Challenges & Initiatives of Ecological Restoration in Palestine: AQUB Case Study

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Jordan & Palestine
Ecosystem Diversity

1) Mediterranean Coastal Area
2) Mid Mountains &
   • Western slopes
3) Desert Negev
4) Eastern Slope:
   – transitional
5) Jordan Valley &
   – Dead Sea
Natural Resources

- Water
- Rocks
- Solar energy

Biodiversity
Biodiversity

• Agro Biodiversity: key for food security
• Animal Biodiversity: domestic & wild
• Plant Biodiversity: cultivated & wild
• Others: Fungi & Bacteria
Economy of Biodiversity

- Eco-tourism: Natural reserves & Botanic Gardens
- Insect Pollination: plant production
- Natural Products: food &/ additives
- Herbal tea & Healthy products
- Bio-control: natural enemy, biocides
- Bio-fuel: from Biomass
- Micro-propagation: mass production
- Protected & intensive agriculture: green house
Eco Actions & Initiatives

• Eco Town
• Eco University
• Eco Park for Industrial zones
• Botanic Gardens
• Natural Reserves
• Eco Restoration
• Education
• Public
Activities using Biodiversity

• Hydroponic agriculture: seedlings, vegetables
• Grafting practices on wild or resistant origins
• Cultivation of herbs and aromatic plants
• Animal farm feed
• Agro-nurseries
• Palm dates in Jordan valley
• Recycling of Agro wastes: composting
• Collection of seeds from wild
Plant List of Pal Flora
To invest in nature

• Targeted plant families:
  – Labiatea
  – Compositae
  – Umbeliferae
  – Legumonisae

• Wild or cultivated

• Harvest from nature

• Conserve in nature

• Invest in nature
Industry

- Food Processing & Technology: Diary, Jams
- Pharmaceutical factories: bioactive compounds
- Healthy Products: soaps, shampoo, creams
- Physiotherapy: messages, aromatherapy
- Bio pesticides for chemical industry
Natural Products

• 30% pharmaceuticals from plant origin
• Traditional remedies from generations
• Bio Organic
• Safe
• Using the Living Cell
• No side effects
• However: concentration & Type to be considered
Diversity of Natural Products

• PRIMARY
  • Carbohydrates: starch
    • Proteins
  • Lipids & oils
• SECONDARY
  • Essential oils
  • Alkaloids
  • Flavonoids
  • Phenols
Climate Change

- Causes / Features
  - Pollution
  - Human actions: unplanned urbanization
  - Global warming
  - Variation in rainfall
  - Desertification
  - Natural disasters: storms
  - Reduction in green cover
Ecological degradation
Eco Degradation: Stone industry
Eco Restoration
Settlements Danger
Separation Wall of Nature
Separation Wall
Eco Damage
The Palestinian People

- Traditional use of herbs: warm soft drinks, flavors, food
- Folkloric herbal medicine
- Eco friendly actions with nature
- Research has the say: prove, modify, add value
Eco solution
National Nursery for production of plants
Biodiversity is treasure of nature — needs conservation and protection
Rock Botanic Garden: Conservation. Education. Research. EcoTourism
Rock Wastes Seats
Rock Botanic Garden
Wood Exhibition Hall
Gate of RBG from wastes
Andalusia
AQUB – Andalusia
Andalucía BG
Ecotourism University Life
Andalusia open to the Public
Aquaria for research and tourism
Community based natural museum
Natural Heritage site for restoration
Hesham Palace – Natural Heritage
Christian Natural Heritage Site
Biodiversity Garden
Biodiversity Garden
Cultivation in nature
Eco/Agro Teaching
Eco Restoration of Agro Stations
Old Walls for restoration of Garden
Eco Lecture Theatre
Public Natural Conserved Park
Closed nature for Restoration
Range Land
Over Grazing
Petra Palestine
Eastern Slopes & Ecological planning
Eastern Slopes
Eco Treasure – Dead Sea
Herbal Tea = Herbal Life

- Easy food approach:
  - fast in the market
- From tradition to
  - technology
- Social Approval
- Based on advise and
  - invest in nature
Essential oils

• Natural products
• Produced mostly by plants
• Industrial applications
  – Food
  – Cosmetics
  – Pharmacy
  – Aromatherapy
  – Relaxation: relief of stress (psychology)
Flowers & Leaves
Essential oils: Aromatherapy
Olive oil
Fixed Oil from Wild
Herbal Life: New Business emerged
Holy Land Trade Mark

- Natural Products of Holy Land
- Respect all religions & History
- Business: local market & export to Europe
Pollination & Agro Production
Legumes of Palestine

- *Vicia narbonensis*: purple broad bean = بريد ناعم + بريد خشن
- *Vicia hybrida l ervilia*: كرسنة / بيقيا / كريشة
- *Trifolium purpureum*: 5sps- purple clover = برسيم أرجواني
- *Astragalus callichrous*: milk vetch = كريشة
- *Lupinus pilosus*: Lupin, purple flower = الترمس
- *Lathyrus sps*: 3 sps - سيسعة / إجلبان
- *Medicago sps*: دريدرة
- *Medicago orbicularis*: 5 sps - حلزونية دائرية القرن
- *Melilotus sps*: حندقوق
Wild Legume

*Astragalus callichrous*: milk vetch = كريشة
DNA barcoding used in fields”
Identification / authentication of commercial products & extracts:
Management: Human Resources

• Al-Quds University: research & solving industry problems
• Advisors & Consultants
• Scientific Team: assistants
• Agro- Engineers
• Businessmen: Private sector / Investors
• Marketing & Media
• Real Invest in Nature
Future Plan - AQU

• Develop:
  - AQUB Gardens
  - Botanical & Chemical Research Lab
  - Seed Bank
  - Herbarium

• Establish
  - Green House
  - Distillation unit
Reforestation Nursery
EU Project Reinforcing & Defending Biodiversity

8 Locations for survey • Evaluation of biodiversity • 2 PhD Students • Meetings / Seminars • Publications • Corridors • Propagation
Biodiversity Field Research & Education
Multi use of Home Garden
Natural view – Field / Wild / City
Eco Life commitment
Jerusalem Religion & Ecotourism
Dome of the Rock: Botanic Garden
Welcome

Thank you