

Contribution of Genetic Diversity in poverty alleviation, the role of NGOs in Lebanon

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Mada Association

**REGIONAL CAPACITY-DEVELOPMENT WORKSHOP FOR THE ARAB STATES ON
NATIONAL BIODIVERSITY STRATEGIES AND ACTION PLANS AND THE
MAINSTREAMING OF BIODIVERSITY
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Content

- **Lebanese Biodiversity and Development**
- **Valorization through Domestication**
- **MGO's and Biodiversity in Lebanon**
- **Conclusion**

Lebanese rich Biodiversity

- **More than 3000 vascular plant species**
 - Out of them hundreds are traditionally useful species
 - More than 1000 are medicinal
- **One species in every 3 Km², between the highest in the world.**
 - France 1/130
 - Switzerland 1/14
 - Syria 1/62
- **Diversity of ecosystems**
- **The country is a centre of origin for numerous crop species and wild relatives.**



Agro Ethno Botanical Results

- *Asteraceae* most diverse family, followed by *Fabaceae* and *Lamiaceae*,
- *Lamiaceae* is the first medicinal family followed by *Asteraceae*, *Malvaceae*, *Apiaceae*, etc.
- *Asteraceae* first edible family followed by *Apiaceae*, *Lamiaceae*, etc.
- Main genera of wild relatives
- *Cichorium*, *Lepidium*, *Vicia*, *Lathyrus*, *Rosa*, *Allium*, *Asparagus*, *Anchusa*, *Malva*, *Origanum*, *Salvia*, *Foeniculum*, *Alcea*, *Capparis*, *Thymbra*, *Satureja*, *Lavandula*, *Matricaria*, *Lepidium*, *Trifolium*, *Scorzonera*, *Sonchus*, *Silene*, *Rumex*, *Rubus*, *Portulaca*, *Amaranthus*, *Lupinus*, *Mentha*, *Lactuca*, *Cyclamen*, *Carthamus*, *Apium*, etc.).

Lebanon, unique diversity: More than 3000 vascular species



• **Medicinals, up to 1000:** *Salvia, Lavandula, Centaureum, Fibigea, Poterium, Hypericum, Teucrium, ..*

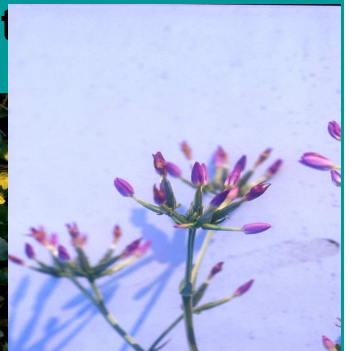
• **Aromatic and condimental:** *Origanum, Thymus, Thymbra, Satureja, Rhus coriaria, Rubus, ..*

• **Wild relatives:** *Dacus, Allium, Aegilops, Crataegus, vicia, Crataegus, Prunus, Malus, ..*

• **Ornamentals:** *Iris, Narcissus, Hyacinthus, Cyclamen, Myrthus, Ruscus, Laurus, ..*

• **Forage plants:** *Vicia, Trifolium, Medicago, Melilotus, etc*

• **Industrial, energy, fibre Plants:** *Salix, Spartium, Pinus, Quercus, Pist*
etc



Lebanese useful plants documentation efforts

List of few important MAP of Lebanon

- *Cichorium intybus* L. هندباء . Chicorée **Asteracées**
- *Eryngium creticum* Lam. عني قرص. Panicaut **Apiacées.**
- *Capparis spinosa* L. "كبر" **Capparidacées**
- *Foeniculum vulgare* Mill. شمرة Fenouil **Apiacées**
- *Ferula hermonis* زلوع **Apiacées**
- *Nasturtium officinale* R. Br. قرة Cresson officinale **Brassicacées**
- *Gundelia tournefortii* L. عكوب **Asteracées**
- *Thymbra, Coridothymus, Thymus* spp. زعتر أخضر **Labiacées**
- *Origanum syriacum* and spp. زعتر المناقيش **Labiacées**
- *Malva* spp. خبيزة **Malvacées**
- *Asparagus officinalis* L., *A. acutifolius* L., *A. aphyllus* L. هليون **Alliacées.**
- *Ruscus aculeatus* L. صرم الديك **Alliacées.**
- *Crocus ochroleucus* Boiss. **Alliacées.**
- *Orchis* spp. سحلب **Orchidées.**
- *Rosa damascena* L. ورد جوردي. Eglantier **Rosacées.**
- *Rhus coriaria* L. سماق Sumac **Polygalacées.**
- *Alcea setosa* (Boiss.) Alef. خاتمية أو ختمة **Malvacées.**
- *Salvia fruticosa* L. fil. قصعين. Sauge **Labiacées.**
- *Matricaria* spp. بابونج. Camomille **Asteracées**
- *Ocimum basilicum* L. حبق Basilic **Labiacées**
- *Rosmarinus officinalis* L. إكليل الجبل Romarin **Labiacées**
- *Origanum marjorana* L. مردكوش Marjolaine **Labiacées**
- *Lavandula* spp. خزامس **Labiacée**
-

Problems of Useful wild Species of Lebanon



- **Lack of documented literature**
 - We don't know what do we have
- **Confusion between different local vernacular names**
 - *Salvia fruticosa* and *Salvia officinalis*,
 - *Origanum vulgare* and *Origanum syriacum*,
 - *Tilia* and *Elaeagnus*,
 - Oregano and thyme, etc.
- **Unsufficient conservation and valorisation activities**
 - Few data on the composition and chemical properties justification
 - Gradual loss of associated local knowledge
- **Environmental and Natural threats**
 - Reduction of natural cover (high demographic pressure, urbanisation, roads, quarries, ...)
 - Localization in ecological niches with narrow adaptive traits

Content

- Lebanese Biodiversity and Development
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- MGO's and Biodiversity in Lebanon
- Conclusion

- Domestication efforts



Domestication

Development of the domestication process (*Mise en culture*) through:

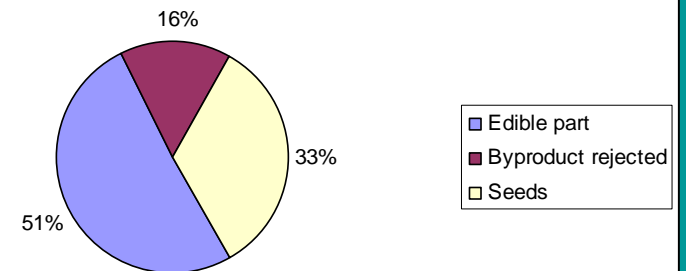
- Evaluating their agronomical requirements,
- Nutritional and agro-economic potential...
- Elaborating a socio-economic “*filiere*” approach
- Detecting possible bottle neck in the different process stages

This will lead to:

- Introduce local species as new crops
- Assure the market demand
- Promote their use
- Reduce the pressure on nature,..



Percentage of the different parts of Sumac fruits



Constraints in rural poor areas

- Unsustainable cropping systems
 - Tobacco subsidized cultivation in south Lebanon
 - Prohibited crops in north Lebanon
- Limited agricultural areas and small land tenure
- Water shortage
- Rural exodus mainly of young
- Local useful biodiversity is more adapted to local environment, ..

Objectives *From harvest to cultivation*

- Develop methodology for a sustainable “*mise en valeur*” in two directions:

- Survey and Documentation of the related heritage and use habits :

 - ethnobotany, local knowledge ((seasons, used parts, recipes, etc).

- Assessment of genetic diversity:

 - Phenotype, genotype and chemotype characterization

 - Inter and Intra specific diversity

- Study their ecology, distribution,...

Identify Key elements for domestication process

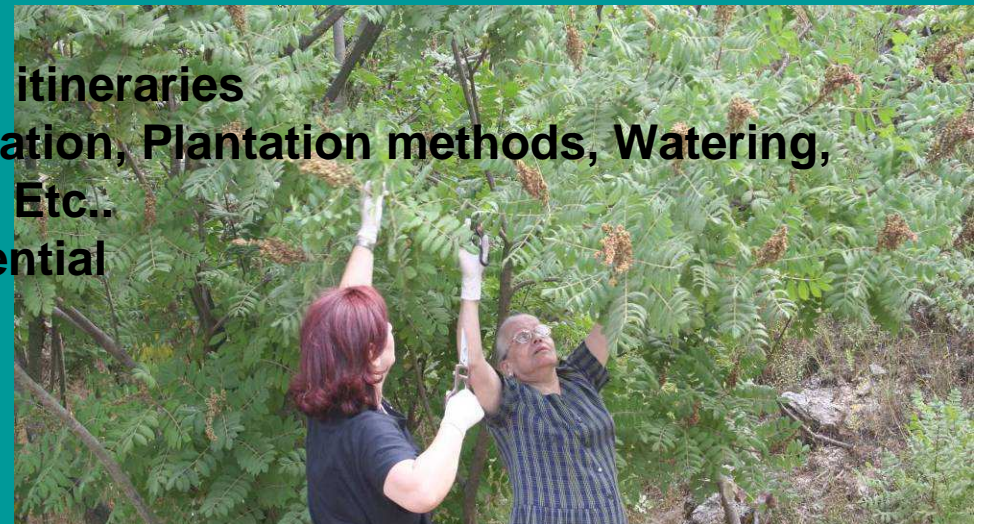
- Agronomic requirements,

- Protocol for domestication, technical itineraries

Seed extraction, Sowing, Land preparation, Plantation methods, Watering, Fertilisation and fertigation, Weeding, Etc..

 - Nutritional and agro-economic potential

- Market studies



Cultivation is the only sustainable alternative for valorisation and poverty alleviation

Meet the agro-economic, the ethnobotanical and the ecological exigencies.

It assures

- market demand in a sustainable way,
- agricultural and diet diversification
- Safeguard of the local indigenous Knowledge heritage
- Diversification of income for farmers by introducing new crops,
- Conservation and promotion of related traditional use knowledge,
- Lower food importation
- Greater sustainability of ecosystems
- Ensure better use of marginal lands
- Reduction of pressure on the wild, currently the only provider.



Are local species possible to be grown in Lebanon?

- Most of them are endemic to the region so they are well adapted to the local conditions
- We have a great diversity of climate and soils
 - So continuous production over the year
- Most of them could be converted into traditional crops so
 - Better contribution to the household revenue
 - Possibility to grow on terraces and even in slopes
 - Low needs of mechanization
 - Low needs of inputs
 - Low needs of pesticides



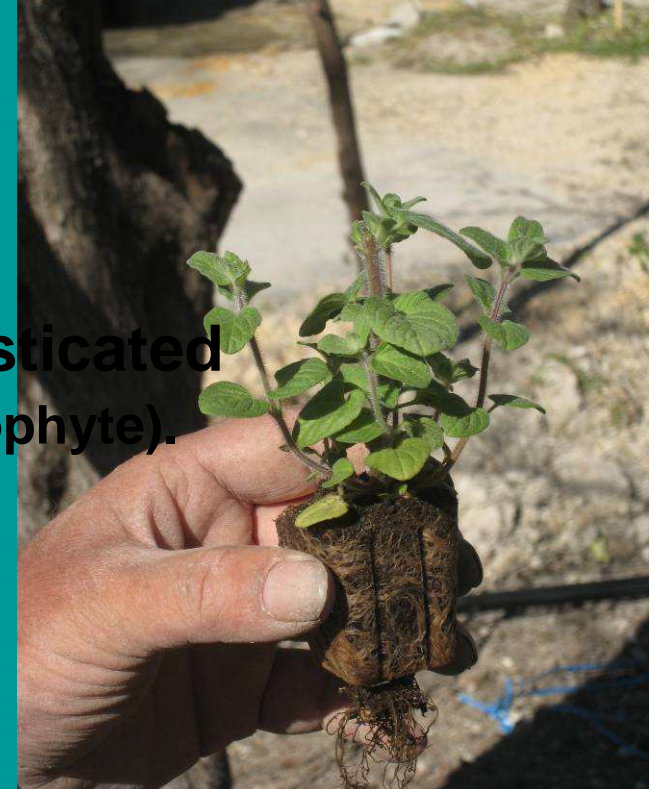
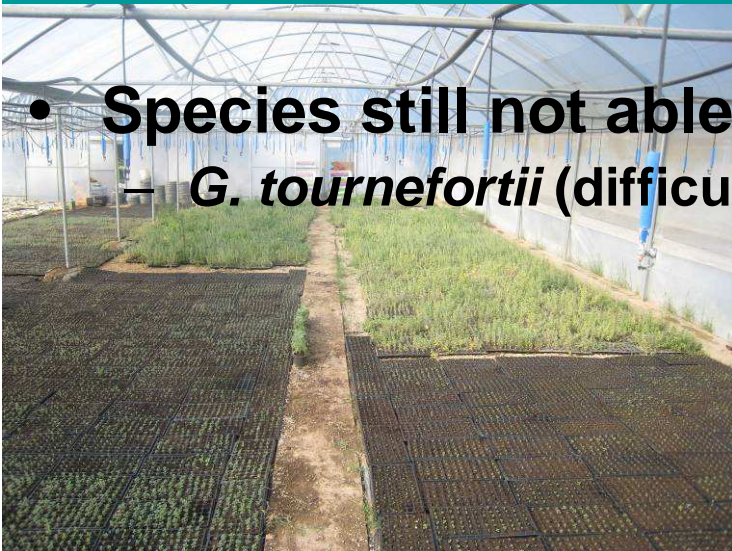
Cultivation versus wild Gathering

- Better homogeneity of the final product:
 - key element for market and industrial standards
- Possible selection and cultivation of performing origins
- Better stability and less dependency on the climatic factors
- Less fluctuation from year to year
- Better management of the harvesting period
- Possibility to increase the production through increase of cultivated areas
- Alleviation of the pressure on natural population



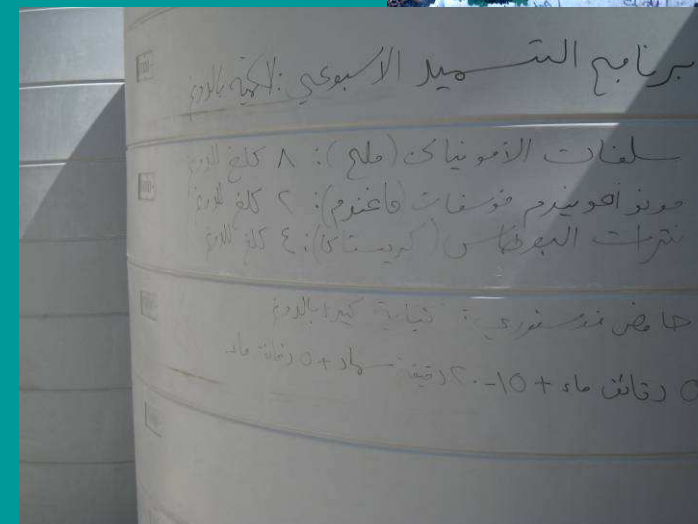
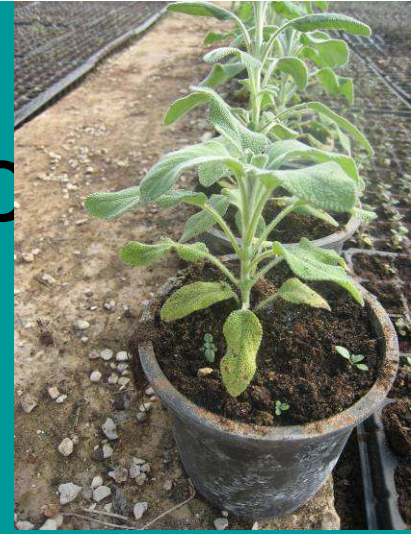
Domestication evaluation Results

- **Species easy to domesticate:**
 - *Cichorium* (annual),
 - *Origanum* (perennial),
 - Laurel (*Laurus nobilis*),
 - Capparis, etc.
- **Species less easy to domesticate:**
 - *Salvia* (sensitivity to water logging).
 - Sumac (*Rhus coriaria*),
 - *Fibigea* spp.,
- **Species still not able at all to be domesticated**
 - *G. tournefortii* (difficult germination, cryptophyte).



Achievements in Lebanon

- Contribution to:
 - Identification of sites of interesting populations for breeders and farmers.
 - Agro- morphological characterization,
 - Agronomic practices for domestication
 - Preliminary market study
 - Development of technical documents and numerous specified leaflets



Case study: Domestication of *Origanum* (*zaatar*... Yield of different parts of the plant

| Yield | | Biomass | Leaves + Stems | Stems | Leaves | Flowers |
|---------|--------------|---------|----------------|-------|-------------|-------------|
| g/Plant | Fresh weight | 452.95 | 290.79 | - | - | 160.82 |
| | Dry weight | 196.44 | 128.52 | 81.28 | 47.24 | 68.89 |
| kg/ha | Fresh weight | 31070 | 19950 | - | - | 11030 |
| | Dry weight | 13470 | 8820 | 5580 | <u>3240</u> | <u>4730</u> |

More than 10 tons of marketable product per ha
Prices ranging from 4-10/kg USD

| Dry weight ratio | | | | |
|------------------|------------------|-------------------|--------------------------|----------------|
| Stems / Biomass | Leaves / Biomass | Flowers / Biomass | Flowers / Leaves + Stems | Leaves / Stems |
| 40.83 % | 24.15 % | 35.02 % | 57.10 % | 61.17 % |

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NGOs in Lebanon

- Many NGOs are active in the field of the Biodiversity
 - Assessment
 - Valorization
 - Development of para activities
 - Promotion of local species
 - Ecotourism
 - Niche market
 - Promotion of fait maison and traditional products
 - Etc.

NGO's active in the area of Biodiversity (Source : Ministry of environment 2006)

| Entity Name | Email | Website |
|--|---|--|
| Association for Forest Development and Conservation (AFDC) | afdc@afdc.org.lb | www.afdc.org.lb |
| Greenline | greenline@greenline.org.lb | |
| Society for the Protection of Nature in Lebanon (SPNL) | spnlorg@cyberia.net.lb | www.spnlb.org |
| Friends of Nature | fon@sodetel.net.lb | www.f-o-n.org |
| Amwaj of Environment Association | amwajenvt@hotmail.com | www.amwajenvt.com.lb |
| A Rocha - Lebanon | arocha@cyberia.net.lb | www.arocha.org |
| Al Mada | mada@aljord.com | www.mada.org.lb |
| Makhzoumi Foundation | s.namani@makhzoumi-foundation.org | |
| T.E.R.R.E | info@terreliban.org | |
| René Moawad Foundation | rmf@rmf.org.lb | www.rmf.org.lb |
| Animal Encounter | mabisaid@cyberia.net.lb | |
| Friends of Horsh Ehden | fohe@cyberia.net.lb | www.horshehden.org |
| Al-Shouf Cedar Society | arzshouf@cyberia.net.lb | www.shoufcedar.org |
| Committee of Friends of Arz (Cedar) Forest | cafc@cafc.org.lb | www.cafc.org.lb |
| Bentael Nature Reserve Association | sami_p_farah@hotmail.com | |
| Friends of Tannourine Cedars Association | mdagher@ul.edu.lb | |
| Yammouneh Nature Protection Organisation | | |
| Lebanese Association for Marine and Wildlife Museum | younesj@inco.com.lb | |
| Environment Protection Committee | epc@cyberia.net.lb | |
| Saveguarding the Environment Committee | info@ecoclub-becharre.org | |
| Wild Animals and Birds Research and Information Center | | |
| Women's Association of Deir Al Ahmar | dgkhoury@yahoo.com | |
| Safety of Marine Environment Association | shalak@hotmail.com imadnasr1@hotmail.com | |

Environment Consultancy Firms

(Source : Ministry of environment 2006)

| Entity Name | Email | Website |
|---|--|--|
| Envirotech | | www.envirotech-int.com |
| Ecodit | technogr@cyberia.net.lb ecodit@destination.com.lb | www.ecodit.com |
| <u>ELARD s.a.r.l.</u> | rkayal@elard-group.com | www.elard-group.com |
| <u>Conseil et Developpement</u> | condev@condev-lb.com | www.condev-lb.com |
| <u>Environment Management Company (EMC)</u> | | |

NGOs

- Local NGO's
 - There is tens of active local NGO's dealing with development in rural areas
- Mada
 - Assessment of old forest in north lebanon
 - Promotion of freidnly environmental crops in north bekaa
 - Promotion of aromatic plants in norht lebanon
 - Ecotourism projects in north lebanon
- Shouf Cedar Reserve
- AFDC
- Fair Trade
- Souk el Tayeb
- Assayel
- ADR
- Caritas
- Jihad el Binaa

International organizations in collaboration with local NGO's

- UNDP
 - Medicinal plant cultivation (GEF project, ..)
 - Cluster bomb areas
- ILO
 - Bee sector in south lebanon
 - Oregano and melliferous plants plantation
- ESCWA
 - Medicinal plants
 - Zaatar
 - Sumac
 - Renewable Energy
- GTZ
 - Desertification project
 - Oregano project
- ICU
 - Olive sector
 - MAP sector
- IECD
 - Olive sector
 - MAP sector
- Africa 70 Amel association
 - Aromatic plants demonstration project in South lebanon
- Etc.





www.mada.org.lb

MADA

Mada is a Lebanese NGO that started working in 1999 in rural development and ecotourism.

Our main commitment and activity is around the creation of a National Natural Park in the mountains of Northern Lebanon.

Since two years Mada has developed a platform where many committed volunteers and members have set up specific projects in different fields on the Lebanese territory.



Home

National Natural Park

Ecotourism

Platform

About us

Finance

Resources

Webmail

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 E-mail: mada@mada.org.lb

Address:

Youssef Center floor 4, Fata str,
 Badaro, Beirut
 Lebanon

Mada's activities 1/2

- **Ecotourism**
- MADA is supporting different community based eco-lodges
 - Small financial support for some lodges
 - Marketing support (web site, brochures, posters)
 - Capacity building
 - Support in network building visit
- MADA is also engaged with these lodges in a think tank about responsible/fair tourism.
 - In that respect different charters were developed.
- **Creation of a National Natural Park in north Lebanon (Akkar, Donniyeh) in process**

Mada's activities 2/2

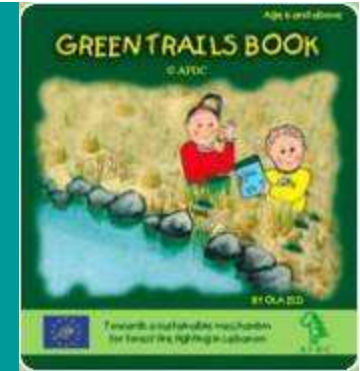
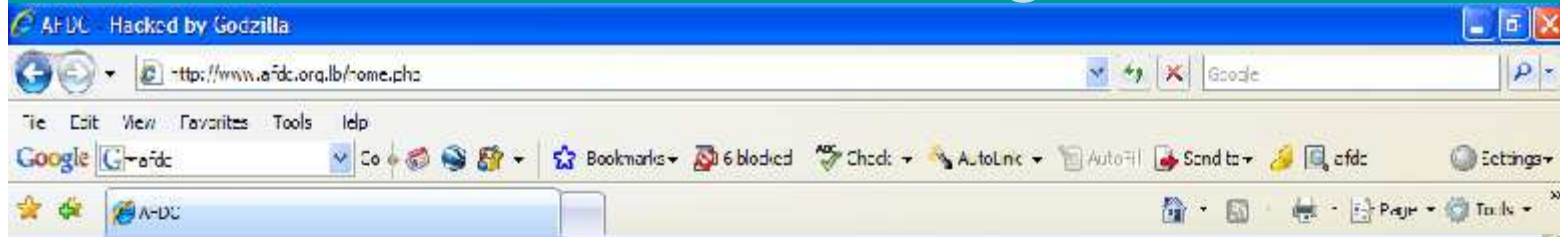
Platform

to help young motivated people or small CBO's NGO's to develop projects and benefit from MADA's institutional capacities to develop new initiatives:

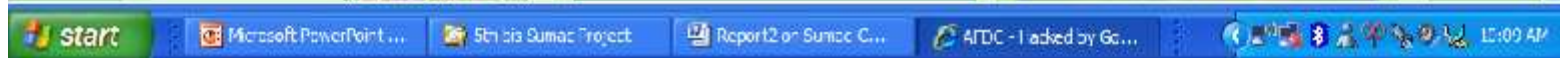
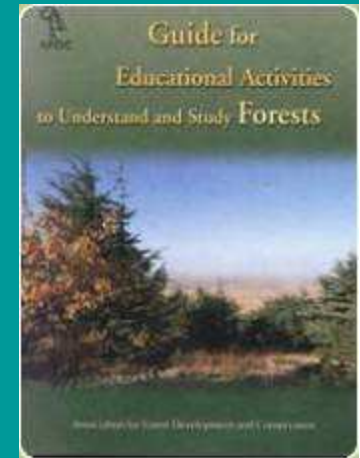
- reation of a coordination web site for NGO, INGO's (initiative taken by volunteers from the Samidoun network) **left the platform in 2008**
- Psychosocial program with schools in Dahiyet, Bekka and south (initiative taken by professionals who volunteered in the IDP's centers during the 33 days war) **ended in 2008**
- Installation of potable water network in Tanoura, a remote village of west Bekaa (initiative taken by municipality, donor and water expert) **ended in 2008**
- Youth advocacy program (initiative taken by different youth groups)
- Computer center for public school in Tebnin/South (initiative taken by women from the village, public school and donor) **ended in 2007**
- Program for turtle protection in the South (initiative taken by 2 women running a small eco-lodge)
- Construction of the public library of Hermel (initiative taken by the cultural association of Hermel) **completed in 2008**
- Support for rural women and women cooperatives in Hermel (initiative by the Bekaa members of MADA)

AFDC and reforestation efforts

www.afdc.org.lb



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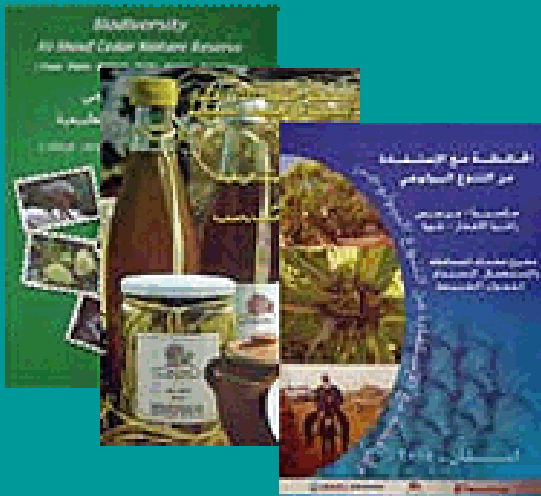
Shouf Cedar Reserve

www.shoufcedar.org

- **Shouf Cedar Reserve wins the Kyoto prize 2006 for its efforts**

Publications:

- 1-Biodiversity Al Shouf Cedar Nature Reserve
- 2-Rural Development Program
- 3-Conserving and Benefiting from Biodiversity English sect. / Arabic sect.



Ecotourism



The first long distance hiking trail in Lebanon



www.lebanontrail.org

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Welcome to the official website of the Lebanon Mountain Trail (LMT), the first long-distance hiking trail in Lebanon! The LMT extends from Qbalyat in the north of Lebanon to Marjaayoun in the south, a 440-km (275 miles) path that transects more than 75 towns and villages at altitude ranging from 1,000 meters to 1,800 meters (about 3,000-5,400 feet) above sea level. The LMT showcases the natural beauty and cultural wealth of Lebanon's mountains and demonstrates the determination of the people of Lebanon to conserve this unique heritage. The trail brings communities closer together and expands economic opportunities in rural areas through environmentally- and socially-responsible tourism. To date, more than 50 municipal councils, 20 community-based organizations and national NGOs, and hundreds of volunteers and youth have mobilized to clear, upgrade, and blaze the trail. We look forward to seeing you on the trail soon!

Google

search site



visitor no: 1138

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Lebanon Mountain trail



«درب الجبل اللبناني» نموذج للسياحة الريفية في لبنان

تواكبه بيوت ضيافة ومرشدون محليون... ويربط بين 70 قرية من الشمال إلى الجنوب

بيروت - ليل أبو رحال

ليست الموانع الأثرية والقلاع التاريخية ونزى الاصطيف ووسط بيروت وحدها ما يستحق الاهتمام في لبنان للتعرف على عاداته وتقاليد وتراثه. السياحة الريفية مفهوم جديد يعزز عنه مفهوم «درب الجبل اللبناني» الذي يهل بين سبعين قرية لبنانية على امتداده مسافة لبنان كلها.

سروج الجبال الشاهقة، مناظر طبيعية خلابة محميات الأرز الطبيعية طرق ومعابد رومانية، قلاع تاريخية قرى لبنان العتيقة وبيوتها المغلفة بالزيتون الأصفر، مساهم راس عمالة في الأدب والفكر، الأطباق التراثية والحديقة التقليدية... تلك كله جزء مما يمكن لسالك درب الجبل اللبناني التمتع به والتعرف إليه في بوع لبنان. من القبات شمالاً إلى مرجعيون جنوباً، يمتد درب الجبل اللبناني على طول 400 كلم متباعدة طرقاً قديمة شقها أجدادنا بأقدامهم في القرون الماضية ويتراوح ارتفاعها بين 500 و1800 متر. يستغل متنوع الصعوبة. يمنح درب مسحاذاة عشرات البلديات التي يشتهر بها لبنان، ويوفر للزائر إمكان النزول في بيوت الضيافة العائدية ومراكز التخييم.

المشروع بعد اكتمال تنفيذه إلى جمعية لبنانية أهلية تضم اليوم 60 متطوعاً من مختلف المناطق ولبنانية.

تأدية الريف وحلق فرص عمل

هدف درب الجبل العريض هو تنمية الأرياف وتشجيع التعرف إليها عن قرب وفي الوقت عينه خلق فرص عمل محلية جديدة وزيادة دخول القاطنين فيها عبر

وسلال عدة:
- الإستعانة بخدمات المرشدين المحليين، الذين يبلغ عددهم 60 مرشداً.
- شراء منتجات محلية وحرفية.
- إستراحة في بيوت الضيافة أو مراكز التخييم.
- مساعدة المزارعين في طلق محاصيلهم، كالفتح والتركز والعشش والزيتون.
- المشاركة في المهرجانات المحلية والمعارض القرية

والمناسبات الدينية، والتعرف إلى التقاليد المحلية... في هذا الإطار وإلى جانب ما تقدم، بذلت هاتى إلى أن المشروع يسلم الضيوف على المطاعم وشراء المنتجات المحلية وحرفية. وإستراحة في بيوت الضيافة أو مراكز التخييم. مساهمة المزارعين في طلق محاصيلهم، كالفتح والتركز والعشش والزيتون. المشاركة في المهرجانات المحلية والمعارض القرية

هيئة الدرب... والشركاء المحليون

يشير هاتى إلى أن

الدرب مقسم إلى 26 قسماً، يتراوح طول كل واحد منها بين 12 و20 كلم ويمكن اجتيازه في يوم واحد، علماً بأنه يُترك فراش الحرية في تنظيم رحلته واختيار الإنطلاق من أي قسم كان والعشي لعدة زمنية يحددها بنفسه كما أن بإمكانه اصطحاب مرشد محلي لمرافقته ومساعدته في التعرف أكثر إلى معالم الدرب وما يواكبه من إستراحات وبيوت ضيافة.



والدائمة تتطلب حشد المتطوعين لتأهيل أجزاء منه، ووضع المرشد من الإرشادات ونجحات المخطومات عليه، وتجهيز بيوت الضيافة ومراكز إستراحة إضافية. كذلك يحظى لمشروع بالدعم المستمر من وزارتي السياحة والبيئة وسنديرة الشؤون الجغرافية في الجيش اللبناني، من أبرز الشركاء: البلديات، الشركات المنتمية للرحلات الجمعيات المحلية والوطنية، ورواد العشي والناشطون البيئيون...

بيوت الضيافة

السى جاذب الخدمات المتوفرة كلها، يتميز درب الجبل اللبناني ببيوت الضيافة التي

بيوت تراثية قديمة، يديرها أصحابها مباشرة ويقدمون المأكولات التقليدية التي تتميز بها قرىهم.

درب بسكنتا الأدبي

إلى جانب السياحة الريفية تنفرد بلدة بسكنتا بديرها الأدبي نسبة إلى الكثير من الكتاب والأدباء القبايليين المتحدرين منها، منهم رشيد أيوب عبدالله وجورج غانم... يمكن الدرب الأدبي قاصديه من زيارة منازل الأدباء وقرىهم وكتابتهم الخاصة والمعارض التي تضرب فيها، إضافة إلى التعرف إلى أفراد عائلاتهم وأقاربهم الموجودين من خلال إدارتها. درب الجبل، تقوى جمعية درب الجبل اللبناني وفقاً لتديرها شراً هاتى، إرساء

Conclusion

- **We have:**
 - rich useful biodiversity
 - precious healthy food and medicinal inherited habits
 - diverse and suited agro-ecosystems for their cultivation
 - increase of the local and international demand
- **There is:**
 - Facilities for processing and adding value
 - Public awareness increase on public health, pesticide residues, food basket erosion, etc.
 - Good international collaboration basis (North-South)
- **We still have to:**
- **Update our legislative package**
- **Rerank the priorities at the national level**
- **Deploy the necessary effort for infrastructure and capacity building**

Consequently

- **All the prerequisites for a successful sustainable valorization can be strengthened for poverty alleviation in rural areas.**

Together towards a better future of our biodiversity for a

**Together towards a better future of our
biodiversity for a better life**

Thank you for your attention

