



# INDICATORS AND DESCRIPTORS OF SUSTAINABLE AGRICULTURAL EDUCATION IN BULGARIA - CASE STUDY in UF

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“Education is the ability to perceive the hidden connections between phenomena.”

*Vaclav Havel*

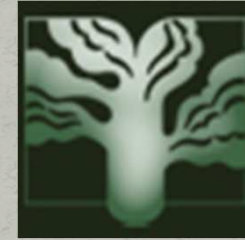
**ISLE is a 36-month project, which started in October 2010. Its consortium consists of 38 partners from 32 European countries representing Higher Education Institutions (HEIs), Research institutes and Enterprises that have a focus in the life sciences.**

**The ISLE ASSOCIATION objective is to implement the concept of Sustainable Development in Higher Education. The ISLE ASS. approaches the topic in a comprehensive way, analysing the different aspects concerning the implementation of SD in higher education and developing both research activities and specific tools and devices that can be utilised by the wider sector to facilitate ESD.**



**The objective is - extraction of existed and the idea of possible innovation practices in the area of Sustainable Development education in Higher Education Institutions (HESD).**

**The topic of HESD is considered in a broader sense, on one side considering the characterisation of the political and institutional framework, and on the other side describing formal and informal learning experiences in HE Institutions.**



The goal is  
to maximise the effectiveness of HESD  
requires all these elements to be taken  
into account. Good Practices were  
classified into 4 areas: *Policies,*  
*Institutional activities, Teaching and*  
*Practical experiences.*



Holistic approach have been used for describing formal and informal learning experiences in Higher Education Institutions and highlighting some important directions for the future vision of Higher Education.

Sustainability is not an individual property but is a property of an entire web of relationships.

What is sustained in a sustainable community is not economic growth or development, but the entire web of life on which our long-term survival depends.



- Descriptors were used: Indicators: New technologies, Holistic approach, Collaboration, Critical thinking, Project base learning, Creativity, Network building capacity, Internationalization, Interdisciplinarity, Motivation aspects, Transferability, Innovation activities.
- The following indicators (present). Descriptors: Content, Tools, Method, Outcome.



**Information collection concerning SD in life sciences in Europe” on good practices was collected through the redaction of country reports and the fulfilment of direct surveys in the member Institutions. Surveys were completed by students, academic staff and individual institutions for each partner of the ISLE network.**

**The selected Good Practices covered a wide range of activities and geographical origin, with the aim of maximizing replication of these practices by other institutions, both within and outside the ISLE consortium.**





**Good Practices were classified into 4 areas:**  
***Policies,***  
***Institutional activities,***  
***Teaching and Practical experiences.***  
**With extraction of 14 innovation practices are discussed and presented in form of a questionnaire, composed from 12 indicators and 4 descriptors.**



# Indicators & Descriptors

- The following indicators and descriptors were used:

## Indicators:

- New technologies, Holistic approach, Collaboration, Critical thinking, Project base learning, Creativity, Network building capacity, Internationalization, Interdisciplinarity, Motivation aspects, Transferability, Innovation activities.

- Descriptors: Content, Tools, Method, Outcome.



# Questionnaire

<b>Descriptors</b>	Content	Tools	Method	Outcomes
<b>Indicators</b>				
New technologies				
Holistic approach				
Collaboration				
Critical thinking				
Project base learning				
Creativity				
Network building capacity				
Internationalization				
Interdisciplinarity				
Motivation aspects				
Transferability				
Innovation activities (present)				



## Green Pedagogy – a concept for learning, teaching and advising for SD



applied by Beate Kralicek & Angela Forstner-Ebhart partners from **University College for Agrarian and Environmental Pedagogy Vienna**

Descriptors	Content	Tools	Method	Outcomes
<b>Indicators</b>				
New technologies	Evaluation of various products (e.g. press, online-media, videos, advertising)	Blended learning	New media analysis and production of wikis, flyers, articles and blogs	Learners become critical and reflective users
Holistic approach	Learners understand the Interdependence of different systems.	Seminars	Learners develop hypotheses and new visions	Multiple perspectives of given tasks
Collaboration	Learners and lecturers work in a participatory way.	Excursions	Expert-discussions prove and show diverse opinions and concepts	Elaborate knowledge and opinions, they lead to co-construction



Descriptors	Content	Tools	Method	Outcomes
<b>Indicators</b>				
Critical thinking	Through sustaining controversial discussion and irritations	Case studies	Interactive video methods	Learners acknowledge the complexity of processes in education for sustainable development
Project base learning	Students from different disciplines work together in areas concerning the three pillars of ESD (society, ecology, economy)	Practice	Simulation game	Learners produce their results for the community, for citizens in rural contexts
Creativity	Mediating diverse opinions of all participants from different cultures and disciplines	Workshop of arts	Artwork Creative arts (drama, music, film)	Learners present new ideas for the design of learning results



Descriptors	Content	Tools	Method	Outcomes
<b>Indicators</b>				
Network building capacity	Building contacts in a self-responsible way and estimating the importance of stakeholders	Internships with NGO's and governmental institutions	Independent observation or practical trainings	Learners develop management skills and cooperative competencies
Internationalization	Exchange with international partners	International projects	Video conferencing or articles in international journals/proceedings	Learners exchange experiences and best practice results
Interdisciplinarity	Learning across the curriculum	Team-lectures	Teamteaching, common design of programs and lectures	Learners are capable of presenting complex information and arguing controversial issues



Descriptors	Content	Tools	Method	Outcomes
<b>Indicators</b>				
Motivation aspects	Learning arrangements are designed to arouse curiosity and concern	Seminar	Analysing authentic cases and models from real life (case vignettes)	Learners show interest for dealing flexibly with new challenges
Transferability	Learners filter out appropriate variables in complex tasks of their work field	Internships	Applying knowledge and skills independantly	Skills and competences concerning various subject matters are used for new problems
Innovation activities (present)	Current issues of agriculture, ecology, sociology, health are integrated in innovative pedagogical learning arrangements	Common events	Reflection of learning with various methods	Learners evaluate their personal and vocational development



# Selected good practices



- **GREEN PEDAGOGY**
- **SUNNY GARDEN**
- **CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE**
- **TALVEAKADEEMIA (WINTER ACADEMY)**
- **SPECIFIC UNIVERSITIES POLICIES ABOUT SD IN FRANCE**
- **THE PLACE OF THE TUTORED PROJECT**
- **E-LEARNING ACADEMIC NETWORK (ELAN III)**
- **MASTER GESLOPAN**





# Selected good practices

- **FAIR TRADE MANAGEMENT**
- **MASTER IN AGRICULTURE: AGROECOLOGY AND RENEWABLE ENERGY**
- **BOTANICAL GARDENS, SPECIAL PLACES TO INVOLVE SPECIAL PEOPLE**
- **"DE SOL A SOL" - A SUSTAINABLE DAY**
- **LEARNING REGIONS IN SLOVENIA WITH POLYGONS IN NATURE**
- **MANAGEMENT OF PESTS, DISEASES AND WEEDS**
- **SUSTAINABILITY AWARENESS RAISING BY APPLYING A PBL APPROACH**
- **GREEN ACADEMY**



## Innovation practices applied by partners

- It is important to understand the scarcity!
- Paradox: in an affluent society → the most complained about rarity

- Interactions with civil society

**International Learning  
Centre for Sustainability in  
Poljčane, SLO**





# The Green Academy

**The Green Academy - an extension activity of  
Biological resources extension service (BIOREX) at  
University of forestry – Sofia**

**The University of forestry (UF) in Sofia is  
the “Green Bulgarian University”**



# The Green Academy

- The mission of university is to disseminate knowledge in broad range of subjects in the field of forestry, wood processing and furniture industry, engineering design, ecology and environmental protection, landscape architecture, agriculture and veterinary medicine, and management of the activities in these fields.



**Both education and research at UF have multidisciplinary character beyond traditional engineering study covering almost all aspects of bio-economy.**

**The Biological resources extension service BIOREX was developed in the framework of project funded by the America for Bulgaria Foundation.**



**Conducting of information events “Green academy” is one of the core activities of the extension service BIOREX.**

**The Academies is a meeting point between academy, administration, business and local communities.**

**Among lecturers are representatives of University of forestry, Executive forest agency, Bulgarian food safety agency, Ministry of agriculture and food, Agricultural academy etc.**



- **The academy is focused on following topics:  
forest and their products, environment and biodiversity, agriculture, home and garden, food and health.**
- **The conducted so far green academies were hosted by vocational schools what allowed involvement of young people in the idea of extension.**
- **The program of the events was set up on the base of preliminary need identification for the region. Presentations, exhibitions and discussions, allowed the participants to exchange ideas concerning selected topics.**



- **Evaluation of the Questionnaire for lectures in Mushroom growing, vegetable production and etc.**
- **Include 21 questions about the farmers, area of interest, profit, growing technology and phytosanitary problems, possibilities to participate and be granted from public funds and etc.**
- **Students split it to the farmers and collect and analyze data and present them to the seminars with colleagues, teachers and growers.**
- **The conclusions are discussed in the end of semesters and shared with assessment in these disciplines.**





## Epilog

Education is a key instrument for bringing about changes in values and attitudes, skills, behaviours and lifestyles consistent with sustainable development (UNESCO Associated Schools, 2011). The conditions for success of the presented initiatives is not only linked to the capacity of providing students with new knowledge, practical skills and competencies, but above all it is linked to the widespread adoption of new values, attitudes and behaviours aimed at contributing to sustainable development of current and future generations.

We need to develop a conceptual framework that integrates the biological, cognitive, and social dimensions of life; a framework that enables us to adopt a systemic approach to some of the critical issues of our time.

# New approaches from 2016

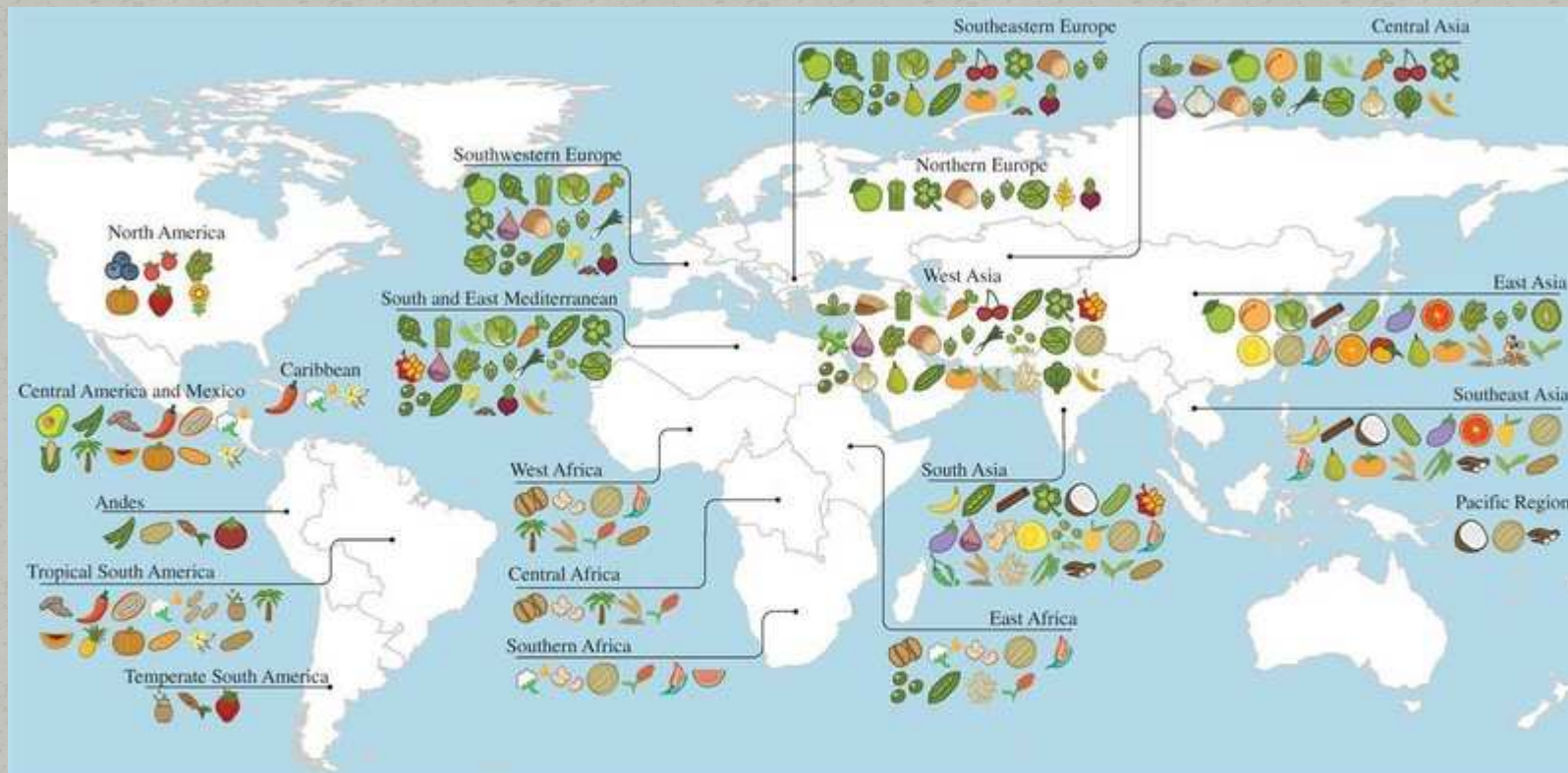
- **The vegetables survey**
- **A survey studying the vegetable preferences. (9 questions)**
- **Designed by the department of Horticulture, Faculty of Agronomy, University of Forestry, Sofia, Bulgaria**
- **\* Required**
- **[docs.google.com](https://docs.google.com)**

# A Map Of Where Your Food Originated May Surprise You

- <http://blog.ciat.cgiar.org/origin-of-crops/>
- [http://www.npr.org/sections/thesalt/2016/06/13/481586649/a-map-of-where-your-food-originated-may-surprise-you?utm\\_medium=RSS&utm\\_campaign=thesalt](http://www.npr.org/sections/thesalt/2016/06/13/481586649/a-map-of-where-your-food-originated-may-surprise-you?utm_medium=RSS&utm_campaign=thesalt)

# Interactive map





- |                       |                      |                |            |                  |                        |                       |              |                |
|-----------------------|----------------------|----------------|------------|------------------|------------------------|-----------------------|--------------|----------------|
| alfalfa               | beans                | clover         | eggplants  | hops             | melons                 | pears                 | rice         | sunflower      |
| almonds               | blueberries          | cocoa beans    | faba beans | kiwi             | millet                 | peas                  | rye          | sweet potatoes |
| apples                | cabbages             | coconuts       | figs       | leeks            | oats                   | pigeonpeas            | sesame       | taro           |
| apricots              | carrots              | coffee         | garlic     | lemons and limes | olives                 | pineapples            | sorghum      | tea            |
| artichokes            | cassava              | cottonseed oil | ginger     | lentils          | onions                 | plums                 | soybean      | tomatoes       |
| asparagus             | cherries             | cowpeas        | grapefruit | lettuce          | oranges                | potatoes              | spinach      | vanilla        |
| avocados              | chickpeas            | cranberries    | grapes     | maize            | palm oil               | pumpkins              | strawberries | watermelons    |
| bananas and plantains | chillies and peppers | cucumbers      | groundnut  | mangoes          | papayas                | quinoa                | sugar beet   | wheat          |
| barley                | cinnamon             | dates          | hazelnuts  | mate             | peaches and nectarines | rape and mustard seed | sugarcane    | yams           |



*Thank you for your  
attention*