

Traditional Knowledge and Genetic Resources in Turkey

Dr. Esin Dilbirliđi

General Directorate of
Agricultural Research and Policy

edilbirliđi@tagem.gov.tr

<http://www.tagem.gov.tr>



- Biological Diversity
- Endemic Species
- Medicinal and Aromatic Plants
- Genetic Resources and Traditional Knowledge



- Biodiversity is our **life insurance** and has **strategical** importance.
- Biodiversity is considered in four categories;
 - Genetic diversity
 - Species diversity
 - Ecosystem diversity and
 - Ecological interactions

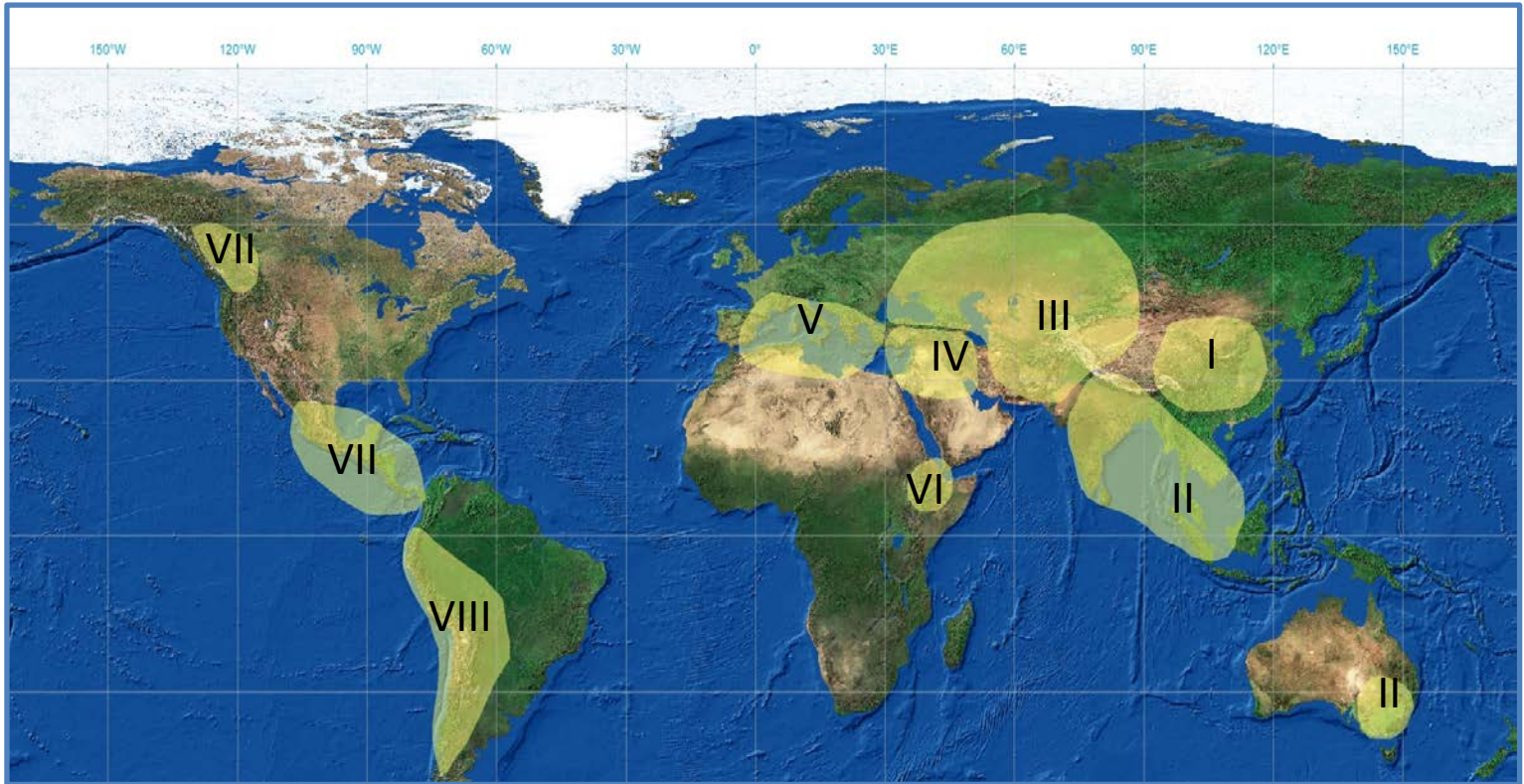




Intersection of three continents and crossroad between Asia and Europe

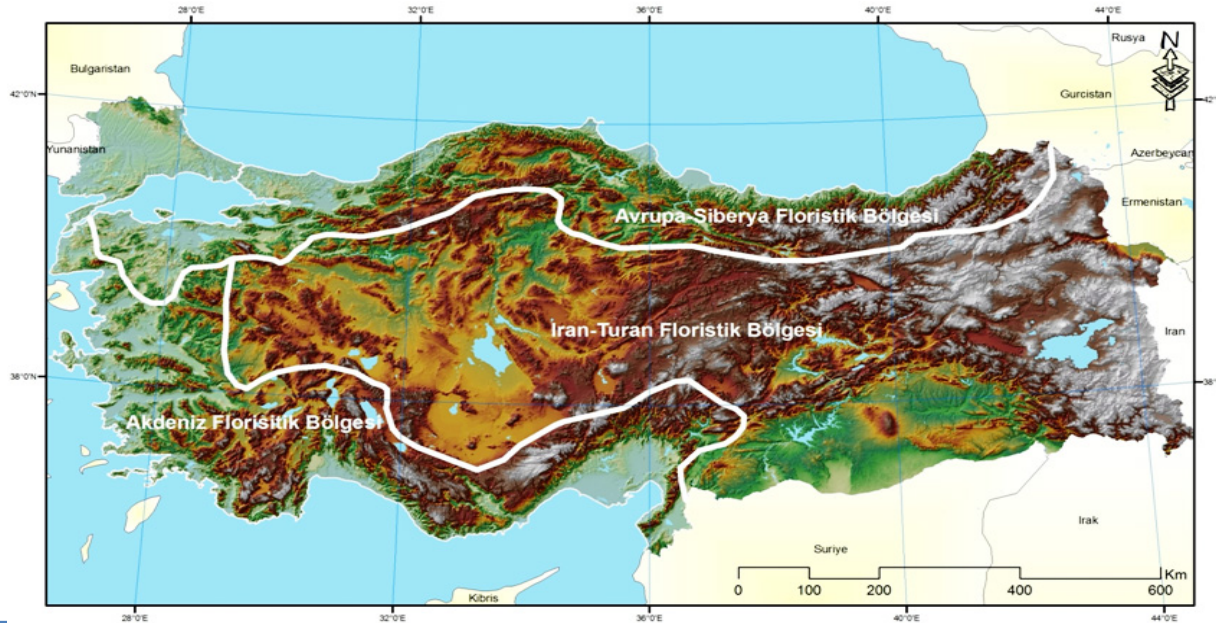
THE CENTER OF ORIGIN / FLORISTIC REGIONS

Vavilov Center of Diversity



I- The Chinese Center
II- The India Center
III- Central Asia (Europe-Siberia)
IV- The Near East Center (Iran-Turan)

V- The Mediterranean Center
VI- The Abyssinian (Ethiopian)
VII- The South Mexican and Central American C.
VIII- South America Andes Region



- Two of the gene centers namely; Mediterranean and Near East Center overlap in Turkey
- The flora of Turkey consist of high endemism about 4000 out of 12.000 plant species recorded.

Three biogeographical zones;

- Euro-Siberian
- Mediterranean
- Iran -Turanian

Hence; Turkey has mountain, steppe, wet land, coastal, forest, agricultural, marine ecosystems and different forms and combinations of these ecosystems.

Turkey is the origin center
consist of several crops,
horticultural and other plants.

Such as; wheat, barley, chickpea,
lentil, olive, apple, pear, apricot,
quince, chestnut, pistachio.



MICRO-GENE CENTERS	COMMON SPECIES
Trace-Aegean	Bread wheat, durum wheat, knop wheat, glume wheat, grains, melon, lentil, chickpae, vetch, lupine, white clover
South-East Anatolia	Kaplıca, gernik, durum wheat, marrow, melon, water melon, cucumber, grape, bean, lentil, chick pea, broad bean, forage plants
Samsun -Tokat- Amasya	Amasya fruit types & species, bean, lentil, broad bean, forage legumes.
Kayseri area	Apple, almond, pear, fruits, grape, lentil, chick pea, clover, trefoil
Ağrı area	Apple, apricot, cherry, sour cherry, melon, forage legumes

- Endemic plants are naturally grown and solely belong to one macro or micro geographic area.
- Endemic plants are categorized into local, national, regional or continental endemic plants depending on the size of geographic area.
- Recently, there has been several national and international studies on plant species, particularly, endemics that narrow and limited space hinder its expansion.



Cyclamen trochopteranthum



Thermopsis tursica



Campanula ekimiana

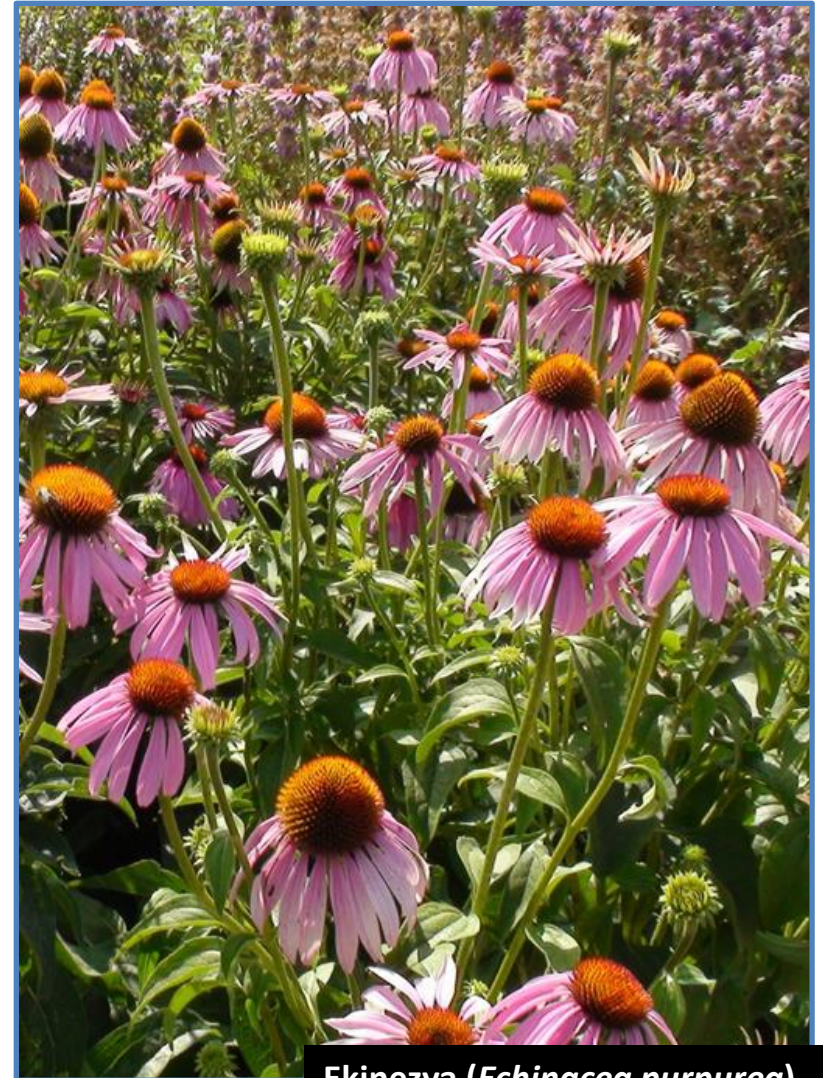


Centaurea tchihatcheffii



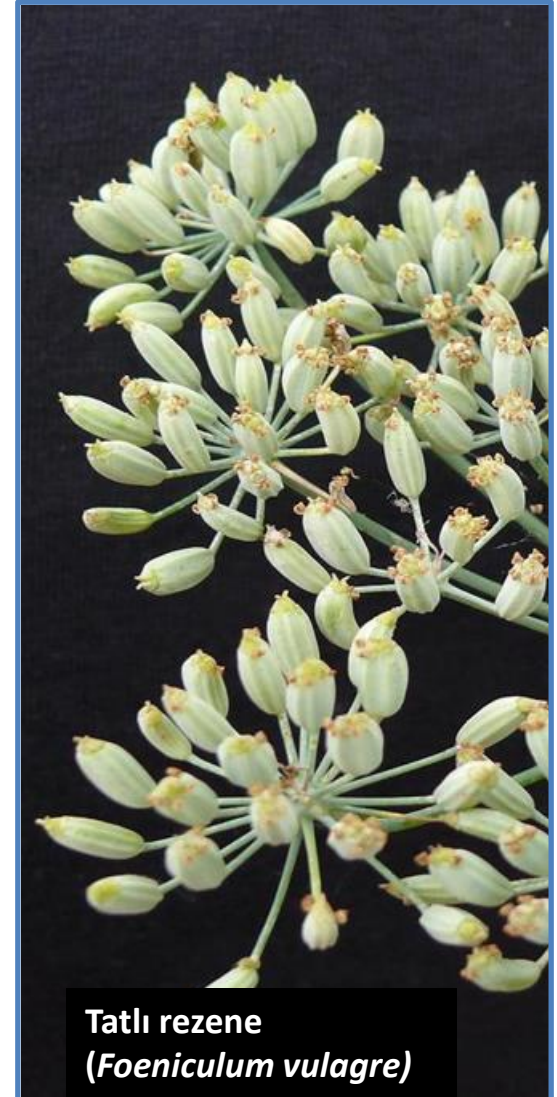
Salvia (*Serapias vomeracea*)

- ❑ Use of natural resources as food, medicine or other purposes has started with the known-human-history.
- ❑ Based on the World Health Organization (WHO) reports; there are about **70.000 herbal/medicinal known plant species** in the world, of which about **21.000** have currently been used in pharmaceutical industry.
- ❑ In total, about **1.000** naturally growing species have also been used for medicinal purposes in Turkey.
- ❑ Number of registered plants in pharmacopeia is more than **200** species.



Ekinezya (*Echinacea purpurea*)

- ❑ Medicinal & Aromatic plants are generally used in pharmacy and food industry, and particular, in chemistry, cosmetic and in dyeing industries intensely.
- ❑ Recently, there has been a demand increase in natural products. This also triggers the demand to medicinal and aromatic plants.
- ❑ In order to meet the demand, it is also necessary to increase the cultivation to get standard product and research studies on conservation of biodiversity.
- ❑ Due to collection of medicinal plants mostly from the nature and low amount of production and trade, it is difficult to reach clear data.



RESEARCH CENTER OF MEDICAL AND AROMATIC PLANTS

Antalya Batı Akdeniz Tarımsal Araştırma Enstitüsü

Opening date : 16.06.2010



- Collection of Garden, Consisting of 430 plant species
- Green House, 3000 m²
- 7 Laboratory, 10,000 analysis capacity



➤ Aegean Agricultural Research Institute İZMİR

National Seed Bank 1972

- Currently 57.726 samples for 3.244 species is under conservation.

➤ Central Research Institute for Field Crops ANKARA

Turkish Seed Gene Bank 02.03.2010

Capacity of conservation is 250.000 seed species

- Currently, 63.056 samples for 463 species is under conservation.

TOTAL 120.995 samples



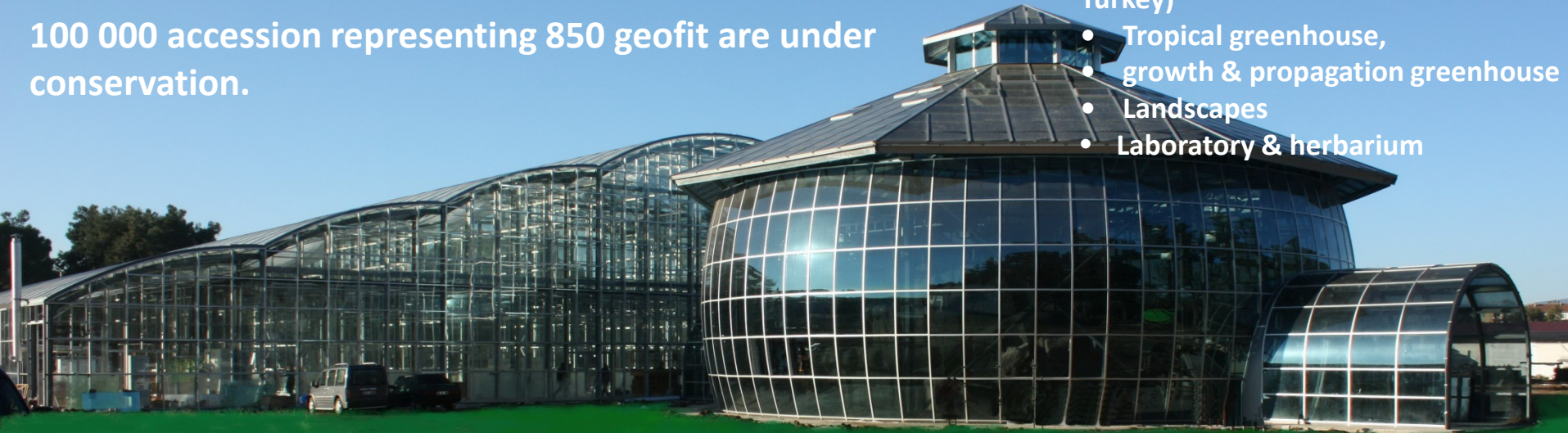
Atatürk Central Horticulture Research Institute YALOVA

More than 50% of geofit species are in Turkey

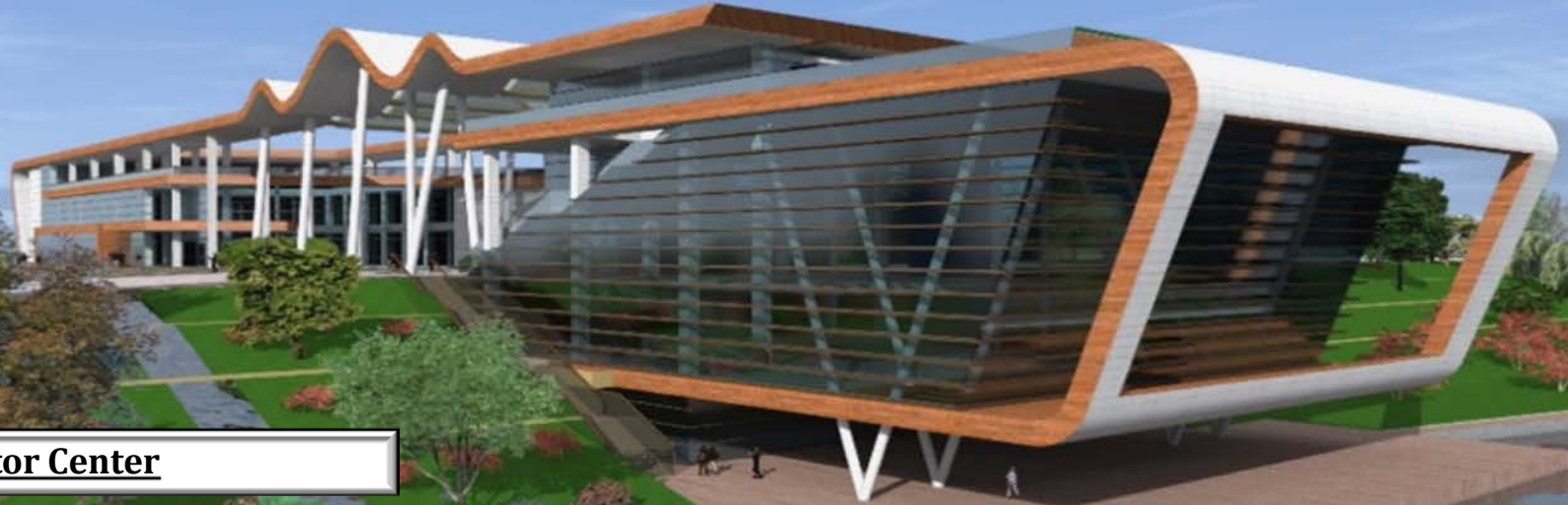
100 000 accession representing 850 geofit are under conservation.

20.000 m² covered area;

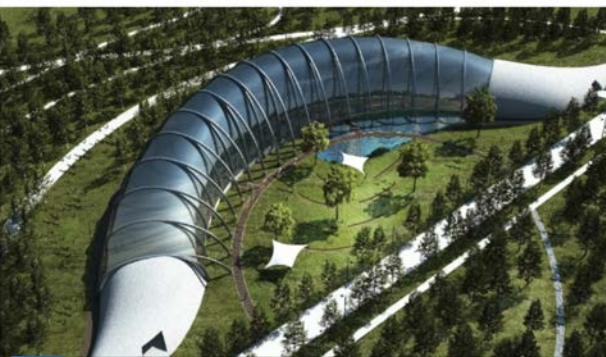
- Exhibition area,
- **Alpine greenhouse** (first time in Turkey)
- Tropical greenhouse,
- growth & propagation greenhouse
- Landscapes
- Laboratory & herbarium



- Established on 250 hectare in Ankara
- Insurance of Turkish Biodiversity
- Aims at conservation and development of Turkish plant genetic reserves
- Plant palace in size of 10 000 m² and represent the models of three different climatic region



1 Visitor Center



2 Plant Palace



3 Production & Operation Center



4 Herbarium complex



Globally Important Agricultural Heritage Systems FAO Turkey Partnership FTTP



Identification, Assessment and Stewardship of Globally Important Agricultural Heritage Systems (GIAHS) in Azerbaijan and Turkey

GCP/RER/028/TUR

Participating Organizations;

Ministry of Food, Agriculture and Livestock of Turkey (MFAL)/

General Directorate of Agricultural Research and Policies, (GDAR)

TURKEY

Ministry of Agriculture of Azerbaijan/ Agrarian Science Centre of Azerbaijan

AZERBAIJAN

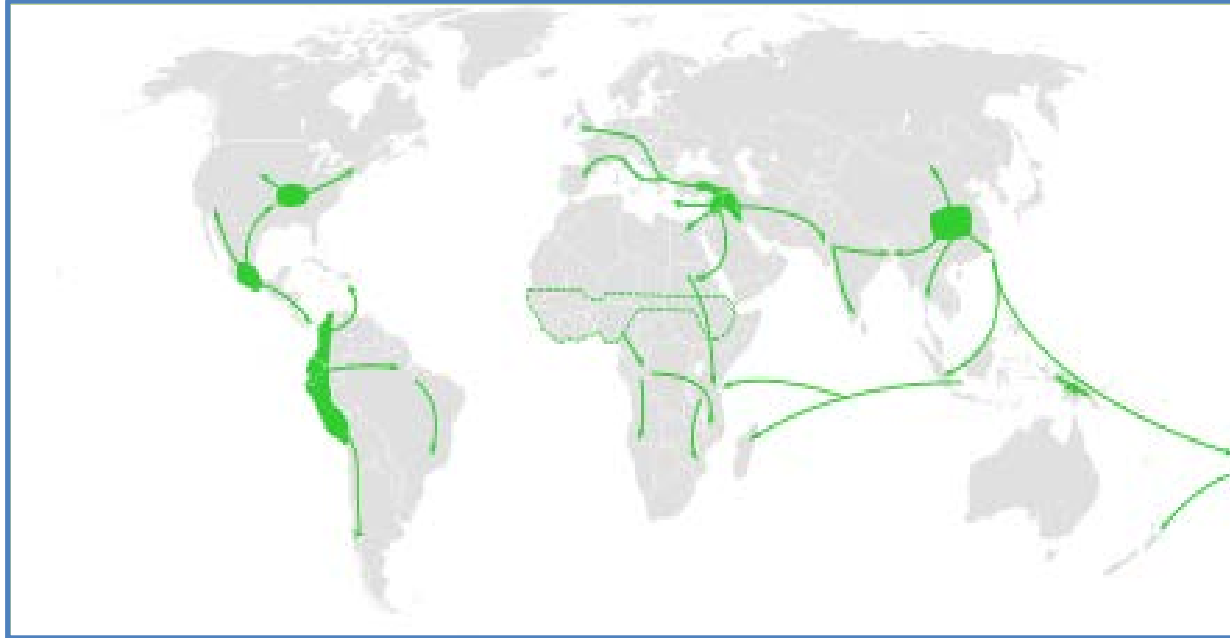
The GIAHS Framework

- Assessments
- Adaptive management
Dynamic conservation
- Capacity-building
- Mainstreaming

Basic Steps in GIAHS

- Multi Stakeholder Partnerships
- Key Features and Dynamics of Selected GIAHS
- Identification of Tools, Principles, Best Practices for Dynamic Conservation
- Action Plan is Developed and Implemented in Demonstration Site
- Assessment of Progress
- Dissemination of Results





Fertile crescent (11,000 BP), Yangtze and Yellow River Basin (9000 BP) and New Guinea (9000–6000 BP), Mexica (5000–4000 BP), North and South America (5000–4000 BP), African Sahara (5000–4000 BP)





GIAHS Selection Criteria

- Food and Livelihood Security
- Biodiversity and Ecosystem Function
- Knowledge System and Adapted Technology
- Culture, Value System and Social Organization (Agriculture)
- Remarkable Landscapes

Traditional agricultural knowledge;

which is related to indigenous technologies and traditional farming and crop beliefs associated with different cycles of crop cultivation or utilization such kind of species,

is deteriorating faster than their biological/genetic diversity which are used by local farmers for different purposes of their consumption.



- Pilot Area/ Southeastern Anatolia Region
- Collecting GIAHS knowledge
- Identification of GIAHS selecting criteria
- Preparation of description material
- Establishment of Project Steering Committee
- Field studies, Info days and workshops in Pilot Area
- Finalizing project proposals with local stakeholders



Following activities were;

- Determination of stakeholders
- Preparation of GIAHS documentations
- Preparation of GIAHS promotional information
- Organizing info days and workshop with stakeholders
- Land visits
- Creating inventory
- Finalizing GIAHS proposals
- Organizing joint workshop with partner countries
- Preparation structure of next phase of the project GIAHS and action plan
- Preparation of terminal report.



The Expected Outcome of the project was;

“Selected pilot sites for the dynamic conservation of Globally Important Agricultural Heritage Systems (GIAHS) identified and a long-term GIAHS programme in Azerbaijan and Turkey prepared”.



A summary of six GIAHS sites were reported to FAO GIAHS Secretariat as follows;

- Traditional Natural Dyeing and Weaving Systems
- Karacadağ Rice Production Systems
- Traditional Cheese Production Systems
- Sultan Seyhmus Fig Production Systems
- Kilis Karası Grape Production Systems
- Olive Production Systems



Shortlisted GIAHS proposals were Traditional Natural Dying and Weaving Systems, Karacadağ Rice Production Systems and Kilis Karası Grape Production Systems.



Traditional Natural Dyeing and Weaving Systems;

The Mesopotamia sub-region of Iran-Turan region is exactly located around Diyarbakır province.

Zagros -Taurus mountain chain which is also called “*fertile crescent*” is also partly located in this area.

The region’s history dates back to 5000 BC also hosted 28 civilizations in the world’s history. The most valuable and famous symbol of the city is the “City Wall” surrounding the city with 16 castles and 5 gates and it is the second big wall in the world after Great Wall of China.

28 civilizations were settled in this region.



Traditional Natural Dyeing and Weaving Systems;

The cultural assets show themselves in handicraft arts in the area. Especially jewelry, silk culture, weaving are the most important ones.

Natural dyes are extracted from dye plants found in nature. These plants are well known by rural communities especially by women and picked up by hand.

The system depends on sustainable use of the natural resources which are natural dye plants in this case.

Some of the endemic dye plant species which are rare and vulnerable.

The system uses environmental friendly production system which was created by local community in the area long time ago.



Azerbaijan



Azerbaijan pilot areas were Lankaran and Astarra districts.

Azeri National Project consultant was organized several local meeting in pilot areas with smallholders.

Some training courses on GIAHS initiatives were organized. He also interviewed some experts for better describing the selected areas and examined pilot areas for seeking potential GIAHS systems





Agricultural heritage areas strategies and action plan;

A successful transnational GIAHS policy depends on a multi-faceted approach.

- Using communication tools to higher awareness,
- Keeping ensure knowledge to attract policy-makers attention,
- Focusing GIAHS strategy priorities to take the best dynamic conservations



Dr. Esin Dilbirliđi
Tarımsal Arařtırmalar ve Politikalar Genel M¼d¼rl¼đ¼
edilbirligi@tagem.gov.tr
<http://www.tagem.gov.tr>

TEŐEKK¼RLER.

www.tarim.gov.tr

