X TH POLISH-AMERICAN CONFERENCE ON SCIENCE AND TECHNOLOGY

„TRANSFER OF TECHNOLOGY AND KNOWLEDGE"

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THE MODEL OF SUSTAINABLE DEVELOPMENT OF TECHNOLOGIES AND THE MARKET IN THE FOOD ECONOMY – THE POSSIBILITIES OF COOPERATION BETWEEN POLAND AND THE USA, ECOLOGICAL AND SOCIAL CONCEPT

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Theses

1. There is a serious necessity to create a model for transferring sustainable development technologies into the ecological farming policy.
2. For the benefit of appropriately understood agriculture it is necessary to make the process of development of ecological farming methods more dynamic.
3. In contrary to corporation trends to date the ecological farming can be very supportive for export of the two countries, the USA and Poland.

Food economy today

The contemporary, dominant concepts and practice for functioning and development of food economy are more and more criticized – on the one hand – by consumers and many research centers, but on the other hand they are also an element which is strengthened and supported by world corporation policy.

Economics of growth and scale

economics of growth + economics of scale

reduction in food prices + increase in production

degradation in agricultural environment

decrease in biological and health quality of food

Field of future cooperation

The realization of regional-technological foresight for Podkarpacie Province allowed generating priority technologies in food economy (principally ecological) and stressed the necessity for development of many essential researches.

Centers in the USA and “Independent Research Panel” in London also support this necessity.

Field of future cooperation

The sector of ecological agriculture can utilize better than at present the achievements of such sciences as: ecology, botany, zoology, phytophatology, entomology. This can result in higher quantity and quality of yields.

Foresight

The foresight studies are designed to build network of stakeholders who would be willing to build/create the long-term regional policy and then participate in its realization.

2006-2008 - Priority technologies for sustainable development of Podkarpackie Province

(technologies for agricultural production and processing industry)

Foresight for Podkarpacie Province (Delphi)

Group of 30 most important topics (from all 154 theses) for Podkarpacie Province:

- Podkarpacie is a production and trade leader in ecological farming products in country,
- Podkarpacie is in the group of top producers and exporters of ecological food among all regions in European Union.

Foresight for Podkarpacie Province (key technologies)

Future solutions within the field of technologies for agricultural production and processing industry:

1. Technologies for ecological production of plants and animals as well as ecological processing (also regional products),
2. Technologies for biomass production and processing,
3. Ecological production of food plants based on the mycorrhiza process, the cultivation of perennials is predominating.

Foresight for Podkarpacie Province (strategic development directions)

1. Podkarpacie Province is a leader in production, processing and distribution of ecological food which is supplied on the regional, national and world market,
2. Green tourism as a unique feature of Podkarpacie Province,
3. Producers groups in Podkarpacie offer to their customers mainly ecological food.

Foresight implementation - expected effects

To satisfy the demand for agricultural foods which support health life style and successful export we should achieve:

- Over 50% share of ecological farms in the Podkarpacie.
- About 50% share of ecological food processing.

Ecological food economy in Poland and Podkarpacie Province

- Population in Podkarpacie Province : over 2 mln.
- Population in Rzeszów (capital) : over 170 thous.
- Private farms in Podkarpacie Province : over 180 thous.
  (it is 10% of all Polish private farms)
- Ecological farms in Poland: 14,896
- **Ecological farms in Podkarpacie Province: over 12%**
- **Area increase of ecological farms** between 2007 and 2008:
  Poland: over 9%
  Podkarpacie Province: 6%

Ecological food economy

high dynamics on the supply side of ecological food

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increasing market demand for ecological food

Challenges for ecological food economy in Podkarpacie Province

- Creation of metropolitan area around the Rzeszów city.
- Lack of strategic recommendations for ecological farming in Poland but worldwide.
- Need for experiences from more advanced economies.

Development of policy for ecological farming (determinants)

Within the program: Approaches to Assessing Potential Food Allergy from Genetically Engineered Plants the U.S. Environmental Protection Agency (EPA) plans to fund approximately 4 awards approximately $1.7 million total for all.

By EPA, the research will contribute to improved methods for assessing the potential dietary allergenicity of pesticide proteins in genetically engineered plants.

Development of policy for ecological farming (determinants)

By L. Konkel, Americans consume over $4 billion of soy foods each year because of their many health benefits. But new studies suggest that eating large amounts of soy's estrogen-mimicking compounds might reduce fertility in women, trigger early puberty and disrupt development of fetuses and children.

Development of policy for ecological farming (determinants)

By M. Cone, when monitoring the contaminants in California's Central Valley private wells near fields sprayed with certain insecticides it was found that rural residents who drink water from these wells are much more likely to have Parkinson’s disease. This bolsters theories that farm pesticides may be partially to blame.

Development of policy for ecological farming (determinants)

As reported by L. Konkel, President Barack Obama accepted a veggie garden on the White House Lawn. It's a terrific move for the White House to adopt a grow-your-own project both as an economic recovery idea, as an example of going green and as an educational tool, as well as a symbol of how crucial Farmers are to America.

Development of policy for ecological farming (determinants)

By The New York Times, population increase will soon cause the USA farmers to run out of land. The amount of arable land per person decreased from about an acre in 1970 to roughly half an acre in 2000 and is projected to decline to about a third of an acre by 2050, according to the United Nations. With billions more people on the way, before we know it the traditional soil-based farming model developed over the last 12,000 years will no longer be a sustainable option.

Development of policy for ecological farming (determinants)

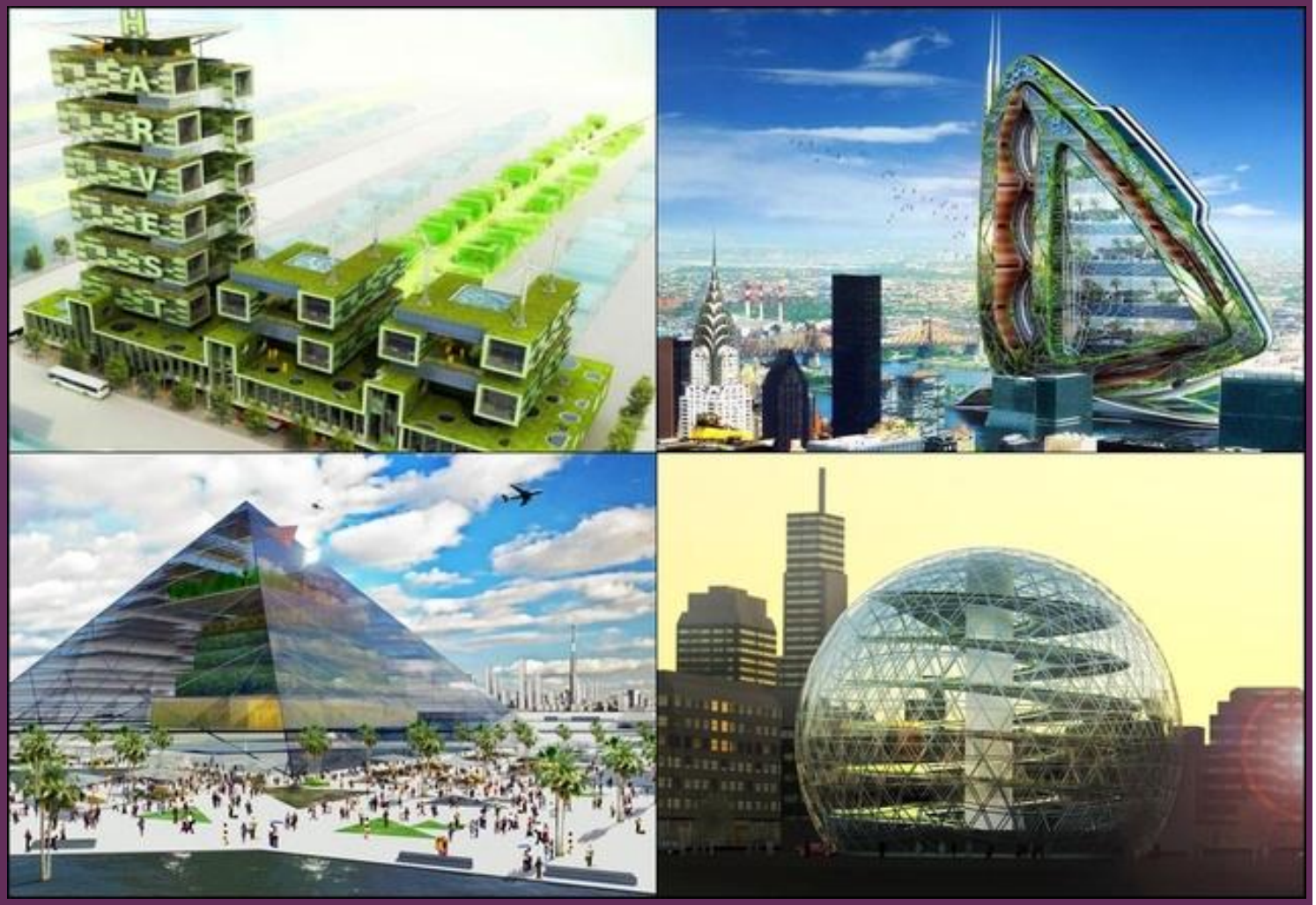
According to B. Meinhold, by 2050, the world's population will have increased by 3 billion people, requiring an additional chunk of arable land the size of Brazil in order to grow enough food. Add to that the potential loss of coastal property from rising sea levels, crop loss from drastic weather related incidents, and the need to reforest large swaths of land to sequester CO_2. Possible solution is vertical farming.

Development of policy for ecological farming (vertical farming)

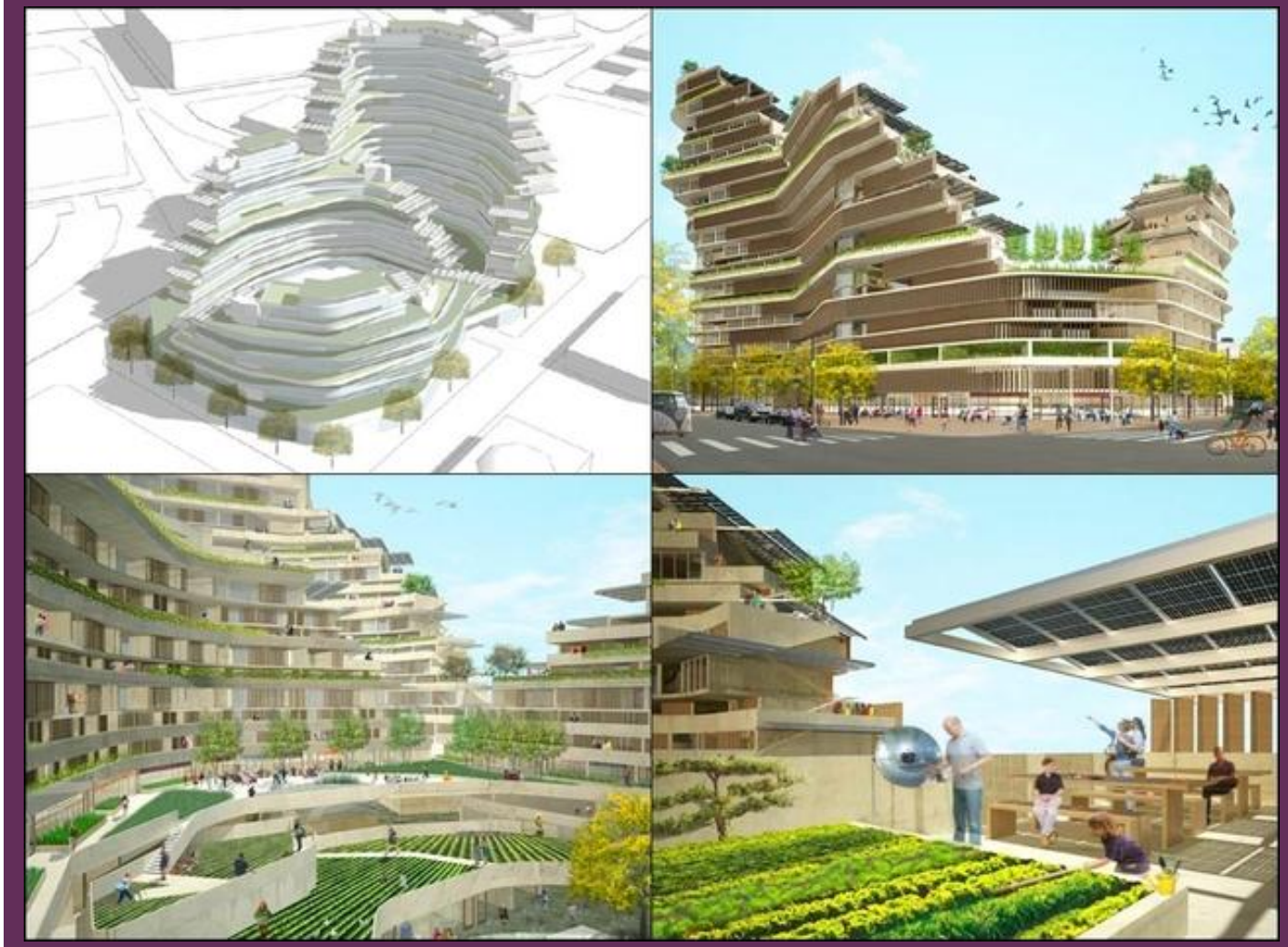
As reported by B. Meinhold, located in an urban setting, the vertical farm is a win-win idea that automates the production of food in a more sustainable manner, by reducing waste, pollution and carbon emissions. By the time 2050 rolls around, 80% of the world's population will dwell in an urban setting. With more and more people focused on healthy, organic food bought locally, the demand is even greater to bring food production closer to the city.

Development of policy for ecological farming (vertical farming)

Projects of vertical farms



Development of policy for ecological farming (roof farming)



Co-Op Canyon: Ecotopia Inspired by Anasazi Cliff Dwellings

Directions for development of organic farming

1. Supporting certified farming as well as micro-farming like e.g. window farms (which does not require certificates for organic food).
2. Promotion of different locally grown food systems should relate to the urban agriculture with vertical and roof farms (gardens) as well as to traditional and regional producers.

Conclusions for cooperation

1. Identifying technologies useful within the ecological farming system.
2. Educating internationally the decisions-makers and societies on possible costs and benefits linked to the new concept of agricultural cities.
3. Preparing and conducting research and social activities for rising awareness on the designed model of ecological farming.
4. Defining how to promote the concept of agro-cities among decision-makers and inhabitants as well as how to manage them including recommendations for planning, creating and cultivating the micro-plants.

Thank you

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