

INCREASED FOOD PRODUCTION IN URBAN & ARID AREAS

Rio+20 sub-theme: (a)

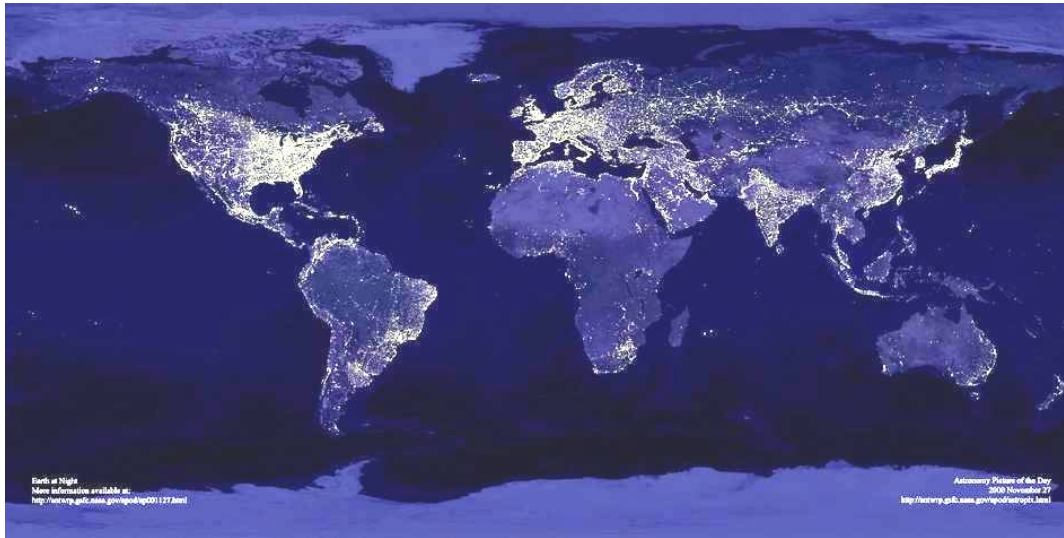
“A green economy in the context of sustainable development and poverty eradication.”

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A Sustainable and Wholistic Way Forward



- Our world is changing dramatically. The impact of climate change is hard to ignore with extremes of weather impacting our daily lives, but also the regularity of our food supplies.
- We have less areas to grow and limited water supplies. There is an urgent need to fast track and encourage potential innovative solutions that develop more efficient ways to grow that have less impact on the environment.



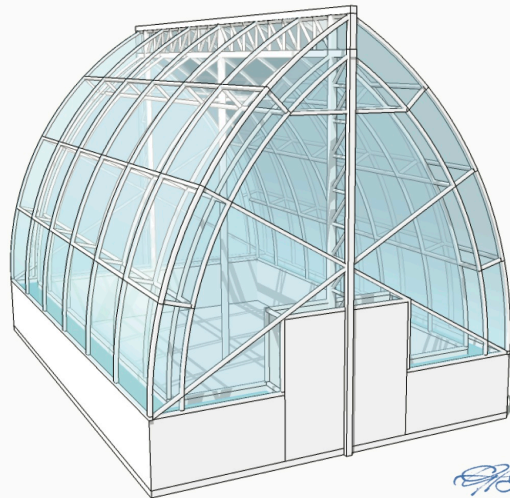
Development of AgriPOD

- A group of experienced professionals in Norway, associated with food production, sustainable development and community business, have joined together to form a hybrid project that aims to bring a sustainable solution to the issue of delivering food to urban areas and rural areas with poor soil or lack of water.
- The project is built around a specially designed closed environment installation known as the AgriPOD. It developed out studies to improve production and the environmental impact of existing greenhouses.

solar 

agriPOD 

co-designed by
Richard Nelson and
Bruce Michael Edgar





PROJECT
AgriPOD - Basic Unit
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Background of innovative SolaRoof technology

- The AgriPOD uses SolaRoof liquid bubble technology developed by Canadian inventor, Richard Nelson over period of 25 years. A greenhouse in Ottawa, Canada using SolaRoof technology has just celebrated 10 years use.
- This innovative technology is at the forefront of new commercial solutions that will reduce global “Greenhouse Gas” emissions.
- The building system utilises solar energy in an enclosed environment and reduces the need for external heating and cooling by up to 80%. In addition, the amount of water required for raising crops is also reduced by up to 75%.

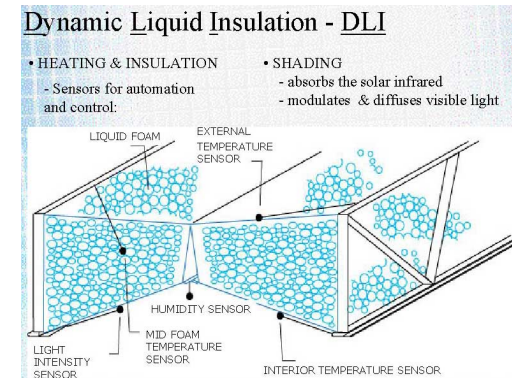
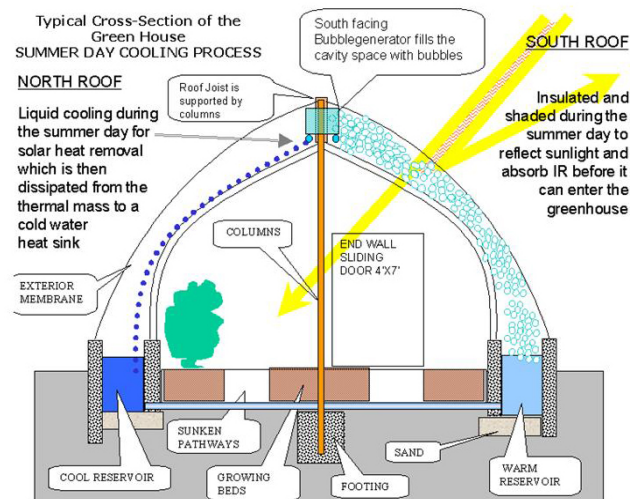


AgriPOD, the difference

- In a normal greenhouse system and also with traditional farming when plants are watered a great amount of water evaporates and is lost.
- However, in the AgriPOD system, we have an enclosed system, where the water that is used for growing crops is not lost to the atmosphere but recycled. This greatly reduces the amount of water to grow the food. In effect you can grow food in areas of drought, by shipping in water by truck, knowing that it will last a lot longer than normal because it is not lost in evaporation.



Picture of a SolaRoof prototype in Korea, c. 2006.



Plant production comparison



Protected Hydroponic Floating Technology
500 plants/m²/year



Protected Soil Horticulture
108 plants/m²/year



Outdoor Soil Farming
36 plants/m²/year



SolaRoof projects for Rural and Urban applications



2. Insulation with soap bubbles.



1. Location of proposed solar, bubble, rooftop greenhouse above the community centre cafe in Sagene.



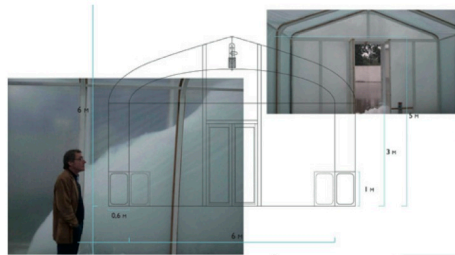
3. Future Living Pavilion at Miljøfest, Spikersuppa, Oslo in 2010.



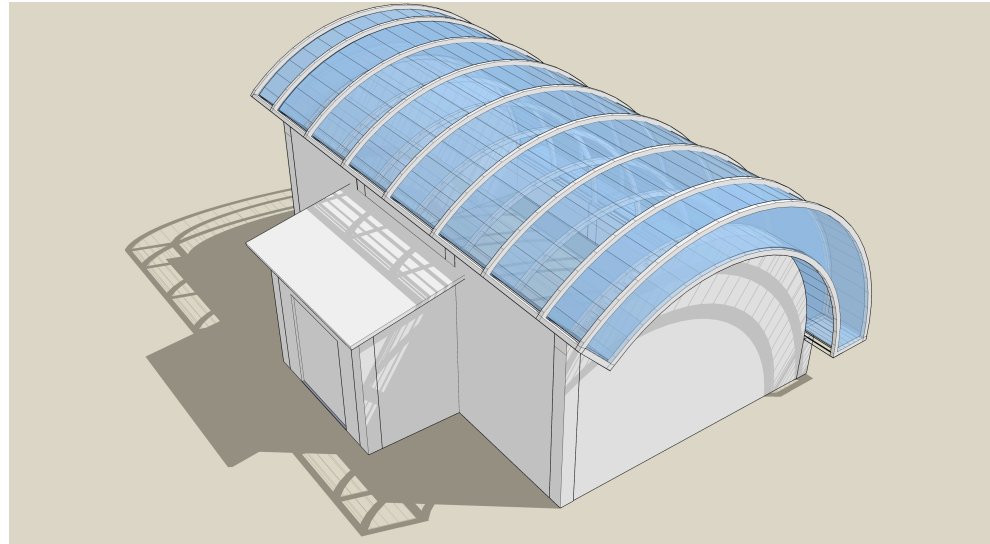
4. The greenhouse can be used for social activities and growing plants for the whole year, with a mediterranean climate similar to the Eden Project dome in the UK.



5. Fresh locally grown tomatoes in winter.



6. Polish prototype (photos) and Drammen prototype (drawing).

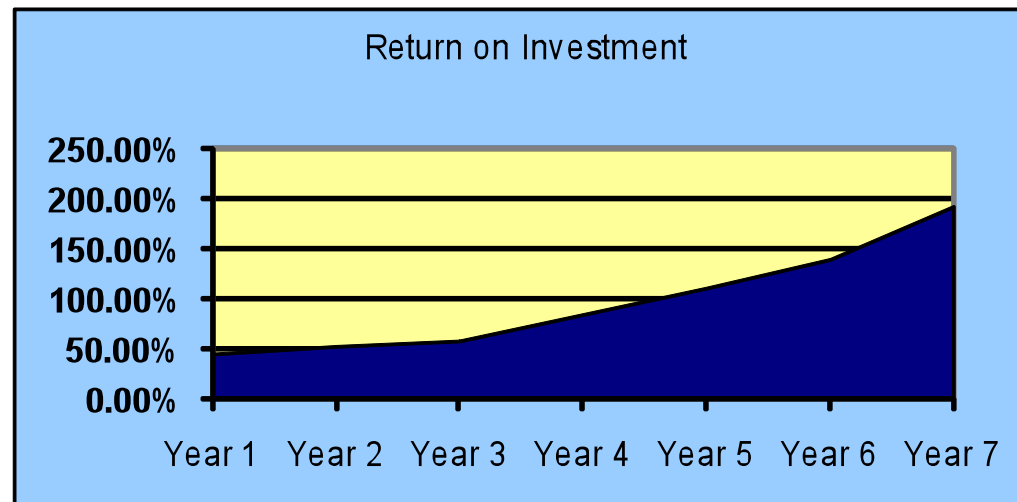


Prepared for GLOASIS by



Early Comparative Financial Analysis

	Double Polyethylene	Glass/Venlo	SolaRoof
Type of Build	Tunnel/Tent	Venlo-build	AgriPOD
Crop Cycle	4-6 months	10-12 months	Ongoing
Business Model	Land-driven	Asset-driven	Cash-driven
Economic Model	Negative	Break-even	High Profits
Structure Lifetime	15 years	30+ years	30+ years



Benefits of AgriPOD

AgriPOD is a closed growing system, with a number of benefits over and above traditional greenhouses, making it more environmentally friendly with a comparatively much smaller carbon footprint because it:

- recycles water normally lost in evaporation, thus using approximately 75% less water;
- improves yield by reducing impact caused by airbourne pests and deseases;
- can still use CO2 to increase food production;
- can be used for growing all year round with minimal heating and cooling costs;



Benefits of AgriPOD cont/...

AgriPOD is a closed growing system, with a number of benefits over and above traditional greenhouses, making it more environmentally friendly with a comparatively much smaller carbon footprint because it:

- is suitable for hydroponic systems in areas with poor soil conditions;
- is much lighter than glass and steel framed systems, making it suitable for rooftops;
- is suitable for various types of food and fuel production including algae, aquatic and normal horticulture crops.



Possible humanitarian aid project

- The middle of Africa is suffering severe food shortages due to extremes of weather associated with erratic weather, and associated problems such as drought and floods.
- In the past a significant number of food aid solutions were not successful because once food is eaten, extra food is required immediately. It is a never ending cycle, more funds must be raised, then food bought and transported again. This clearly, is not a sustainable business model and it creates an on-going drain on aid money and donor fatigue.
- One of the prime groups in the community identified as important in delivering the projects is women farmers, who will carry out the work. This project will feed educate and train people to help them look after themselves, giving them empowerment, while increasing their self respect and confidence in themselves, while making their communities sustainable once more, by not having rely on outside help.



Project Delivery

- What is need is a permanent solution, that not only delivers food but also creates employment and education in a sustainable way, while empowering local community groups to take control of their future by creating local business and enterprise.
- This proposal has been developed to bring food security directly to the people who need it by providing new sustainable food production technology, “AgriPOD” and horticultural knowledge so they can grow their own food.
- It is proposed to deliver the project in Africa by working closely with local NGO groups, and creating a situation where the local community can become independent by growing their own food and also developing business opportunities by the production of food.



WORKING WITH THE RIGHT PARTNERS

THE DELIVERY TEAM

- The project is to be lead by a small core with a wide range of experience in community and environmental projects. It includes;

TBA, (Economic, Women´s Issues, Public Liaison)

TBA, (Inventor of SolaRoof and technical consultant)

TBA, (PPD, co-ordination and delivery)

- TBA– Business Advisor
- Selected NGOs for different projects, with experience in delivering humanitarian aid in Africa.

- Other consultants will be selected for their expertise including:

Education, Agriculture, Infrastructure – Engineering etc,
Patrons, Political support and Donor Groups



