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Unsustainable trends and imbalances

Peter Brabeck-Letmathe
Chairman of the Board
Nestlé S.A.

1. (Title chart)

Welcome, thanks

Over the past 200 years, many voices have been raised in warning about the global risks from ongoing trends; Robert Malthus, Paul Ehrlich (*The Population Bomb* 1968) and the Club of Rome are only a few of them. On the list of trends considered unsustainable partly already then and particularly today one finds topics related to resource use and climate change, biodiversity, transport, expansion of settlements and megacities, social inequality, globalisation and cultural diversity, lack of education and integration, supply and demand for healthcare and many others.

In some of the mainstream public opinion, most of these unsustainable trends and imbalance have two main causes in common: economic growth and market failure. At times, the conclusion, then, is to aim for zero growth and zero competition.

I will take a different view. Growth, if done right, is not a problem but a precondition for sustainability. To paraphrase a line from a Bob Dylan song (*It's all right Ma*, 1965): If you're not busy growing, you're busy dying.

Sustainable growth, according to Gro Harlem Brundtland, implies assuring that meeting the needs of the present through development does not compromise the ability of future generations to meet their own needs.

So, sustainability does not mean stopping growth. It may mean, however, to break out of old patterns of thinking and to look for new paths – Kuhn called it changing paradigms. Although this term may have been slightly overused in the years after it was coined, the ideas behind it are more valid today than ever. I will illustrate this with three very different trends and emerging imbalances: calorie intakes versus calorie needs, demographics, and water.

2. (From positive trends to imbalances: calorie...)

Let me start with a chart on trends of calorie intakes and calorie needs. Two very positive trends, namely an improved calorie intake and a decrease in extreme

physical work on farms and in factories reached a crossing point somewhere in the 1960s or 1970s. The global production of food was finally at a level to cover the average needs of the world's population. However, food is not evenly distributed, and prices are not affordable for all yet; I will come back to this point.

But back to the chart: a food gap had turned into a surplus; two positive trends – more and better food on the one side, less physical strain on the workplace on the other – have created unsustainable imbalances requiring new approaches.

3. (Need for new business approaches)

Some aspects of new approaches in the changed situation from a food industry perspective are indicated at the bottom of the chart. A company such as Nestlé is no longer focusing on volumes, but on quality; the value-added per calorie sold has been significantly improved – value is added far beyond the nutritional value. The company has been transformed from an agro-product based company to the world's leading Nutrition Health and Wellness company.

But this transformation is not a one-off process; we are already looking ahead. Individualised nutrition may well be one of the major steps in the future in order for our industry and for Nestlé in particular to provide even more value per calorie.

On the chart you also see growing life expectancies, to a considerable part the positive outcome of better nutrition. Today, the trends for the future are no longer clear. According to epidemiological studies a further increase in life expectancy is possible, up to a natural limit of around 125 years. But according to some other studies there will be no further increase, particularly in countries with high rates of obesity.

4. (Population growth and structure)

But whatever the future trends for life expectancy, we have to manage the growing and ever higher share of people above the age of 65 based on the situation today. And we have to manage it at a time when population growth has started to fall dramatically, even become negative in some regions.

The data is clearly displayed in this chart: between 1950 and 2000, Europe (including Eastern Europe) grew by more than 230 million people; for the next 50 years a decrease in the order of 50-60 millions should be expected.¹

China will move from an increase of more than 700 million to one of 155 million. Only the US shows some continuity – and, importantly, the healthy birth rates don't just pertain to Latin and afro-American minorities, but also to traditional Anglo-Saxon middle-class families.

Big swings in the rate of population growth have a major impact on demographic structure, with increasing numbers of retired persons compared to the numbers of individuals at an active age.

¹ The outlook is including additional population resulting from a reasonable amount of immigration.

In 2000 in the USA there were 5.3 active persons for each person aged 65 and above; the ratio will be down to 2.9 in 2050.

In China, the starting point is different. In 2000 there were still close to 10 active persons for each person aged 65 and above. This will be followed by a dramatically steep deterioration to a ratio significantly below the US level in 2050: only 2.5 active persons for each person aged 65 and above.

Europe starts at a low level and this figure will deteriorate significantly in the future: from 4.8 in 2000 to a ratio of only 2 in 2050. Just to illustrate: all other factors being equal, the difference for 2050 between the ratio for the US and Europe means a 50% higher burden – of finance and of care – for Europeans at an active age.²

This financial and social burden for future generations is being added to already excessive fiscal burdens in some European countries, where citizens' dissatisfaction with increasing income deductions is already quite high. A clear sign is the strong growth in the shadow economy in many countries – in Germany, for instance, the shadow economy has increased from below 5% of GDP in the 1960s to 17-20% of total GDP today.

Coming back to the definition of what constitutes sustainability – that growth should not compromise the ability of future generations to meet their own needs ... This definition is not only about vague environmental goals, it is very much also about day-to-day material needs...

There are ways out of demographic imbalances, but very little seems to move on the political side. One solution would be to increase the retirement age. These would be closest to a paradigm change – at least in Europe – where an ever shorter working life is still seen as a major social achievement, despite an increasing life expectancy.

Where pensions are guaranteed by the state, there is often a problem of transparency; non-reported contingent liabilities countries seem to be quite high. These liabilities are directly related to demographics, i.e., the lower the birth rate, the larger the problems. And in this respect, as pointed out before, the US is still in much better shape than Europe.

Once the present crisis in the financial markets is over, we may need to look into this. No doubt, the present financial markets also require an overhaul of the regulatory setup. But one should not turn to over-regulation to solve problems of the past as we have seen after Enron; we should also have a look at emerging risks, including the often quite non-transparent reporting of contingent liabilities by public authorities.

² For 2007, the US federal government announced an official \$248 billion deficit. But when corporate-style accounting standards are used, the loss would be far more, namely \$1.3 trillion last year. Accumulated contingent liabilities of the last years are adding up to a net present value of obligations in the order of \$60 trillion, more than ten times the officially reported public debt (source: U.S. Government Accountability Office: www.gao.gov/new.items/d07607t.pdf . The official data published on debt is \$5.6 trillion public debt plus \$4.2 trillion intergovernmental debt). In France, uncovered pension entitlements of the civil service amount to an estimated 1000bn € (Michel Péberau, *Rompres avec la facilité de la dette publique*; Paris 2005; report prepared for T. Breton as Minister of Finance)

Let me now come to my last issue: freshwater withdrawals for human use. And this brings me back to food.

5. (*From water shortage to food storage*)

In 2003, the director general of the Sri Lanka-based International Water Management Institute, issued a stark warning. I quote: "If present trends continue the livelihoods of one third of the world's population will be affected by water scarcity by 2025. We could be facing annual losses equivalent to the entire grain crops of India and the US combined." That equates to a shortfall in cereal production of about one third of current world consumption.

2003 was a hot summer, everybody was talking about climate change, so his warning went virtually unnoticed.

6. (*Lack of investment in water infrastructure*)

Have trends changed since then? Not really: freshwater withdrawals continue to grow. Since the costs of distribution of water are scarcely covered, municipal water organisations are not able to carry out the necessary maintenance. Municipal water pipes, often more than 100 years old, are deteriorating fast, with deleterious effects on both water quality and quantity. In the European Union, leakage losses of the water withdrawn by municipal water organisations are in the order of 30% or more. In other words: for every two litres used in a household, another litre is lost through leakage.

There are issues with transparency across the whole municipal water distribution. My formulation of the dimension of water losses through leakages may seem relatively vague. The reason: the European Environment Agency providing this data publishes information dating back to the late 1990s. And with a massive lack of investment in water infrastructure across the world, as identified by OECD, this is not going to get better.

7. (*Scenario 2050 of global water withdrawals; limits*)

At a global scale, however, it is neither households nor industry but agriculture which accounts for the largest percentage of water usage. 70% of all water withdrawn for human use worldwide goes into farming, for the cultivation of our food, but also, for instance, to grow crops such as cotton.

In average, it takes one litre of water to produce one calorie. This means, each and every one of us "eats" his way through an average of 3,000 litres of water that has been used in the agricultural production of food.

3000 litres is an average; meat, for instance, needs ten times as much water as equivalent amounts of calories/proteins from cereals and vegetables.

The implications of these interconnections are that water consumption for agriculture increases with world population; and the increase is the steepest when more meat is eaten. The chart shows three "models" of eating pattern: no meat, some meat, and the typical US diet with a high share of meat – the steepest white line.

The thick, red solid line shows the development of actual water consumption. As levels of affluence increase, people in developing countries want more than just a bowl of rice at each meal; the red line comes close to the central diagonal, with still modest amounts of meat.

As a scenario for 2050 I have added external estimates of future agricultural water withdrawals for food production as dotted extensions to the thick solid line; withdrawals for biofuels are not included. Nevertheless, we are coming close to the upper limit of 12,500 cubic kilometres of fresh water available worldwide for annual human consumption.

8. (*Water withdrawals exceeding natural supply*)

Already today, in the main areas of grain production across the world, water is being overused, and consequently water tables continue to fall. In most instances, water for agricultural production is delivered either free of charge or far below actual distribution cost. This results in vastly inefficient use, for instance having sprinklers run at the hottest time of the day, at mid-day. Owing to the lack of metering the extent of such inefficiencies is largely unknown.

And thus, water usage trends continue unabated in the absence of price signals, coherent governance and a severe lack of transparent monitoring and metering.

9. (*New trends, but in the wrong direction – targets...*)

Actually, when I say trends are unchanged, this is not entirely true. Governments have now discovered, in their opinion, a solution that kills three birds with one stone – Biofuels. These are meant to, first – contribute to lowering CO₂ emissions, second – reduce dependency on imported fossil fuels and third – as a way to organise handouts to the rural electorate. With subsidies in the order of 5-10 billion per year on each side of the Atlantic – on top of ongoing agricultural support, with ambitious goals that provide signals to myopic venture capitalists that they will have guaranteed paybacks, and with mandatory percentages of biofuels in the fuels sold on the national markets, these governments have triggered a massive disruption of food markets.

Food markets were already under pressure, owing to slower productivity increases in agricultural, but also because of growing demand for food from emerging economies as their populations become more prosperous. With more agricultural resources set aside to produce bioethanol and biodiesel, the existing price inflation for basic foodstuffs was greatly accelerated. It is the poor that have been worst hit. The World Bank estimates that as a result of the price hikes in basic food close to 100 million people in developing countries were pushed back below the line of severe poverty, i.e., below a Dollar a day.³ After many years of falling continuously, the share of people living on less than a Dollar a day increased by about 3 percentage points within a year or two, about half of them urban dwellers, and the other half living in rural areas.

³ Maros Ivanic, Will Martin ; Implication of higher global food prices for poverty in low-income countries ; World Bank Policy Research Paper 4594; Washington April 2008

10. (*Freshwater withdrawals to produce biofuels*)

Such price increases, apart from having ruinous effects on the poor, are also a signal for more problems to come, for unsustainable trends. Growing more plants to produce more biofuels will require more water. According to a “back-of-the-envelope” estimate, total energy consumption calculated in calories is about twenty times the amount of calories we eat worldwide.⁴ In other words: replacing only 5-6% of today’s energy consumption by biofuels would roughly double freshwater withdrawals for agriculture.⁵ The water crisis that was predicted to take place in 2025 could take place much earlier, because of this new public policy focus on saving the planet with heavy subsidies and other support measures for biofuels from crops.

Again, unsustainable trends are further fuelled by a lack of transparency. The argument for biofuels mainly started as one for using wood and plant leftovers, whilst the reality is that it is mainly food, like corn, that is used. There is already talk about the miracles of second and third generation biofuels. But closer inspection of the blueprints produced by the engineers reveals that to obtain significant volumes of energy, even second generation biofuels will require considerable amounts of additional farmland and water.

11. (*Principles for sustainable water governance*)

The problem of water needed to grow food as it stands is solvable. One of the necessary, although not sufficient, requirements is the pricing of water – however, with two notable exceptions: water for the poorest, water for nature.

Let’s assume water wasn’t just free or subsidised by the state, as it currently is in Europe and elsewhere. Given this scenario, would biofuels still be produced? I doubt it!

Introducing a price for water may seem as a major revolution for many – those who defend water as a free good. But paying for the water infrastructure and tradable water rights to set prices are nothing new – farmers in Oman have been doing this for 4’500 years. That seems to be enough history to prove the sustainability of this approach.

12. (*“Good Food”*)

In conclusion:

Efforts for sustainability, and efforts against unsustainable trends and imbalances are the responsibility of everybody, and thus, as chairman of Nestlé, I start by taking responsibility for myself and my company.

⁴ Prof. Bernhard Lehmann in ETH Globe 3/2008, page 12

⁵ The rule of thumb “one litre per calorie” applies also to energy from biofuels. One litre of ethanol contains the energy equivalent of 5590 Kcal; one litre of biodiesel the equivalent of 7950 Kcal. Source: US Department of Energy – Oak Ridge National Laboratory; http://bioenergy.ornl.gov/papers/misc/energy_conv.html.

My primary responsibility is that the company exists and prospers in 10, 20, 50 and 100 years from now, and that consumers will still be buying our products then.

I mentioned how we are transforming the company from relatively simple, agro-based food to the leading Nutrition Health and Wellness company in order to respond to the changing markets.

Simultaneously, there are further efforts by the company to reduce the use of resources, by ensuring that all resources are being used as efficiently as possible. Over the last few years, for instance, we achieved a reduction of overall freshwater withdrawals for factories and other activities from 4.5 to less than 1.8 litres per US\$ of sales. According to a study by JP Morgan, we are one of the leaders in water efficiency in our sector, second only to Kraft.

But our responsibility, as we see it, reaches further. We must understand practical solutions beyond our own business.

My remarks brought together issues that, at a first glance, seem completely unrelated: trends in calorie intake, changing demographic structures, and freshwater withdrawals, mainly for agriculture. But they have two things in common: a need for new approaches – often changes in paradigm – and an urgent need, in particular to change public policy and improve transparency.

There are three more things that these problems have in common - they are problems that remain widely underestimated, and they are problems of a complexity that new regulations – whether simple and linear or complex and multifaceted – will not be able to manage fully. It will require markets to contribute to the necessary re-orientation and re-allocation of resources and behaviour. And for the issues mentioned, solutions do exist.

We at Nestlé are committed to contribute to these solutions at all levels, both directly through our own action and through participating in the public policy dialogue.

Thank you.