

## Between flat and spiky world forces

An exploration of the consequences of demographic and social changes for rural areas

Jos Leijten

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Contact:

Jos Leijten

TNO

POBox 6030

2600JA DELFT

The Netherlands

E: [jos.leijten@tno.nl](mailto:jos.leijten@tno.nl)

P: +31 15 2695422

## Introduction

This paper explores the role of demographic and social drivers for the development of rural areas from the position of a relative outsider. The economic and social character of rural areas is rapidly changing. In general rural areas around the world are confronted with two major forces. On the one hand productivity growth in agriculture (and other primary industries) is leading to declining job opportunities and consequential population loss. Low population densities make it hard to sustain critical services, adding to the drive for people to move to cities which generally are felt to offer better opportunities. On the other hand rural areas can be attractive locations for many activities in modern societies, which creates new drivers for growth often having no relation whatsoever to the agricultural base and traditions of the region.

The paper starts with an analysis of these major driving forces. Next it will give a short overview of what can be learned from recent foresight studies in which the future of rural areas and agro-food is addressed. The following chapters deal with demographics, changing roles and attitudes of consumers and citizens and the agricultural and rural producers. A final paragraph looks at rural culture and politics.

Each of the topics addressed in this paper raises many questions which would deserve an in-depth analysis. The purpose of this paper is, however, not an in-depth analysis of all drivers but to provide an overview for the purpose of scenario building.

For the sake of brevity this paper sometimes uses the word rural in an encompassing sense, so including agriculture and food. In most cases this will be very clear from the context.

*This paper has benefited from efforts of my TNO colleagues. Joost Hoogendoorn provided an overview of the topics that dominate foresight studies relating to agro-food. And I quoted extensively from a paper written by Christien Enzing and Govert Gijsbers for the Dutch Innovation Network, Reinventing Agribusiness and Rural Areas.*

## Flat and spiky world forces

The world has thoroughly changed since von Thünen developed his model of the location of agricultural activities (1826): a central market place with concentric rings of agricultural land activities whose nature is based on distance to the market, prices received by the farmer and land rent. Much later Christaller developed his regular lattice model to explain 'size, number and distribution of towns' (1933). Very much in line with von Thünen the Christaller model states that under conditions of a uniform distribution of population and purchasing power, uniform terrain and resource localization and equal transport facility in all directions the arrangement of settlements forms a lattice of triangles and each settlement is located in a hexagonal trade area. There is a hierarchy which says that higher order places (nodes in a hexagon) supply all the goods of lower order places plus a number of higher order goods and services.

Many improvements have been made on these classical models but basically all arguments lead to a picture of a hierarchically organized world with agricultural areas around villages, located around central towns, located at a certain distance from big cities, which occasionally have developed into metropolises.

If this hierarchy once was relatively stable for large parts of Europe's agricultural regions and a relatively constant basis for the existence and development of rural communities and in some places whole rural societies, it certainly is not anymore.<sup>1</sup> Around 1800 only 3% of the world population lived in cities, in 1950 this was 30% and today this is around 50%, but considerably higher (75%) in more advanced world regions. This and similar developments on other indicators led to the idea that the world has become 'spiky' (see Richard Florida, 2005), with a relatively small number of places where most of population and most of the economic activities are concentrated. Florida looks at:

- population concentration in urban areas
- light emissions (as an interesting proxy for economic activity)
- the location of the source of patent filings
- citations to scientists in leading fields and where they are located.

The resulting picture is indeed very 'spiky', with extraordinary high peaks on the latter three indicators in the USA, Europe and Japan. Only population concentration shows a wider global distribution of the peaks, e.g. in India, China, Latin America and even Africa.

Using topographical metaphors, Richard Florida divides the world into:

- peaks - the cities that generate innovations
- hills - "the industrial and service centers that produce mature products and support innovation centers"
- valleys - "places with little connection to the global economy and few immediate prospects"

Focusing on the peaks definitely highlights the spikiness of the world. For example "When it comes to actual economic output, the ten largest US metropolitan areas combined are behind only the United States as a whole and Japan. New York's economy alone is about the size of Russia's or Brazil's . . . Together New York, Los Angeles, Chicago, and Boston have a

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<sup>1</sup> In many European countries agriculture accounted for a considerable part of the laborforce till the 1950's and in some even much longer. But by 2006 most of the countries which are not still in a transition stage have gained all the characteristics of a service economy, with a very small agricultural laborforce, a somewhat larger industrial workforce and the large majority of the people working in service sectors.

bigger economy than all of China. If US metropolitan areas were countries, they'd make up forty-seven of the biggest 100 economies in the world."

But between the high peaks (and some are indeed very high) the majority of the earth's surface is very flat. In Richard Florida's classification rural areas would typically fall in the category of 'valleys': remote in the widest sense of the word and without immediate prospects. This might be true in Florida's superficial analysis focusing on a few typically urban indicators, but if we look deeper we find much more complicated patterns. Sociologists (in particular in the US) have identified a great differentiation in types of rural area communities (see quick overview on Wikipedia: Types of rural communities):

- Academic communities: primary employers are boarding schools, colleges, universities, research labs and corporate training facilities. These bring in people from other regions and bring new capital in the region. The success of the community is almost entirely dependent on the success of the institution. Typical examples in Europe are Bath, Leuven, and to a certain extent greenfield development Sophia Antipolis near Cannes.
- Area trade centers: decline of agricultural employment opportunities combined with the growth of transport opportunities (automobile) supports a concentration of trade and retail in increasingly larger centers covering larger areas. Typically this development follows the establishment of a shopping centre or a larger supermarket in one of the central places. Such places can be found in rural regions all over Europe.
- Government centers: with the concentration of economic activities government also tends to concentrate. A small number of towns houses government activity and the others do not benefit from improved public services (including schools, small hospitals, justice and administration). In the case of large prisons or military bases the situation is somehow similar to that of academic communities.
- Recreation communities: 'tourist towns' usually manage to exploit some local feature, a historic site, or a scenery environment. Or they are the site of mass recreation facilities (adventure parks etc.). Travelers bring in money for food, hotels, and the like.
- Retirement communities: these tend to house large numbers of elderly people. They bring their pensions and savings as a capital infusion to the region. Because of their wealth it is not unlikely that an income disparity arises between immigrants and local elderly. Parts of the Mediterranean coast and some inland regions as well fall in this category (often also having characteristics of recreation communities).
- Exurbs: this is the ring of rural communities beyond the suburbs with prosperous inhabitants who usually commute through fast access motorways or rail to their central city workplace. In urbanized North-West Europe large parts of the countryside with its villages and small towns could be considered as exurb country. In some countries like Spain more or less gated communities are being built in the countryside for exurbanites (urbanizacion), but usually not at the scale which can be found in the US.

This listing can easily be made longer and more specific by going around in rural areas. There will be towns which are largely dependent on specific industrial activities, in some cases clearly related to agriculture. And there are of course perfectly viable agricultural communities based in modern, profitable and innovating agricultural activities.

The long term sustainability of these communities is not self-evident. The central idea nowadays is that these communities have to be entrepreneurial and must continue to innovate to keep on developing and to survive in the longer term (Labrianidis, 2004). Communities that lack the sort of characteristics of one of the communities mentioned above will have a hard time to counteract forces of economic and social decline and – unless they manage to

find a specific niche - are the likely places to be Richard Florida's communities with 'few immediate prospects'. In particular the 'traditional rural and-or agricultural marketplaces' will have to be aware that they have to innovate. More than in other rural towns that manage to exploit a specific characteristic or activity, their basis of existence, e.g. their surrounding customer base now has opportunities to serve their needs in other ways through the Internet. Rural areas have always been relatively important markets for mail order companies, and giving account for a certain learning period, this is likely to continue in the form of 'Internet shopping'.

The idea of a flattening world gives new perspectives: the new specialized communities could in theory serve the whole world. Cairncross, Friedman and many others argue that technological innovation and in particular the use of ICT transforms the way people live and interact. It allows us to work globally and to do so instantaneously. Communities and relationships are being built in new ways (in 2005 12% of newlyweds in the US met online). The claim is that thanks to information society technologies for the first time in history geography is not the primary constraint on the limits of social and economic organization. Friedman's central argument is that the world has flattened in terms of connectivity or in terms of who can participate, provided people have the right skills and have the right infrastructures (means of communication) available. The typical example for this is a call centre in Bulgaria serving the Dutch market with a pool of agents that just finished a 3 months crash course in Dutch. The pace of the uptake of mobile communications in countries like China, India, Brazil and large parts of Africa and the role this plays in creating new opportunities for growth is another illustration. This is not the kind of innovation that would show up in Richard Florida's pictures focusing on patents and citations. But by ignoring this kind of incremental process innovations Florida misses some of the key dynamics that also reshape the world.

From both perspectives it is very clear that the globalization of labor resources creates critical issues for rural areas. To create new opportunities in the flattening world skills in relation to infrastructures become critical. But it is also clear that the spikes will become bigger and more influential

Already in the early 1980's Gert Junne made the politically very interesting observation that not just ICTs but *all modern technologies* could in theory contribute to a 'flattening of the earth', because the essential raw materials that are being manipulated to produce these technologies and their applications can be found everywhere on earth: silicon (for ICTs), atoms (for nanotechnologies), cells and genes (for biotechnology) and the bits out of which 'tools for thought' (software) are being built. At the time this argument was used to explore opportunities for so-called regional re-integration and even of the possibilities for growing regional independence in the production of essential goods and services (re-regionalisation). In the meantime it has become clear that precisely the production of the basic technologies or the production of the tools needed for building applications is very expensive (e.g. new generations of processors and memory chips, facilities for production at nano-scale, etc.) giving rise to concentration tendencies. But this goes together with a tendency of falling prices of the tools for applications (e.g. computers). Or as Cairncross says, the 19<sup>th</sup> century was shaped by falling costs of transporting goods, the 20<sup>th</sup> by falling costs of transporting people and the 21<sup>st</sup> century will be dominated by the falling costs of transporting ideas and

information.<sup>2</sup> And this again facilitates the incremental process innovations which drive Friedman's flattening of the world.

*As a consequence of the above discussion it should be concluded that our systems of science, technology and innovation dealing with agriculture, food and rural areas should take very good notice of creating opportunities through evolutionary or incremental process innovations next to strategies aiming at creating world class centers of innovation in enabling tools and products.*

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<sup>2</sup> Some observers think we need to account for a scenario with rising transport costs and their impact on the global distribution of goods. But apparently there is so much room for efficiency gains in transporting goods (and people) that this is not a very likely scenario.

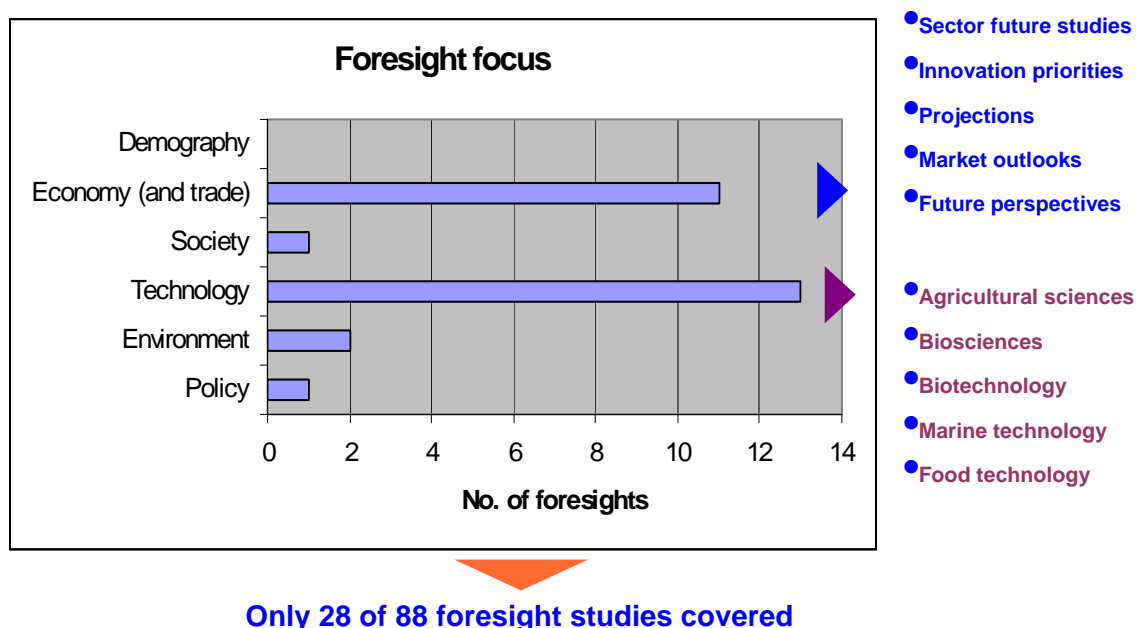
## Evidence from foresight exercises

The European Foresight Monitoring Network (EFMN) has identified and partly analysed a total number of 1308 foresights (July 2006). Only 7% or 88 foresights out of the total set have a distinct focus on agriculture, food and rural areas. Where there was a identifiable focus (many studies were very generic) the following distribution was found:

- Agriculture (general): 18
- Food (general): 6
- Forestry (general): 14
- Water/sea: 12
- Rural areas (general): 6

This could suggest a relative low representation in foresights of ‘food’ as a major areas of human needs and ‘rural areas’ as important elements of the spatial organization of our societies. An analysis of the content of a limited number of those foresights (see Fig. 1) could be seen as a confirmation of this observation because it reveals the following focuses:

**Figure 1: Analysis of foresight content (following DESTEP)**

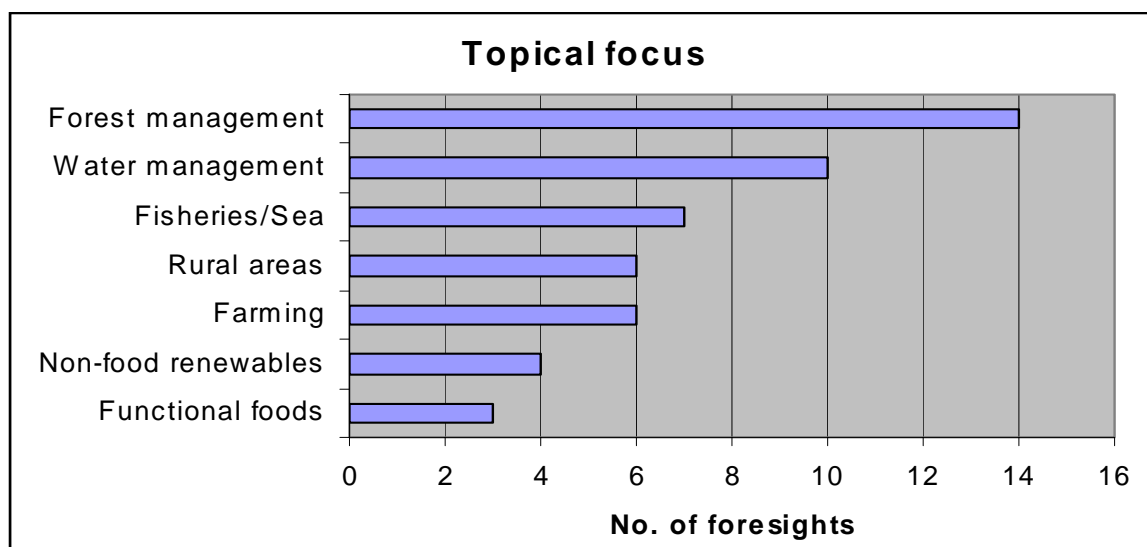


Even taking into account that this analysis may be biased because only a limited number of foresights has been deeply analyzed, it may be concluded that the dominant traditional foresight focus on science and technology in combination with the focus on economic conditions and perspectives does not take account of the systemic complexities the incremental process innovations that are key to the development of agriculture and rural areas.

Looking at the application area focus of the foresights (see Fig. 2) the picture is more diverse. The limited number of foresights analyzed makes it dangerous to draw very strong

conclusions, but it appears again that in general ‘food’ is underrepresented in foresights, which definitely cannot be justified in view of its economic and social importance.

**Fig. 2: Analysis of foresight content (application focus)**



Most foresights take globalization for granted. In the so called Washington consensus the International Monetary Fund (IMF), the Worldbank and the White House agree that free trade and economic integration will be dominant driving forces in the future. The world becomes one economic space shaped by multilateral agreements under the authority of the IMF and the World Trade Organisation (WTO). And also analysts who are usually critical of the dominant neo-liberal ideology tend to agree. Ulrich Beck says for example that ‘globalisation is an ambivalent process that cannot be reversed’.

An extensive prospective study about alternative agricultural and farm systems (see European Commission, 2005) listed 16 main drivers in the order of expected magnitude of their impact which would drive the future development of (alternative) agricultural systems: specific aid for alternative agricultural systems

- distribution and marketing structures
- price of agricultural products
- consumers' sensitivity to environment- and health-related issues
- farmer profile
- development and transfer of new technologies
- macroeconomic situation medium
- general scheme of cap aid
- holding structure
- community harmonisation of regulations on alternative agricultural systems
- cross-compliance
- acceptance of genetically modified crops by the EU medium
- farm technical advice on alternative agricultural systems
- agri-food demand in the enlarged EU
- agri-food supply in the enlarged EU
- diversification of rural economy



The list of drivers is presented here because it seems to be largely generic, except the first one, which is specific for alternative systems. Certainly the more generic factors such as market structure, health and safety, education, technology, and the macro-economic situation tend to lead the list.

*From a limited analysis of foresight studies it might be concluded that there is possibly a need for more foresights in the area of 'food' and to a lesser extent in 'rural areas'. Both groups of foresights would need to take a highly systemic perspective.*

## Demographics

The importance of demographics developments with regard to rural area needs to be discussed at two levels: global and local.

### *Global population developments*

#### *Population growth and food production*

Global population growth and to some extent also its spatial distribution over the earth's surface has a major impact on demand and on the location of demand for agricultural and food products. Until a few years ago overpopulation was seen as one of the major threats to our societies. Over the past five years this picture has changed in the reverse in many countries that fear the consequences of population decline. Russia, Germany, and Japan have all officially raised alarms already in 2000 about declining population in their countries, and more countries followed. More than 60 nations in the world, including Russia, Canada, Australia, Japan, all of Europe, and elsewhere have fertility rates which have fallen below the rate needed to maintain a steady state population. This rate is 2.1 children per woman. The U.N. has been revising its population forecasts downward, and while it still assumes nearly a century of growth and a peak near 9.1 billion between 2050 and 2070 (2004 revision, middle scenario), it seems more likely that further downward revisions will be made. A main factor will be the development of the fertility rate in India, with over one billion people, one of the youngest populations in the world and one of the fastest growing economies. Most likely the rapidly increasing wealth and the better spread of wealth will have a strong downward impact on the fertility rate. In fact, some are even betting that the world population will peak by 2025, at something around 7.8 billion, and decline after that (see Hiemstra). But at the same time as this downward trend in the fertility rates becomes more likely, we see rapid medical advances leading to growing life expectancies which may push the starting point of population decline somewhat further into the future.

But even with these uncertainties most observers seem to agree that in theory there tends to be sufficient food to feed this world population if it were distributed correctly.<sup>3</sup> There is some uncertainty caused by a recent decline of the world food stock, but the long term trend has been toward increasing food supplies. Advances in agricultural technology have led to more productive and nutritious crops and livestock. Distribution is a serious problem in countries without democracy and/or free markets or those engaged in war or facing extreme poverty. The shifting location of agricultural production in the world due to climate change may cause additional distribution problems.

This very short discussion again confirms the picture that systemic problems of sustainable production and distribution of food are by far more important than problems of raising the overall global production of food to feed the world population.

#### *Ageing population*

The inevitable outcome of overall trends in population growth is aging of the population. In some countries (e.g. Japan and a few Mediterranean countries) this development has already advanced quite far. It creates at least three major problems:

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<sup>3</sup> This does not mean that we do not face major problems. A factor causing concern is the availability of water for food production due to competing needs, climate change and other factors. Other concerns are for example the depletion of ocean resources and of arable lands.

1. an ageing workforce and decline of productive age populations makes shrinking national economies a reality, but it remains to be seen how this will affect individual wealth (economists seem to have problems to make the translation from macro-economic developments to micro-impacts);
2. increase in need for (health) care services, paired with a decline in the numbers of people that can provide such services (usually seen as a cost, but demand for services is also driving economic growth),
3. more specific for agriculture: traditional patterns of father to son succession of farms are increasingly less likely, disrupting old patterns of stability.

### *Mobility*

Increasing wealth in certain parts of the world and poverty and war in other parts create very complex worldwide patterns of mobility and migration. The impacts are very diverse and dependent on local circumstances. Some of the more general features in our part of the world are:

- More variety in food products, cooking methods and eating habits,
- Growing diversified of norms and values towards food and food production,
- Rapid changes in the agricultural workforce (e.g. workers from new member states of the European Union are pushing North Africans out of work in certain areas of Spain).

### *Rural population developments*

Sociologists use different measures to define rural. Size and population density are the most usual measures, but also then assignment to rural or urban category can be quite arbitrary. In the US the norm for a rural community is fewer than 2500 people, in Japan it is fewer than 50.000. In Europe a measure of less than 100 persons per square km is used. This leads to a rural population of 17,5% of total population in EU-15 on 80,90% of land surface (based on figures about 10 years old).

Whereas in most of the world urbanization is still growing, sometimes at a very high pace, there are now indications that in parts of Europe urban populations are spreading out again over the surrounding rural communities. Based on good communication facilities people are seeking better quality of life in rural areas, where people know their neighbors, where there is a stronger sense of community and (local) government is closer to the people. Social control and feelings of security go together. And they seem to be willing to turn this romantic idealism into a reality.

The potential negative effects of increased mobility, traffic and congestion will most likely only in the longer term be relieved by new work patterns and supporting technologies (telepresence and personal manufacturing).

### *Diminishing household size*

The average number of persons per household in EU 15 declined from 2,8 in 1981 to 2,4 in 2001. The percentage of people living alone has risen from 8% in 1981 to 11% in 1999. More than one third of this group are elderly woman. Most indicators point to a likely reinforcement of this trend.

Most of the single person or single parent households are located in urban areas. Families with children tend to move out or are being pushed out of highly urbanized areas, but at the same time need services like schools, sports facilities etc. which are not very sustainable in the most rural areas where the agricultural labor force is still declining. This kind of growth is mainly taking place in new suburban areas (ex-urbia).

The general phenomenon of smaller household sizes has a number of direct implications in the structure of the markets that are being served by the food industries:

- Packaged food needs to come in smaller quantities,
- Demand for convenience food will grow because it is highly unlikely that singles will want to spend much time in the kitchen preparing food,
- Services that cater for food are likely to experience strong growth (eating outdoors).

Aspects of this will return later in this paper.

Table 1 RURAL POPULATION

	Population in rural communities*	Population by type of region		
		Predominantly Rural	Significantly Rural	Predominantly Urbanised
		(% of national population)		
Belgium	4,9	3,4	4,9	91,7
Denmark	32,4	39,6	31,3	29,1
Germany	12,0	5,4	25,2	69,3
Ellas	30,8	28,1	28,3	43,6
Spain	24,4	12,7	41,5	45,8
France	23,7	10,5	56,5	32,9
Ireland	43,1	46,6	15,1	38,8
Italy	14,1	4,1	27,1	68,8
Luxembourg	19,3	n.a.	100,0	n.a.
Netherlands	3,1	0,0	6,7	93,3
Austria	34,6	30,2	28,9	41,0
Portugal	21,2	18,1	22,8	59,1
Finland	50,6	58,9	41,1	0,0
Sweden	66,8	63,2	17,7	19,1
United Kingdom	8,7	1,0	18,7	80,3
EUR_15	17,5	9,7	29,8	60,5
EUR_15 area	80,90%	47,00%	37,40%	15,60%

\* Population of local communities with population density below 100 inhabitants/km<sup>2</sup>

SOURCE: Eurostat

### *Depopulation of remote rural areas*

It is expected that rural areas will face the impacts of declining and aging populations (caused by mobility, birth deficits and rising life expectancies) sooner than most urban areas (Heilig, 2002). Many rural areas will have relatively few young families, a large part of the population are old people.

In his most recent book Frankfurter Allgemeine editor Frank Schirrmacher sketches a very gloomy picture for rural areas (or cities) confronted with population decline. Discussing the present development in parts of former Eastern Germany and making comparisons with the slightly different processes with similar outcomes in rural southern Italy some 30-50 years ago he describes how young woman seeking service jobs are the first to leave, rapidly followed by well educated young man, leaving behind a community with elderly people and relatively low educated young men. With a reference to Fukuyama he says that these communities lack the “social capital” embodied in families and women. As a consequence

social and psychological problems and associated levels of aggression are likely to grow, giving rise to another reason for people to leave.

Most likely these are the transitional problems of communities which cannot cope with the changes affecting them, but the outcome of the transition may very well be that some areas end up relatively empty because they are remote and have nothing else to offer than growing crops and/or raising livestock in highly industrialized and very efficient agricultural facilities. Areas or small towns that manage to exploit other resources and are successful in attracting tourism, for example, will face very different transitional problems. Recreational home ownership usually leads to higher prices, unaffordable for the local population. The tensions of such regions are cynically but also very typically illustrated by a development in the British Lake District (reported in a local newspaper, summer 2006). The number of pupils of a local village school had dropped below a certain threshold and was closed. The local council decided it was an opportunity to transform the building into cheap housing for young people that wanted to start a family, but could not afford the rising house prices in the village. Not surprisingly there was little interest, despite the lower prices, because there was no school in the village.

Other kinds of disruptive transitions of established communities may be the consequence of sudden growth of the exploitation of natural resources which has become profitable due to rising energy demand and prices. The re-opening of coalmines as is now being discussed in some parts of Europe may lead (again) to rather sudden and serious disruptions of community life in affected regions.

### ***Demography and the economics of rural areas***

Most future studies foresee a continuing growth of something between 30 and 120% of GNP per head for the next 30 years or so (CPB 2004). The dominant view is that further opening up and integration in the world economy creates the best growth opportunities. But growth predictions for the most advanced economies are generally also lower than what these countries historically experienced. Demographics (shrinking populations) and the aging of society plays an important role of course. But other factors such as rising resource prices (energy, water), the costs of averting effects of climate change, and not to forget the costs of maintaining cohesion in increasingly fragmented societies are also often interpreted as negative drivers for growth.

Ulrich Beck, amongst many others, represents this position. According to Beck we would have to make a transition from a 'society of more' to a 'society of less'. Critics of Beck argue that he may be right about the costs, but that the global economy is not a 'zero-sum-game'. Overcoming natural and social problems has always been a major driver for economic growth, so why not in these cases?

The developments which are central to discussions may however have specific consequences in specific areas: the problem of fragmented societies in urban areas differs widely from the problems it may cause in rural areas. The development of resource prices may have a serious influence on agricultural modes of production and their spatial distribution. Averting the effects of climate change may in certain countries or regions lead to a massive restructuring of agriculture based on a growing demand for bio-fuels.<sup>4</sup> But even then the impact on overall energy consumption patterns in Europe remains limited.

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<sup>4</sup> See for example Kavalov, B. e.o.: Biofuel Production Potential of EU-Candidate Countries - Final Report, European Commission EUR 20835 EN, 2003.

## Consumers, citizens

### *Individualization and the responsibility of others*

In modern liberal and democratic societies (most modern western societies fall in this category) people tend to think they have considerable powers to shape their own lives. They see themselves as the ‘designers’ of their lives which course is largely based on the deliberate choices they make. The development of this socio-cultural attitude is often called individualization. Individualization is a cultural phenomenon which permeates almost all aspects of daily life, not in the least the way people behave as consumers. The Social and Cultural Planning Office (SCP) of the Netherlands sees individualization as a process in which restrictions (of the state, of families, etc.) to follow individual preferences are removed. It is a relatively recent phenomenon of which we have not yet seen the full consequences. Negative sides of individualism are egocentrism, narcissism, hedonism and a general lack of solidarity.

Individualization leads to the decline of traditional collectivities such as political parties, labor unions, churches, etc. Higher education levels and increasing wealth also seem to lead to a more informal society. Traditional hierarchies in communities and organizations are being replaced by egalitarian modes of conduct and less formal codes and rules of behavior between equal individuals.

It seems however that the trend towards individualization is complemented by new forms of collectivism or new forms of collective behavior. People seem to want to belong to a community to express identity (e.g. by preferring and wearing a certain brand of clothing). Collective experiences are sought to enhance individual feelings, for example in mass meetings following dramatic happenings (e.g. princess Di’s funeral, silent masses in cases of grave violence to children such as in Belgium in relation to the Dutroux case), or illustrated by the spread of Gay Parades and Dance Parades over the world.

On a lesser scale this kind of collective experience seeking can also be found addressing more political themes such as ‘honest coffee’, animal welfare, child labor, organic farming, etc.

In general growing productivity and increasing wealth go hand in hand. Income and performance at school, at work, in bringing up your children, etc. are important values, because this is seen as conditional for having the freedom to shape one’s own life (including health and body shape). ‘Doing it yourself’ seems to be a strong trend supported by the Internet (e.g. self-medication) and people increasingly refuse to accept government imposed or enforced rules. But there is a reverse side to this trend: people also increasingly hold politics and government responsible for basic needs and safety.

The following picture (exhibit 3, taken from Bonini et al.) illustrates this reverse trend. It could be expected that in a period of individualization the health consequences of individual habits of smoking and eating are attributed to the individual. Very often this also is the case,

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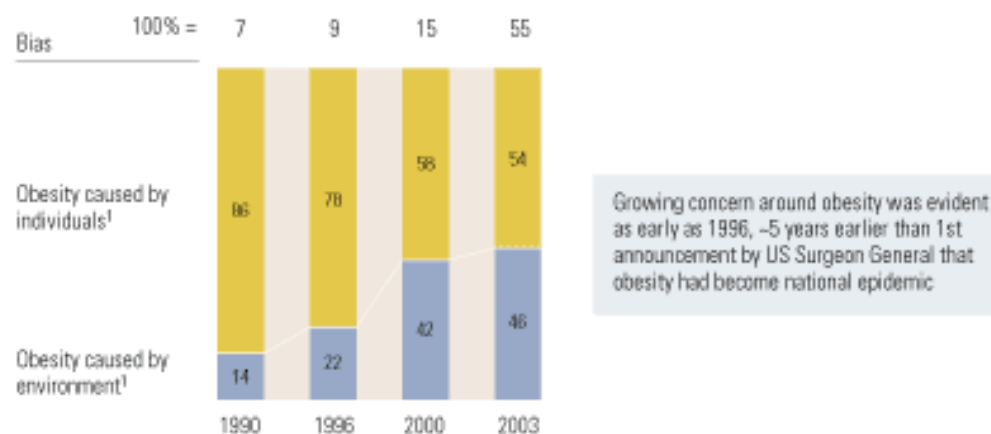
The study is looking at the agriculture-based production potential of biofuels only. Biofuel production potentials, based on ligno-cellulose feedstock (wood, wood residues and waste, fast growing trees and grasses, straw, etc.) and/or all kinds of industrial and households’ waste – appropriate for biofuel processing, are not assessed. The study looks only at the most relevant crops for a European context: rapeseed (colza) and sunflower (for biodiesel); wheat, sugar beet, maize and potatoes (for bioethanol).

e.g. in the recent discussion in the Netherlands about refusing IVF treatment to smoking women. But we can also recognize changes in the public discourse about where the responsibility lies. The picture shows that the public discourse about causes of obesity measured on the basis of the content of New York Times articles between 1990 and 2003 has shifted from ‘individualist’ toward ‘environmental’ explanations.

#### EXHIBIT 3

##### Responsibility shifts

New York Times articles on obesity by causation bias, % of new editorials or page-1 articles



<sup>1</sup> Individual causes are biological or behavioral factors (eg, overeating, lack of exercise); environmental causes are systemic factors (eg, corporate marketing, lack of government guidelines on healthy eating).

Source: Regina G. Lawrence, "Framing obesity: The evolution of news discourse on a public health issue," Harvard University working paper number 2004–5, 2004 ([www.ksg.harvard.edu](http://www.ksg.harvard.edu)); McKinsey analysis

The general tendency described in this picture can be found in many developed and developing countries. There are two basic tendencies:

1. Food contaminations and health considerations are leading to changes in public attitudes: quality and ‘honest’ food is increasingly being seen as a fundamental right of people (e.g. in a manifestation held in Amsterdam and joined by several politicians on 15 October 2006).
2. Food producers are held responsible for quality and impacts of food, including impacts on the producers of the basic food products. Corporate social responsibility is becoming an important issue for many food producers.<sup>5</sup>

The food sector in Europe is adapting to this by reconsidering its rules for responsibilities and liabilities in the production chain. As a general principle responsibilities and liabilities move upstream to producers of food for livestock (where many of the recent problems originated). An institutionalized example of this is the 2004 European Business Social Compliance Initiative (BSCI). This is an initiative of retail traders defining a standardized European monitoring system of labour conditions in supplier firms. BSCI is a practical translation and implementation of the guidelines of the International Labour Organisation and several UN declarations. So far the focus of BSCI is on the textile sector.

<sup>5</sup> A very strong statement to this effect was made in the 2004 movie/documentary “Super Size Me”.

### *Refocusing research*

The apparent contradiction between individualization tendencies and holding producers, the environment in general and/or governments responsible for aspects of the individual quality of life (in particular health) makes it very difficult to design effective public policies.

New technologies and working methods have transformed the agro-food sector from a craft into a high-tech business. Fully automated milking machines and feeding systems have led to farming systems in which cows are kept inside. Classical images of pastures with cows are gradually disappearing from the landscape. Agriculture used to be a highly visible, accessible and transparent business. Nowadays it sometimes seems to become more 'closed' than any other business. Fully automated growing and harvesting systems in greenhouses or automated breeding of chicken and pigs combined with disease and pest-control even lead to explicit prohibitive measures to enter such agricultural 'factories'. The growth of pests and diseases, often in relation to increasing scale and intensities of production and high levels of specialization on certain crops or types of livestock in certain regions, is likely to reinforce this trend in the near future.

This has transformed people's images of agriculture and certainly has decreased awareness of where food comes from. At the same time overall trust seems to be on the decline. This adds new complicating factors to the design of 'good' agricultural and food policies.

The benefits and risks inherent to food technology and food safety in Europe have brought these topics to the centre of public interest in the recent years. In an expert opinion based study from the European Commission (Wolf, 2002) this led to the identification of a few essential areas of research for improvement. The overriding opinion of the expert is that it is necessary to focus on the end-consumer as the most important element in the food chain, and to re-construct all elements of the food production and distribution process from the consumer's perspective – in other words to start a reversed food chain thinking. This should lead to a new research emphasis, moving away from the dominant orientations on productivity and new food products. The following three broad research areas are proposed in the report:

1. Consumer Science: Consumer confidence in food safety has dropped, as illustrated e.g. by the public debate on genetically modified food and the effects on the market of food scandals such as the BSE crisis, the contamination of chicken with dioxin, avian flu and blue tongue disease. Confidence has to be re-established, and for this to happen new food process and product developments have to include consumer participation/representation from the beginning. The priorities for future research have been split into those issues relevant for the "Consumer behaviour under normal circumstances" and the "Impact of food crises on consumer behaviour".<sup>6</sup>
2. Food Safety and Health: Re-establishing consumer trust relies essentially on increased efforts in food safety and health. One part of the identified research priorities therefore focuses on measures to increase safety in the entire food chain. Other priorities address the need to identify indicators for a "disease profile" of the European population in order to guide the development of functional food with enhanced health characteristics.
3. Basic Food Science: The main rationale underlying the "Basic Food Science" priorities is the need for increased understanding of the functionality of food material and its interaction with the human metabolism. Knowledge gained from these research issues is

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<sup>6</sup> This is of course a challenge for the retailers who tend to dominate the food chain more and more. They have direct access and direct contacts with the final consumers. So far, however, the main driver for competition has been consumer prices.



the essential basis to facilitate research as described in the priorities for “Food Safety and Health”.

In essence the new research will have to cope with many complex and often contradictory demands, such as on the one hand growing requirements for standardization and quality control and on the other hand the needs and demands for increasingly diversified and multifunctional agricultural and rural systems.

*Other aspects of consumers perception and behaviour*

Here we have to distinguish between two major areas of attention. The first is how general changes in the population lead to changing market demands for food. The second area of attention is how these changing populations perceive and use rural areas.

In the section on demographics we already mentioned the phenomenon of smaller household sizes which has a number of direct implications in the structure of the markets that are being served by the food industries:

- Packaged food needs to come in smaller quantities,
- Demand for convenience food will grow because it is highly unlikely that singles will want to spend much time in the kitchen preparing food,
- Services that cater for food are likely to experience strong growth (eating outdoors).

The changing composition of populations due to migration and the growing mobility of people (exotic holiday destinations, or increasing business traveling due to the globalization of companies and markets) are leading to rapidly changing and very diverse food habits in most wealthy countries and large cities in general. Diversification seems to be a very pervasive trend.

It could be expected that with rising educational levels the awareness of food quality and importance of eating and drinking habits for healthy living is increasing. But although certain correlations can certainly be found, the overall impact seems to be rather small. Maybe also because another trend seems to be more pervasive. As our society gets richer and it becomes easier to satisfy our material needs, we increasingly focus on immaterial, emotional needs. Rather than consuming more material goods as our wealth increases, we instead increasingly consume immaterial goods or material goods with a large immaterial content (intangibles). Stories, images and emotions have become a large part of what we consume, and we increasingly favour products with built-in emotions. This shift in consumption happened in most Western societies during the last half of the 20th century and explains why the mid-century worriers were wrong in assuming that their society was approaching a limit to what could logically be consumed. (Copenhagen Institute, 2005).

For the majority of the urban populations rural areas are seen as destined for living, leisure time, holidays, sports, and relaxation. Rural areas increasingly are seen as extensions of urban areas and of urban life. For these activities nature, open spaces, quietness and even darkness and silence (mainly absence of intensive traffic) are seen as important values. This creates many new opportunities for rural communities and for individual farms to exploit (see next pages). However, increasing mobility, spreading of holiday periods over the year, and in some countries also the growth of rural communities with ‘exurbanites’ lead to the shrinking of such spaces. In the densely populated Netherlands silent spaces are expected to diminish from almost 30% of rural areas now to only 10% in 25 years from now. This is probably the most extreme case we can find in Europe, but also a case which is true for most of Flanders,

and large parts of Germany and the UK. For some observers this development is also one of the arguments to say that stress related diseases will be the main problem of the future.

## Agricultural, rural and food producers

According to the Mintel's Global New Products Database (GNPD) in 2005 about 156.000 new products reached the consumer market. More than half of the new products fell in the food and beverages group. Most of the rest (68.000) of the new products was related to care (cosmetics, health, personal care, hair care, etc.). Food experienced close to a 10 percent increase in launches from 2004, where non-food product introductions remained relatively level to the previous year. In the U.S. alone, more than 16,000 new food products were introduced.

Despite this enormous number of new products (one every 3 minutes), the food industry is hardly known for its innovative character. But the picture is changing. Overall trends, both in food and non-food, are age-defying treatments, increases in portion control, brain-power foods, and "just for you" customized products. Food serves many other purposes than just 'feeding'. But a highly innovative food industry faces at least two major problems:

1. The functionality claim (e.g. health) of the new food products is very hard to support, and often it is even harder to convince the consumers of this functionality. There is a growing 'gray area' between functional foods, food supplements and officially recognized medical drugs. The regulatory limbo can be a serious cause of risk from the firms perspective which prevents them to make large investments in R&D.
2. For the time being it remains very hard for the industry to recover the cost made in the development of new products. In the context of global sourcing strategies power in the chains of food production and distribution is increasingly located with the retailers. Fierce price competition makes them squeeze the prices suppliers (usually both food manufacturers and farmers) can charge.

The organization of food chains itself had several additional impacts. Retailers manage to globally organize an plan production and distribution. For example, a farmer in Kenya produces beans in a variety, quality and harvesting schedule which is entirely prescribed by large European or American supermarket chains, like Carrefour, Albert Heijn or Tesco. The advanced logistics of the supermarkets take care that the green beans reach the shops within 24 hours. And as soon as Kenya gets to expensive the production can rapidly be moved elsewhere. Tomatoes, more specifically the quality that is suitable for condensation in tins, are now for example increasingly sourced from China.

Ongoing logistical improvements, lowering costs of communication (ICTs) and the gradual liberalization of world trade are together responsible for this growing global integration of food chains. Public and private standards for quality and safety (e.g. Codex Alimentarius or Euro Retail Produce Working Good Agricultural Practice) an certification play an increasing role in the international organization of production, processing and transport of agricultural products. The introduction of EUREPGAP, by the way, is in most countries enforced by the retailers. In the longer run such quality control systems need to support the trust of consumers in the safety of food products, and could be considered as very positive and necessary elements for the sector as a whole. But the introduction often leads to pressures to invest and to reorganize in the agricultural sector.

National and European regulations are just one of the causes of pressure on existing farms and agricultural communities. Other pressures are for example:

- Financial pressures (e.g. caused by declining subsidies, food losses through pests or weather conditions, growing global competition, and already mentioned diminishing trading powers in the food chain),
- Spatial pressures (e.g. caused by growing competition for land, in several regions a declining land availability, progressing suburbanisation, visual pollution boundaries)
- Environmental pressures (e.g. caused by lack of essential resources such as irrigation water, pollution, biodiversity)
- Labour pressures (e.g. caused by problems of temporary labour availability and acceptability, labour safety rules)

*How does this affect the structure of agricultural sector and of agricultural communities?*

The growing pressures lead to increased need for measures at the farm level which improve efficiency, productivity, scale effects, and intensification. Together with social-cultural factors earlier mentioned such as the generally higher educational levels of farmers, smaller family sizes, and the women seeking an own career, these changes lead to deep changes in rural communities. Traditional agricultural communities have already almost ceased to exist in large parts of Europe and are rapidly on the way to disappear in other parts. Although, it is probably closer to reality to say that agricultural communities have become integrated parts of modern society. They have become subject to a general “postmodernist” process of fading boundaries between organizations, classes, professions, and spatial entities (nations, cities, regions).

In the wake of mechanization and automation agriculture has increasingly become industrialized (a key feature of industry are relatively large scale standardized processes to transform raw materials into new intermediate or final products). Not only have these processes become further integrated in ‘downstream’ activities as was already mentioned above. They also changed the cost structures which to a large extent determine the structure of agriculture. One pervasive trend is the increasing scale of farming, growth of farm sizes, number of livestock on a single farm, etc. Between 1994 and 2004 the number of so-called mega-businesses in agriculture and horticulture in the Netherlands almost tripled and the share in production capacity has more than tripled (RLG, 2006). Although the products and processes of large scale farming are certainly agricultural, the ownership and management structures of such farms are very different from traditional patterns in agricultural communities.

The other trend, slightly less pervasive, is the increasing scope of farming, by which we do not mean the traditional diversification inside the agricultural sector, but outside. As an answer to pressure on farm income, farmers are seeking additional sources of income, often outside what is traditionally seen as agriculture. Some examples are the following:

- Energy (windmills, biomass, ..)
- Care (small scale protected living, therapeutic activities)
- Tourism and leisure (B&B, camping, horse riding, ...)
- Retail of local homemade products (cheese, jams, ...)
- Fish farming and other exotics (e.g. snails)

And let us not forget the most obvious of all sources of diversification: dual incomes of which one is earned outside the farm, usually in the services sector.

Of course some farmers try to stay close to their tradition and seek to achieve a higher value added on their products through organic ways of producing<sup>7</sup> or by reintroducing traditional regional products, but so far this has not really provided an alternative future for agricultural communities, despite signs of slow growth. Over the past few years there has been a decline in the sales of organic food through shops.<sup>8</sup>

A related factor of influence is the growing attention for 'regional' products and 'regional' production processes. Certainly where these products and processes can be 'protected' and branded (e.g. Champagne or the recent ruling that feta cheese is Greek) they can contribute to creating relative stable market opportunities for farmers based in these regions. This kind of protection is not easy to maintain and is subject to increasingly complicated regulations with regard to standards for food quality. But all in all there seems to be an understanding that these products are the result from valuable traditions and fit very well with a tendency towards 'slow food'.

It is very hard to predict the scale, scope and location of this trend to differentiate activities in agricultural communities. Our best guess is that differentiation will become one of the obvious options for farmers, next to increasing the scale of their core agricultural operations. Farmers will become more and more like any other small entrepreneur faced with the need to innovate his or her business.

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<sup>7</sup> The European Commission defines Organic Farming as a production method aimed at environmental protection and animal welfare. The Commission's definition distinguishes it from other environmentally sustainable agrosystems by adding that it avoids or substantially reduces the use of synthetic chemicals such as fertilisers, pesticides, additives and pharmaceuticals (IPTS 2005).

<sup>8</sup> This has led several farmers to 'invent' new ways of reaching their clients, like memberships or subscriptions.

## The politics of agriculture, food and rural areas

Many aspects of the development of agriculture, food and rural society are also played out in a much more political arena by a large variety of smaller (action groups, local groupings) or larger organizations (NGOs) usually representing a specific interest such as animal welfare, fair trade, pollution, resistance to genetic modification, etc. Relatively often these groups succeed in bringing topics to the 'official' political agenda, thus becoming an influential political force. But in most countries the 'traditional' agricultural interests are also a major political force of importance. Throughout history "farmers have solidified their political influence to manage virtually every business risk to shape the world in front of them. This political influence is striking both in its repetitive pattern of protection from market risks and in the evolution of the relationships among researchers, government programs, and farmers resourcefulness."<sup>9</sup>

Still it has become clear that "the problems of the agricultural and rural sector can no longer be regarded as peripheral or irrelevant to urban society" (Littoral Arts Trust, 2003). With a shrinking number of people directly employed in agriculture and the growth of interconnections in chains and networks the "politics of agriculture" are changing.

There are a number of forces that will shape the future of politics with regard to agriculture, food and rural areas. All in all these forces are more generically affecting all of society than specific to agriculture and rural areas:

1. The pervasive development of *globalism* on the one hand and the search for *localism*, and community (tribalism) on the other. How complex this relationship can be is very well illustrated by Brady (2006) in her account of how a local organic farm disappeared and how the Farm Yoghurt brand remained on the market by importing (in the US) chemical free powdered milk from New Zealand and processing this in an industrial plant. Indeed, also in idealist areas like organic farming the need for global sourcing in view of a low consumer price in the supermarket is a very strong force. But at the same time local initiatives and communities are the powerful source of new ideas, of innovations which would never arise in abstract global markets.
2. In general the powers of governments to (re-)enforce certain types of behavior of farmers, of consumers and of citizens are declining. Globalization, diversity and increasing (technological) complexity make it very hard for governments to set certain standards of behavior. But still it will be very important for governments to understand all these forces and to create the best conditions for innovation in agriculture, food and rural areas. Most likely this can only be done by continuing to build strong linkages (in public-private partnerships) between different players and stakeholders.
3. In many policy arenas dealing with issues treated in this paper an idealist neo-liberalism stressing individual freedom of choice in level playing field markets seems to be the dominant discourse. Most certainly some of the neo-liberalist ideas will continue to drive policy change with regard to agriculture: more free trade, less protection, less subsidies, higher competitive pressures, etc. This will also come with less positively perceived developments, like more chances for speculation, increasing price fluctuations, and growing demands on farmers to understand and engage as entrepreneurs in processes of

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<sup>9</sup> Rivoli, 2005 (p.49).

world-wide trade.<sup>10</sup> Most likely new and strong regulatory bodies are necessary to safeguard a reasonable 'level playing field' in the market.

4. The nature of the developing global resource politics in view of climate change, water (shortages), energy, pollution and food will have an impact on agriculture, food sectors and rural areas. On the one hand agriculture and food are among the prime sectors that need to act (the average energy value of food in New York City markets is about one tenth of the energy needed to produce the food according to Thackara, 2006). On the other hand agriculture and rural areas may be main beneficiaries of such policies, because of the growing attention for their sustainability.<sup>11</sup>
5. The most important political factor of all is the politics of innovation. Innovation is the most important factor that determines the future of agriculture, food and rural areas. Innovation is also the factor which is largely in the hands of the people who work in these sectors as entrepreneurs or as employees or the people who live in rural areas, from tradition and as newcomers. The politics of innovation should take good account of the fact that innovation in agriculture, food and rural areas is systemic, takes place in complex globalizing chains and networks of activity. In other words innovation in agriculture, food and rural areas is something which concerns people outside of these sectors as much as the people inside.

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<sup>10</sup> Not unlikely cooperative trade and processing of products will face difficulties because of growing competition between the members of such organizations.

<sup>11</sup> So far signs in this direction are not very strong. Foreign aid for agriculture and rural development has continued to decline. Over the past 20 years, it has fallen dramatically – from over US\$9 billion per year in the early 1980s to less than US\$5 billion in the late 1990s. Yet an estimated 854 million people around the world remain undernourished. The current extent of food security across the world was highlighted in a report by FAO released [October 9 2006](#), which said that 40 countries were facing food emergencies and required external assistance.

*During the writing of this paper I have become more and more convinced that the present political, institutional and regulatory arrangements for agriculture and agricultural products – and in this respect the special subsidies are probably only a minor case – are posing barriers for further growth of innovative dynamism across food chains. It appears in other words that the very structures that not so long ago were essential for the highly successful development of agriculture in Europe are now slowing things down.*

*Agriculture, food and rural areas need to be studied as integrated parts of larger systems. Agricultural research policy, the management of rural areas, and certainly food research can benefit from integration with other research programming. The present separate governance of the agro-food systems and related research has increasingly negative effects. The size of the primary sector and the social importance of food security may once have been very valid arguments for a relatively autonomous system of political and economic governance. But nowadays the future of agriculture is so dependent on factors lying outside of the control of the agricultural sector, food and rural areas that removing all barriers to build strong systemic linkages at all levels (economics, markets, politics and research and innovation) is necessary.*



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## CV

Dr. Jos Leijten is head of the Innovation Policy *group* of the Netherlands Organisation for Applied Scientific Research TNO. Until 2005 he was research director of TNO-STB. In 2000-2001 he was a Visiting Scientist at the Institute for Prospective Technological Studies of the Joint Research Centre of the European Commission in Seville. He studied geography and urban and regional planning at the Radboud University of Nijmegen (1975) and received his PhD from the Free University of Amsterdam for a thesis on technology assessment and technology policy (1991). He built and headed the ICT policy research group in TNO and was acting director of TNO-STB during 1995-96. For most of his career he worked in a highly multidisciplinary research environment. He advised and published on technology assessment and foresight; on economic, social and public policy issues in telecommunications and the media; on political and policy-making processes in the information society, on trends in innovation policy, R&D, and the management of R&D-institutions. He is a member of the steering committee of the “6 Countries Programme – the innovation policy network”, elected president of the European Techno-Economic Policy Support (ETEPS) network and active member of several other innovation policy related networks.