



How do we organize that urban consumers get enough food, and the food they want?

Inaugural speech Dr. Rik Eweg, Applied Professorship of Sustainable Agribusiness in Metropolitan Areas, VHL Applied University, Wageningen, October 3, 2013.

1. Farmers and city dwellers are part of the same urbanised areas

Until recently, we separated farmers and urban communities. Each had their own ministries, policy plans, cultures, knowledge and education institutes and even political parties.

Now we accept that this division is gone in the Netherlands. Rural areas ceased to exist, and urbanity was found everywhere. Former rural areas were transformed into green spaces inside metropolitan areas. Farmers and peaceful villages woke up and saw themselves surrounded by cities. Even more: city dwellers became their neighbours. The time has come that we look upon farming and urbanised areas as an integrated system.

One of the drivers behind this urbanisation is the ever growing urban population worldwide (Figure 1.).

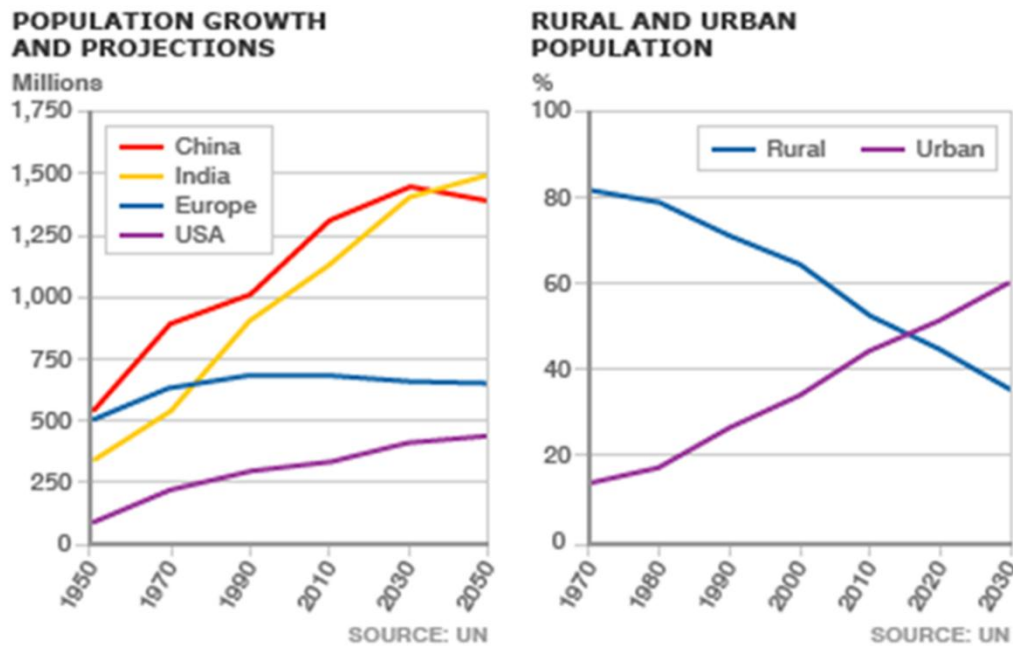


Figure 1. *China and India lead the world wide population growth.* Source Graphs: http://news.bbc.co.uk/2/shared/spl/hi/in_depth/china_modern/html/2.stm

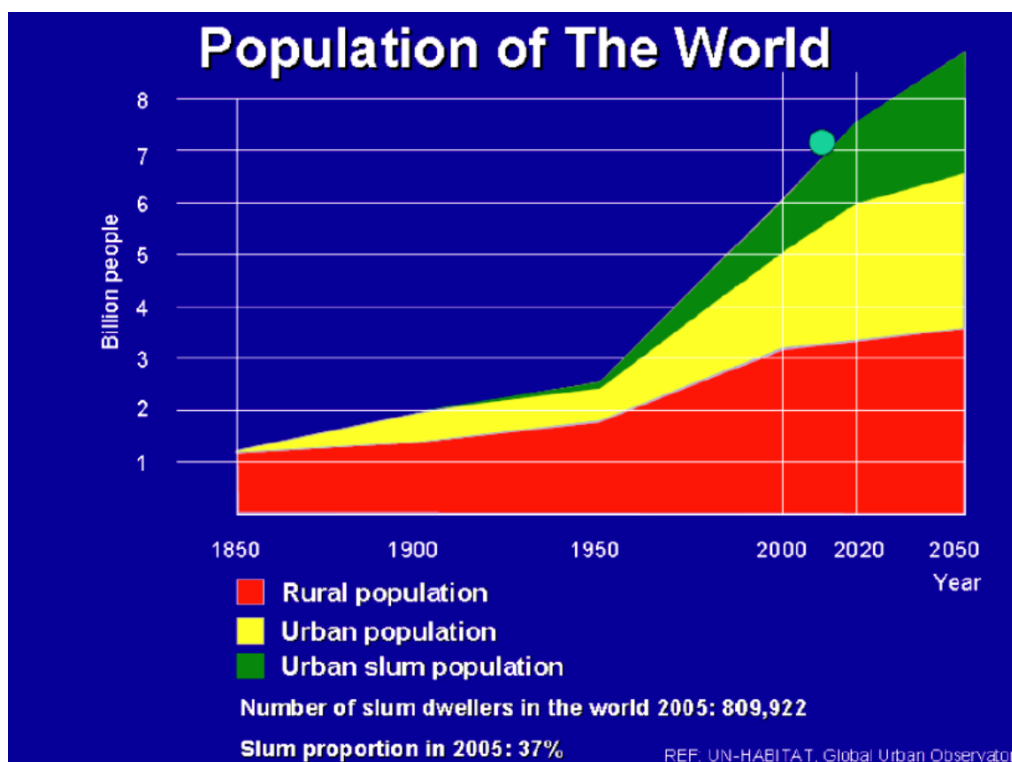


Figure 2. *The urban population will be 6 billion people in 2050 and is the highest in slums.* Source: E. Geurts, IHS Rotterdam, 2013.

In 2010, we passed the point that more than half of the global population was living in urbanised areas. In 2050, more than 6 billion people will live in metropolitan areas. And these conglomerates are still growing, as young people do not want to live in rural areas, which they associate with poverty, an old fashioned lifestyle and stand still. Every day about 180,000 people leave their rural homes and move to cities, looking for a job or education. And so, urban growth is highest in slum areas (Figure 2.). UN-Habitat estimates a worldwide slum population of three billion by 2050. Metropolitan areas are clearly recognizable by their lights on satellite images (Figure 3.) and also by economic analysis (Figure 4.).



Figure 3. *The metropolitan areas in North Western Europe, Asia, South America and Africa.*

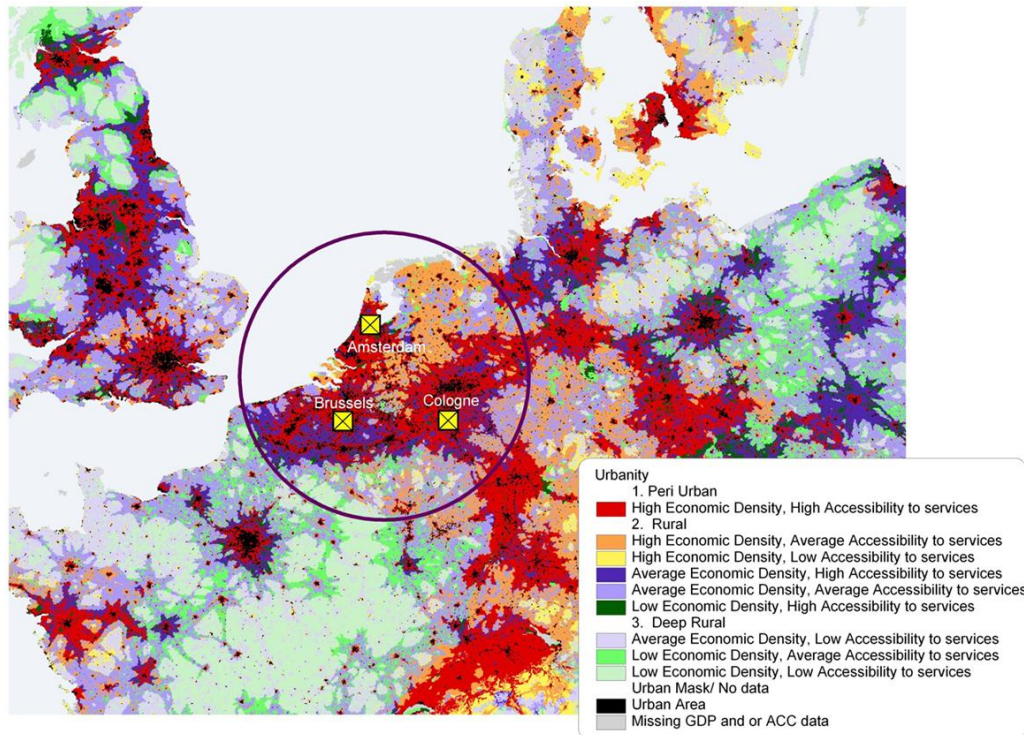


Figure 4. Urbanity is related to wealth in Western Europe.
 Source: FARO project, Alterra Wageningen UR (EU-FP6 Project, 2007-2009)

2. Food production will have to increase by 70 per cent globally

Providing the urban population with enough, safe and healthy food is one of the major challenges for the agricultural sector. I quote from a UN press release in July this year, "Change at all levels of the food chain, from production to consumption, is needed, and an estimated 32 per cent of the total food produced globally is wasted.

Estimates indicate that food production will have to increase by 70 per cent globally to feed an additional 2.3 billion people by 2050. The UN expects food demand to shift towards more resource-intensive agricultural products, such as livestock and dairy products, which will exert more pressure on land, water and biodiversity resources."¹

Competition with other metropolitan functions such as housing, industrial space, infrastructure, recreation and nature, will lead to higher prices of land and even more intensification.

If we do not succeed in feeding the urban population, the metropolises of the future will be malnourished, vulnerable and social unstable. The New England Complex Systems Institute in Cambridge, Massachusetts, investigated the relationship between social turmoil (number of riots) and food prices. They indicate that food prices may not be the only cause, but certainly are related to social turmoil (Figure 5.).

¹ World and Economic Survey 2013 United Nations Press Release.

http://www.un.org/en/development/desa/policy/wess/wess_current/wess2013/WESS2013_pressrelease.pdf

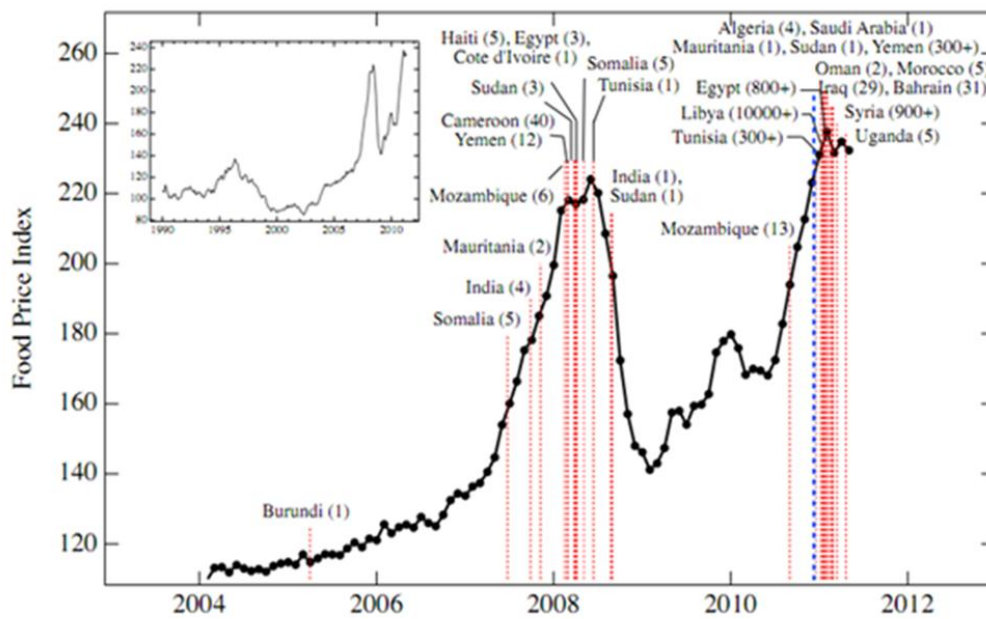


Figure 5. *Relationship between social turmoil (number of riots) and food prices.* (Lagi et al., 2011)

Urbanisation and how to deal with it comes above other challenges that farmers nowadays are confronted with, such as water shortages, consequences of pesticides and climate change. To face these problems we do need highly skilled, young and smart entrepreneurs in agriculture!

3. Different strategies for feeding urban populations

Individual farmers (or agricultural entrepreneurs as I prefer to call them) can choose different strategies to serve the urban consumer market. Let me start with two examples from India: a group of horticultural farmers that have chosen for a more local approach and a vegetables producing corporation that has chosen for a more global approach.

The local approach

This year, I visited Santosh, a horticultural farmer in Nimgaon, about 60 kms from the city of Baramati, in India (Figure 6.).



Figure 6. Santosh at his polyhouse with paprika (capsicum) in Nimgaon, India.

Santosh collaborates with the agricultural Knowledge Centre of KVK Baramati, together with 11 colleagues. They operate a Polythene greenhouse and grow Capsicum (Paprika), Cucumber and flowers (gerbera, gladiolus and roses). They received a subsidy to invest in the greenhouse.

Outside, the farmers grow tomatoes and Santosh also grows pomegranates (Figure 7.).



Figure 7. Pomegranates in the field.

They sell their products to traders, who rate their products on size and quality. Traders sell on urban wholesale markets.

One of the major problems Santosh faced was finding employees. Young people prefer to work in the city f.e. building sector. Only with higher wages and meeting their demand for a satellite TV, Santosh could seduce two young men to take care of his orchard.



Figure 8. Santhos needed to buy a Satellite TV to find young employees.

At this moment Santosh and his colleagues are depended from external factors and have no influence on the value chain: traders determine the prices they receive for their products and global incidents can have a dramatic impact on their crops.



Figure 9. In 2013, Santhos' tomatoes were decaying because of a border incident in Kashmir.

In 2013, for example, their tomatoes were decaying on their fields, because the Indian government banned export of tomatoes from the Northern Province of Gujarat to Pakistan, because of a border incident in Kashmir (Figure 9.). Cheaper tomatoes from Gujarat flowed into Maharashtra State and Santosh and his colleagues could not sell their tomatoes.

Which strategies do Santosh and his colleagues choose?

1. They now collaborate with other farmers. Together they invest in production and post-harvesting technology with the aim to raise quality and water efficiency. By collaborative negotiations with traders, they also get a stronger position in the chain.



Figure 10. Horticultural farmers from Nimgaon sell their vegetables and fruit at the farmer-consumer market in Baramati. (photo: KVK Baramati).

2. They also started to develop new direct chains and personal relationships with (urban) consumers in the city of Baramati (Figure 10.). In this way they hope to reach new consumers and get a higher margin for their products and to become more independent from unpredictable global incidents and traders.

A more industrial approach

Another strategy to produce food for urban markets, is a more industrial approach, employed by producers that have access to capital.



Figure 11. ESSAR ArgroTech, Lonavala.

ESSAR Agrotech is a company owned by Essar, an Indian global corporation with investments in the sectors of steel, energy, infrastructure and services, operating in more than 25 countries on five continents. Essar Agrotech grows vegetables (lettuce, tomatoes and roses) on 20 hectares of land near Lonavala, Pune and on other locations in India. Their main customers are MacDonald's and Kentucky Fried Chicken in the nearby Metropolis of Mumbai, which is about 80 kilometres away. Seeds are provided by MacDonald's which also monitors the production process. The lettuce is transported in cooled vans to a distribution centre in Mumbai. The company also exports roses to Japan, Australia and the Netherlands and just opened a line for mango Export to another metropole, Rotterdam.



Figure 12. Experimental Greenhouse, ESSAR.

The company experiments with integrated biological pest control and efficient water usage and hydro culture, in a closed tomato greenhouse (Figure 12.). It sticks to the guidelines for social responsibility and sustainable land use management defined by their customers and operates a secondary school in Lonavala, with 280 pupils and contributes to local health programmes. At this moment they are experimenting with Dairy farming, to produce the cheese for the burgers of McDonalds and Kentucky Fried Chicken (Figure 13).



Figure 13. Dairy for Cheese production, ESSAR.

The strategy of Essar is:

1. Continuously invest in innovations by experimenting on a small scale,

2. Establishing direct, personal relationships with their customers McDonalds and Kentucky Fried Chicken,
3. Growing a variety of products (vegetables, flowers, fruit, dairy) to serve different chains, both towards regional Metropoles and towards Global Metropoles (for example Mango's to Rotterdam). In that way they reduce their risks and dependency from unforeseen market developments.

Finally, they pay a lot of attention to People and Planet aspects in their business model, as is required by their clients.

Three strategies for metropolitan farmers can be recognized

We can compare these two Indian strategies with strategies from Dutch producers. Some farmers choose for local food chains and regional products, others choose for intensification and large quantities. At Wageningen University both visions are represented and sometimes collide, resulting in fierce debates and discussions.

These two paradigms in agriculture are described by Han Wiskerke, professor in Rural Sociology as the 'agro industrial approach' versus the 'Territorial integrated approach' (Wiskerke, 2009).

Although these paradigms often lead to polarization in Wageningen, in the Dutch innovation programme, TransForum, one of the founders of this professorship at VHL, we came to the conclusion that three strategies for metropolitan farmers can be recognized (TransForum, 2011).

1. Sustainable intensification (Figure 14):



Figure 14. Sustainable intensification: a model for Greenport Shanghai (Smeets, 2011).

Sustainable intensification means cooperation to employ and the use of efficient and sustainable intensive production methods

2. Sustainable valorisation (Figure 15):



Figure 15. Sustainable valorisation: Marqt, Amsterdam, sells the products from regional farmers (photo: R. van Biesbergen).

Sustainable valorisation means cooperation with chain partners to open up markets, for example for regional products or for biological market niches.

3. Sustainable diversification (Figure 16):



Figure 16. Sustainable diversification: the farms from Landzijde Amsterdam produce food and nature and they help psychiatric patients and elderly at work (photo: Landzijde).

Sustainable diversification means adding value by other products and services than food, for example care farming where mentally disabled people spend their daytime at farms, education or leisure activities.

We take the view that these three strategies can ‘live together’ in metropolitan green spaces and that they even can strengthen each other. In our view, also industrial agro production should be ‘territorially embedded’ in its environment. Like the Indian global cooperation of Essar, with its local secondary school, attention for nature development, social wages for its employees and local health schemes.

4. VHL: No blue prints, but bottom-up processes

As an applied university, our mission is to create new knowledge which can be applied by society: entrepreneurs, regional and local governments and societal organisations. Within our professorship we will focus on food and on agro producers, taking their present situation as a starting point, leading to our choice for a bottom-up approach.

We will focus on ‘Food’ which connects best with the core mission of VHL and the study programmes that are most closely connected with the professorship:

The Bachelor programmes:

- Agribusiness and Business Administration,
- International Development Management
- Animal Husbandry

The Master Programmes:

- Agricultural Production Chain Management
- Management of Development.

Together with lecturers and students of these programmes and all other partners, we want to contribute to innovations which are really useful to entrepreneurs, or as Michael Porter stated in 1990: ‘innovation is a new way of doing things that is commercially feasible’ (Porter, 1990).

We want to address both the agri-industrial paradigm which focusses on the modernization of agri-food production and the integrated and territorial agri-food paradigm.

Because we are convinced that both approaches are needed if we want to feed the six billion metropolitan people in 2050 living in slums, in middle class quarters, or upper class estates (Figure 17).



Figure 17. *Metropolitan consumers form a diverse market.*

This leads us to the following definition of Metropolitan Agriculture (based on a definition developed by TransForum):

*“a deliberately designed system of intelligently connected [agricultural] production sites that use the available resources, conditions and infrastructure in metropolitan areas to produce food and related material and immaterial demands for the **urban consumer**”*

We choose for a bottom-up, participatory design process. Together with the entrepreneurs in this system, we are going to develop sustainable business models.

5. Start at the Metropolitan consumer

In Metropolitan Agriculture, we have to start thinking about the metropolitan consumer. In the agricultural sector this is not self-evident: Many agricultural entrepreneurs still think product oriented. Butwhat is the use of products if customers do not want to buy them?

Let me give a good example (Figure 18).



Figure 18. *From 'Wasserbombe' to quality product in the Netherlands.*

In 1993, Dutch tomato producers were confronted with massive critics from Germany. Their tomatoes which were considered to have no taste, to be consisting mainly of water, and growing in an unnatural way on artificial substrate. At first the growers were angry, they felt not understood and fought against this, in their eyes prejudices. They tried to explain that they really had a good product. their product was a good product. But the consumer did not buy this story.

Then, after some time, the producers understood the saying 'the customer is king' and started breeding new races and improving the sustainability of their production methods, on organic pest management, water efficiency and on energy. Nowadays, the Dutch tomato sector is one of the most sustainable horticultural branches, bringing 35 different types of tasty tomatoes to the German consumers.

So we advocate a 180 degrees turn: start at the consumer, who is living in cities. Of course an entrepreneur should not neglect his product and operational excellence, but at the moment, mostly the customer is a black box for the farmer.

We experienced this once again in December 2012 during a workshop in Stip, Macedonia. There we developed a common knowledge agenda for a project.(Figure 19).



Figure 19. *Workshop knowledge agenda, Stip, Macedonia.*

The meeting in Stip had a good atmosphere, we were inspired, there were people from different backgrounds such as agricultural entrepreneurs, employees from regional governments and researchers. We had tough discussions and afterwards of course, good food and good drinks.

Remarkably, the main questions that came out, were not unique, but comparable to questions which could be identified earlier in projects of TransForum, and also in discussions with entrepreneurs in India. So they seem representative and crucial issues for agricultural producers all over the world. These questions were:

1. We don't know who our customers are
2. We don't know where our customers are living?
3. We don't know what our customers want?
4. And we don't know how to reach and serve our customers.

Meeting these questions everywhere, we come to the conclusion that:
"Agriculture starts with the urban consumer"

6. Metropolitan consumers want safe and healthy food

Let us take a closer look to the urban consumer and what they want.

As we saw on the UN Habitat graph, generally the urban population will be composed half of what we call 'urban middle class and high incomes and half of so called 'mass middle class and poor'.

Of course, there are large differences between different countries and urban middle class is growing fast, in for example China and India. What they want is **safe and healthy food and more proteins**.

We are all familiar with the problems of antibiotics in meat products, and bacteria contamination and pesticides in fresh food, sometimes leading to severe health problems or even fatal casualties in Europe, China, and India. The consequences of accidents in the food chain for producers are drastic, often resulting in product boycotts by consumers or countries and bankruptcy of entrepreneurs. We also know that the lack of proteins has a negative effect on the brain development of children.

A second point farmers have to take in account, is that metropolitan citizens have their own, sometimes romantic, view on landscape and animal welfare

For example, the image of the Dutch Urban citizen is expressed by Tjeerk van der Ziel, who wrote an essay, on the request of the former Dutch Minister of Agriculture, Veerman to answer the question: what do urban citizens value in the countryside? He summarized: Living without stress, is what urban citizens value in the countryside:

"The country side was crafted by the hard labour of

Thousands of individual farmers, who adapted to

the properties and possibilities of fields and meadows.

So the countryside means ideally a more or less balanced mix of

Nature and culture, with a completely own lifestyle." (Van der Ziel, 2006)

Dutch children in the 21st century grew up with the drawings of Cornelis Jetses in 1900, who visualised an idealistic rural life (Figure 20).



Figure 20. *Rural life in the Netherlands, Cornelis Jetses, 1900.*

And this image is not typical western European. A visit to the Bhimthadi Jatra, a yearly country fair in Pune, leads to the assumption that the urban middle class in India cherish resembling images.



Figure 21. *Bhimthadi Jatra Country Fair, Pune, January 2013.*

I saw middle class families taking pictures of their family in reconstructed farms. Similar to what happens at country fairs in the Netherlands.

7. The urban view offers opportunities for new business models

The urban view is not the economic reality for the farmer, but it may offer opportunities for new business models.

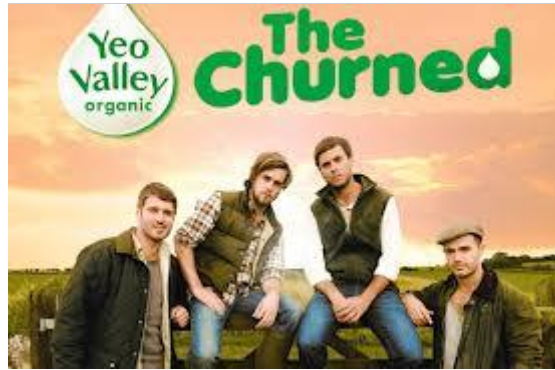
Such an effort is the Dutch 'Vallei Boert Bewust' programme, in which farmers in de Gelderse Vallei want to re-gain their social legitimacy by re-connecting with metropolitan citizens in their surrounding cities and villages. At this moment, VHL students of International Agriculture and Trade, develop the business model for this organization (Figure 22).



Figure 22. *International students of VHL support farmers in 'De Gelderse Vallei'.*

And here I show how these metropolitan romantic images on farming can be used to develop and market a new regional brand.

The U.K. regional dairy brand Yeo Valley created an advert with a parody "Boy Band," and aired it during the opening live show of the British edition of X Factor. The 2-minute film featured a parody boy band, The Churned, showing the virtues of a romantic landscape and organic farming. According to the reaction on social media, the audience found the parody advertisement even better than the real boy band performances on X Factor itself.



<https://www.youtube.com/watch?v=zokQDStfOk>

This is also a good example how agriculture could be connected with the metropolitan culture in a modern way.

However we should not be too optimistic about the possibilities for farmers to receive higher prices for their organic or regional products. Research in the Netherlands shows that price is still the most decisive factor for Dutch consumers when making decisions about their purchase of food (Vijn et al., 2013).

Our conclusion is:

Chances for new business models are:

- employing the strategy of sustainable intensification: the farmer can produce safe and healthy fresh products at affordable prices in a sustainable way,
- or, for a small niche: the farmer could produce organic or regional products for those metropolitan consumers who are willing and able to pay more. For this group, marketing the story and landscape connected to the product is crucial.

And we should always keep in mind that a large part of the urban inhabitants can be rated as 'poor'. In Asia, but especially in South America or Africa. We have to serve them with save and healthy food too.

8. Our applied professorship is aimed at sustainable business models and value chains

Now we come to the tasks and products of our applied professorship.

This task is to integrate educational activities and applied research together with companies and other stakeholders. In this way we can create value for our students and for the entrepreneurs that participate in our projects. The result of our expedition will be knowledge on sustainable business plans and value chains.

How do we develop innovative business plans?

Two business professors of Harvard, Michael Porter en Mark Kramer published the idea of Shared Value (Porter, 2011).

Their idea involves challenges for entrepreneurs to create what we call sustainable, or '3P Business models', business models that describe how profit value is created, but also how Planet and People values are created by the company. In the TransForum innovation programme we operationalized the idea of shared value creation in 34 practical projects (TransForum, 2011).

The challenge to develop such business models requires innovations on different fields, as depicted in the Figure 22.

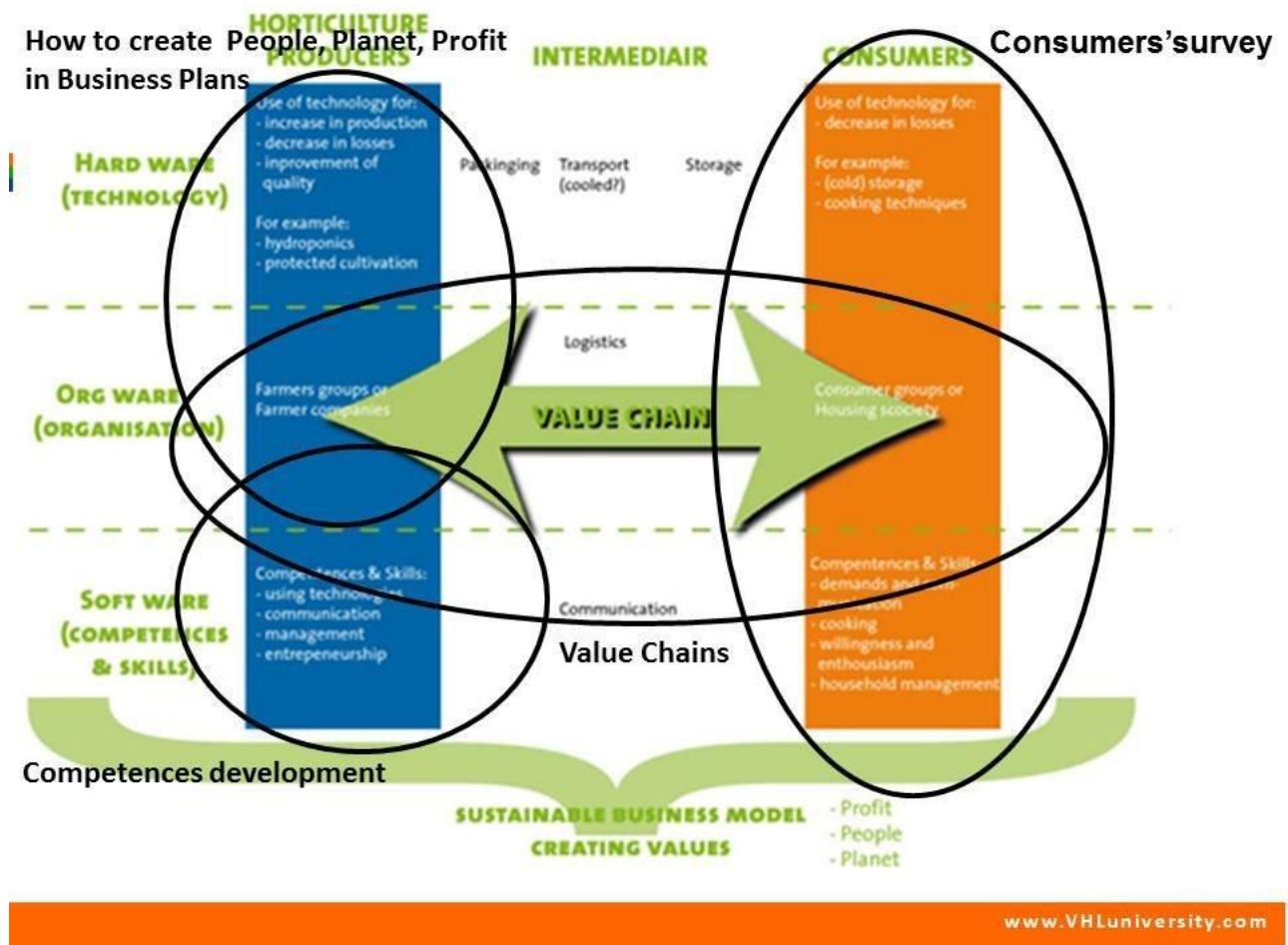


Figure 22. *Innovation of Value Chains and Business Models depends on hardware, orgware and software.*

In general, sustainable business models need innovations on:

- Hardware (technology, new types of glasshouses and stables, new energy and ICT systems, new seeds, cooled transport systems etc.).
- Orgware (new types of collaborations and organisations of farmers and other stakeholders in the value chain, design of new sustainable cycles of raw material, products and waste material, collaboration between different sectors such as agro, energy, education, and sometimes new procedures and legislation).
- Software: new competences to work with new technologies and in new organisations with new partners.

In our work, we will focus mostly on the software. We just started, but I would like to give you an impression from our activities the last year.

We perform **Consumer research (Figure 23):**



Figure 23. A VHL student at this moment performs a consumer research together with students in Baramati (photo: F. Statema).

We design **New Value Chains (Figure 24):**



Figure 24. Value chains for new product-market combinations in the Gelderse Vallei for farmers on the Doesburger Eng, f.e. a new value chain for regional beer.

We support entrepreneurs to embed their business in their environment, by creating people and planet values. An example is the 'Vallei Boert Bewust' programme, which I described before, see Figure 22. In this project farmers are striving to earn the support from their 'metropolitan' environment by creating people and planet values. At this moment, VHL students of International Agriculture and Trade, develop the business model for this organization.

We help entrepreneurs to **organize new, sustainable food networks by introducing the most appropriate innovation** on for example logistics, plant material, water management, or organic pest management (Figure 25).



Figure 25. KVK Baramati staff explores Dutch practices for the innovation centre in Baramati.

And of course, as an education institute, we work on competences development of Dutch and International Students (Figure 26).



Figure 26. In January 2013, we gave a lecture at Baramati Agricultural College.

As profit is of course a crucial part of a business models we also perform cost and benefit calculations.

9. Our Living Labs: 'learning environments' for innovations

Innovating business models is a common learning process of entrepreneurs and consumers, governments, knowledge institutions and societal organizations together.

The success of such collaborations is based on trust. This requires long term relationships. Therefore we need to engage ourselves for the long term with selected regions. This is not easy, because the temptation is to 'follow the money' and jump from projects to projects also if they are in very different regions.

Such a learning process requires new competences (knowledge, skills and attitude) of all players. Many tools have been developed for such learning processes, for example at MIT in Boston, USA (Scharmer, 2008, Kahane 2010, Senge, 1994).

In the Netherlands, the concepts of organizational learning and systems innovation have been applied in projects of TransForum, at regional transformation of the 'Kenniswerkplaatsen' (Foorthuis, 2012) and by AgriProFocus at the development of AgroHubs in Africa (Wongtschowski, 2013).

Already when I was a student, we learned about the Iceberg theory (Figure 27).

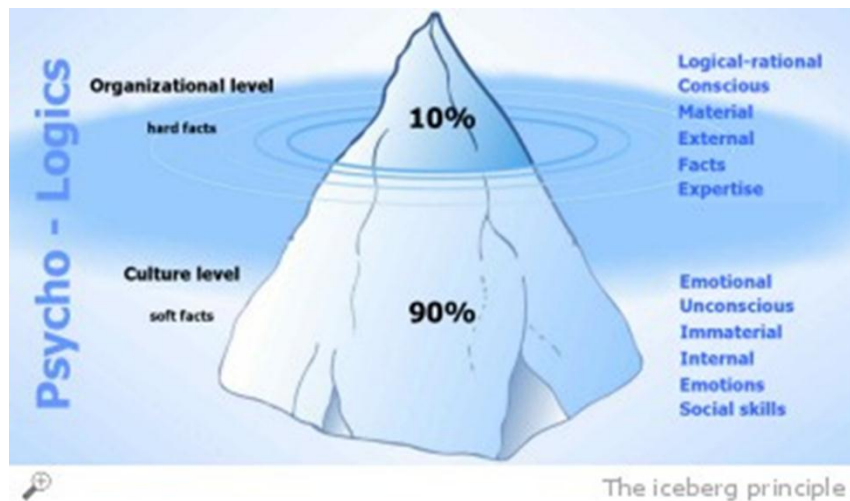


Figure 27. *The iceberg principle: the success of a project depends on emotions, values and trust.*

Our communication in consortia and projects is ‘above the surface’ in the vocabulary of knowledge and skills. However, what determines whether a project really will be successful is underneath the surface and has to do with emotions, values and trust.

So: if applied universities want to engage in common learning process with practice, they need to invest in the networks of their stakeholders during a longer period. Only if we are ready to invest time, we will develop into a ‘Regional Knowledge Centre’, which creates value for our partners.

To establish these long-term relationships, we choose the concept of ‘Living Labs’. The Gelderse Vallei is an example of such a regional ‘learning environment’ guided by the Regional Cooperation ‘Gelderse Vallei en Heuvelrug’ (Figure 28).



Figure 28. *‘Kenniswerkplaats’ Gelderse Vallei.*

Different partners are involved: Education, VHL Applied University, CAH Vilentum and Wageningen University, municipalities and the province, the farmers' association LTO and innovative agro entrepreneurs and local societal organisations involved in landscape and nature. Together with all these partners, we work with our students on new value chains and business models. The Foundation 'Vernieuwing Gelderse Vallei', acts as a facilitator and broker. All the work is based on an agenda which was developed by the entrepreneurs and municipalities in the region.

The Living Lab Gelderse Vallei, offers us the conditions which are required to function as a successful Living Lab:

- A physical and virtual set-up
- An infrastructure
- Access to end-users
- Willingness to collaborate and co-create
- Evaluation tools

At the moment we are developing a new Living Lab together with Agricultural Development Trust Baramati, Maharashtra State India. This will be a practical learning environment for VHL students, and the students of our partner Agricultural College Baramati together with entrepreneurs.

Furthermore we are developing a proposal for a Living Lab in the Balkans and exploring opportunities in Africa and Brazil. Now, the approach of regional learning has an important place in the Long- term Institutional plan of VHL.

Our ideal is to facilitate learning between regions. Through our collaboration with agro entrepreneurs, we will support them in exploring new markets. Our membership of NAFTC India fits in this strategy. And by training international students, we help companies in recruiting competent international staff. With other Applied Universities, we collaborate in Centres of Expertise. For students, we organize a learning environment where they can become acquainted with Dutch innovations. Thus, we will contribute to the goals of the Dutch government to support the economic development.

And finally, we will contribute to the Mission of VHL to be an international Applied University who thinks, dares and acts sustainable in an integrated package of education and applied research.

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