block 3
<b>131524</b>	<b>14830</b>		<b>47</b>		<b>Total</b>

Table 27 goes over the total number of species that will be used throughout the project for reforestation and for the livelihoods support activities in the form of distribution to farmers.

Table 27. Total number of species to be used in the project

Species	Block 1-4-7	Block 2	Block 5-6	Block 3	Farmers	Total
Area	15.6ha	2.4 ha	25 ha	2 Ha		
Sumac	1248			60	1000	<b>2308</b>
Walnut	1560	240				<b>1800</b>



Almonds	1560					<b>1560</b>
Pinus pinea	1560		6250			<b>7810</b>
Olive	780	120				<b>900</b>
Chestnut	780	240				<b>1020</b>
Mulberry	312	120			200	<b>632</b>
Origanum syriacum				2500		<b>2500</b>
Lavendula sp.				2500		<b>2500</b>
<b>Total</b>	<b>7800</b>	<b>720</b>	<b>6250</b>	<b>5060</b>	<b>1200</b>	<b>21030</b>

Beyond the seedlings, the project will use seeds of *Quercus calliprinos* for the seeding experiment as part of the R&D activities. **Quercus calliprinos seeding acorns: 125 Kg.**

The cost of seedlings is included in the overall cost of reforestation.

b. Livelihoods support and R&D activities

-Definitive agreed **Mitigation + Reforestation support** measures –Available budget (not more than 20% of reforestation budget): \$27,000

Table 28. Overall cost of livelihoods support and para-reforestation activities

Support farmers with Sumac Seedlings and Blueberry to be planted in a private land	Farmers	2400
trainings on sustainable agricultural practices and on agro-forestry	Farmers and NGOs	2000
Veterinary support	Shepherd	2500
Improve grazing Land	Shepherd	2000
Trainings on sustainable agricultural practices and on agro-forestry	Farmers	2000
Training workshops detail the importance of this forest species and how to use it sustainably for the benefit of the community.	NGOs, farmers and landowners	4000
Voluntary reforestation day	Schools and scouts	700
Training on forest fire techniques	Scouts and environmental committee	4000
Reduce biomass by cutting the fuel around the reforestation area by 20 m wide	Scouts and environmental committee	1000
<b>Total</b>		<b>\$20600</b>

-**R&D plan; Risk assessment & contingency plan** (not more than 10% of reforestation budget): **\$13000**

Table 29. Total cost of R&D activities

<b>Activity</b>	<b>Involved stakeholders</b>	<b>Budget</b>
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Forest ecosystem monitoring	Scouts, SPNL, Municipality	6000
Seeding vs. seedling planting of specific species	Municipality, SPNL	2000
Competing vegetation management	Municipality	5000
	<b>Total</b>	<b>13000</b>

The total budget required by the afforestation project for Anjar is therefore as shown in table 30.

Table 30. Total afforestation cost

Component	Cost in USD
Reforestation	131,524
Livelihood and reforestation support	20,600
R&D	13,000
<b>Total</b>	<b>165,124</b>

## VII. Hazards and mitigation options

The Anjar site does not have highly specific hazards that require a detailed contingency plan. If we disregard the worries that might be caused by the proximity to the Syrian borders, the main hazards would be: drought, forest fires and grazing. These hazards are pretty common across many Lebanese localities and require some care and consideration to avoid negative repercussions to the afforestation project. The main hazards and mitigation options are mentioned in table 31. It is worth noting that the hazards are common to all of the reforestation blocks and not specific to single ones, therefore they were grouped together.

Table 31. The main hazards and mitigation options for the Anjar site

General hazards	
Hazard	Mitigation plan
Forest fires	Reduction of flammable biomass in proximity of reforested plots, increase surveillance during the fire season and increase awareness among locals and the municipality
Drought during the first year of seedling establishment	Emergency water tank to irrigate when needed
Grazing	Increase surveillance from municipal guards



## VII. Pictures



Figure 6. Meeting with the local committee of Anjar



Figure 7. Site visits for subplanting units validation





Figure 8. View from the site's lower borders near patch 7



Figure 9. The site's pronounced rockiness in many of its sections





Figure 10. Site visit with members of the local committee



Figure 11. Soil sample collection