

SMART APLY OF ICT AND DIGITAL ECOSYSTEM FOR FOOD SAFETY AND SECURITY BASED ON ECOINNOVATIVE SOLUTIONS

I. Objectives

1. The concept of food security in relation to new world food depression

1.1. Bio-productive potential evaluation for natural anthropic eco-systems

- Innovative solutions, ICT models and techniques for collecting, structuring and integrating information
- Assessment models of bio-productive potential on food and feed in natural anthropic eco-systems based on soil **energy sustainability** principles
- Evaluation models for exergetic and emergetic potential of natural anthropic eco-systems

1.2. Estimation of bio-resource need on food and feed

- Innovative solutions, ICT prediction models and techniques of bio-resource need expressed in caloric units and exergy

1.3 Developing the redeployment models of primary resources based on productive potential optimization principles

- Modeling, simulation, prediction, productive potential redeployment in order to obtain optimal in ecological balance

2. Food safety in relation to the new world food depression

2.1 Legislative normative concerning the quality of food and feed at global, European and national level

2.2 Eco-innovative solutions and technologies for food production to keep balance in eco-system, biodiversity and environmental conservation

2.3. Monitoring models of food quality on soil-plant-animal-human trophic chain, including also marketing distribution networks.

2.4. ICT global monitoring applications of energy flow in the trophic chain, at geographical area level

II. Activities

- Research and development of models and ICT techniques for collecting, structuring and integrating information
- Research and development of evaluation prediction models of bio-productive potential based on soil **energy sustainability** principles
- Research and development of redeployment models of primary resources based on exergetic potential optimization principles
- Impact analysis studies and development of global, regional and local official regulations regarding the quality of food and feed
- Study on eco-innovative solutions for food production to keep balance in eco-system, biodiversity and natural environmental conservation
- Research and development the monitoring models of food quality on soil-plant-animal-human trophic chain, including also marketing distribution networks (*Digital Business Ecosystems*)

- Development of Smart ICT, global monitoring applications on energetic networks in trophic chains from rural and urban agro-eco-systems (*urban agriculture*)

III. Target groups

- Analysis and prediction global structures under Food and Agriculture Organization (FAO)
- National and international governmental bodies with responsibilities for security and safety of food and feed
- European and national non- governmental bodies focused on monitoring activities (associative authorities, farmers, traders, processors)
- Major producers of food and feed in a multi-polar changing world
- Traders of vegetable and animal food products, which are industrially processed or traditionally manufactured
- Public health system and authorities involved in prevention and control of zoonoses and achievement ecosanogenesis

IV. Partnerships

- Partnerships among research institutes, public companies and privately owned companies with productive and applied research activities, public and privately universities, at national and trans-national level
- Partnership with academic research in direction of professional competencies improving
- Privately owned companies (IT, food and feed production, marketing, processing)

V. Impact

- Food security for next period like 2030-2050-2100
- Resource and risk factors management
- Avoidance the peak depression of system
- Conservation of bio-productive potential of anthropized systems
- Biodiversity and environment conservation

VI. Financial sources

- National and transnational public funds coordinated by World Bank, BERD, FAO, USAID
- National and transnational public research funds (National R&D and Innovation Plan, European Research Plan FP7-FP8, Environment, Energy, ICT etc.)
- Government funds for investment and development
- National and international private funds from foundations, NGOs, private entrepreneurs and funding.