

## The Food System

An overview

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### *Introduction*

I think food is a real lens through which we can look at the world. It helps understand the diversity we have as human societies, the creativity we have in managing environments and creating all kinds of cuisines, and it also raises the questions about how we're going to cope with the challenges this century. And if we understand the food system a bit better it also helps understand the bigger changes we need to economics et cetera if we were going to get through the century successfully.

So what I'm trying to give you here, initially, is a take on the food system. Looking at the food system, I think there are four key words that we need to think about and to have to have in mind when you look at any changes that are happening - it's true for the bigger economic system but it's key in food - and those four keywords are: power, control, risks and benefits because the key dynamics are about who has what power to control their bit of the action whether we're talking a small farmer or whether we're talking a large corporation. Also what risks can they take? Can they afford to take risks? Who carries the risks if something is being proposed? Are the people proposing going to benefit from it and someone else carry the risks or are they going to carry the risk as well as get the benefits. So you have to look at risks, benefits, power and control and the dynamics around those.

### *Part 1. The basics*

There are three basics that everybody in the food system has to deal with. The first basic fact is it's a biological system. We need a healthy biosphere for us to continue to have flows of food - plants, animals, fish, fowl - and we therefore need an ecologically sound way of producing food that can carry on forever. It's not about producing lots of food for the next 50 years and then finally it crashes. We have to maintain the, er, the ecological structures and we know in the past we got this wrong. Human societies - empires from the Roman empire ruining the granaries of North Africa to the great dustbowl in the United States in the 1930s - time and time again we've seen human societies misuse the land and mistreat the soil and have problems.

Okay so we've got the biological basics and then we've got the fact that it's got a history. Now especially if you're a European or American the food we eat today is going to be very different from the food we might have eaten 50 or a hundred or a thousand years ago - because food has been right at the heart of globalization. And as human beings have moved across the planet, as empires have come and gone, the rich have sort to have interesting things for them - some spices or whatever - and you see a global restructuring and a movement of foodstuffs, plants and animals, around the world. But the key thing that we have to look at today in today's food system is that for the last 4-500 years it was European powers that restructured the global food system to suit their interests and their needs. And so the lesson of that history is actually it could all be different. What we treat as normal and every day - and perhaps what you have for breakfast every day you think is

normal: think about, if you have bananas or coffee or tea or wheat it depends where you are - if you'd have gone back in time it would have been different. So that is actually quite a good thing for thinking about the future. We're not trapped in something. It can change.

And the third element, of course, is food is central to human needs for survival. We all have to eat but none of us eat nutrients. Basically food is much more complicated than about the physiological keeping our bodies going - it's psychological, it's cultural, and it's social. It's about conviviality, it's about friendship, it's about religious belief it is all kinds of complexities but it is about being human and food in different societies in different cultures has different meanings different things are valued. Some people eat horses some people don't, or some people eat insects some people don't, it is very varied - some people eat meat some people don't - so it's a very complex thing. But I quite like the way of thinking about food, or, in terms of Manfred Max-Neef talks about when he talks about human needs. And that this food is not, if you like, a basic need itself: what it is, is a satisfier of our need to subsist, to maintain our physical bodies. Obviously food, water, shelter, that mix of things, erm, but human needs are actually relatively few and universal he would argue. And they are needs for subsistence, affection, creativity, protection. He has about nine. Understanding is another one but these needs are not something that you can just have spoonfed into you because they're the kind of descriptors of the kind of needs but we have to be active in meeting those needs. It's about being, it's about doing, about having and interacting. And when you put those mix together it helps understand both the role food plays and the complexity of food in meeting human needs

## *Part 2. Key actors*

Now, of course, there are a lot of people right through the food system and we can think of them as being in different groups of actors, erm. Obviously in any one of these groups they're not all homogeneous. They don't exactly have the same interests but in general we could think about a set of people who are the primary producers - obviously farmers: big farmers, little farmers, commercial farmers, subsistence farmers, farmers all over the world. And, in fact, most of the world's food production still comes from small farmers and many of those, in fact, the majority are women, So we've got small farmers, herders, fisherfolk. So they're the primary producers.

There's another group who are particularly important in commercial agriculture, in western agriculture today, industrial farming systems, and they are the input suppliers. They provide the energy, the machinery, erm, the veterinary medicines and increasingly the seeds. So that there's this group of input supplies.

Another group, of course, are the processes and manufactures. The people who take basic foodstuffs and turn it into something else and processed products. Now some of them do basically preservation and that historically goes back a long way, of course, salting products and drying things and so forth. And some do more transformation though and recombine ingredients and create new products and they became very important in industrial countries and in supply of cities and became really quite dominant players in the food system.

The next group of people, the next set of actors, we can think of are the distributors who get the food out to the public in some way or other. And we used to have wholesalers who sold to lots and lots of little shops and retailers and one of the big transformations that we've seen in the last 50 years is a decline in the number of wholesalers and the little

shops and the creation and development of multiple retailers, firms that have hundreds if not thousands of shops - the Walmarts, the Tesco's, the Sainsbury's, the Carrefours of the world.

And then another group of people, of course, who operate in different parts of the food system are the workers - whether they're farmworkers, whether they are workers in the factories that makes food or what have you. And in general, and this is a generalization, they tend to have poorer terms and conditions than people in comparable areas. They're quite isolated very often, if they're farmworkers, they're often low paid, often part-time jobs.

Another group are caterers. The people who you see when you go to the forecourt in the station or you're going out on the high street so you've got people who cater to the consumer who you go in and buy the food from. And increasingly many of those are also part of the bigger chains. Compass food has lots of brands that you'll see at a station. The likes of, er, McDonald's or KFC they have many many outlets around the world. Some of them own them, some of them franchise them out to others, but apart from the ones that you see face-to-face and you recognise as a brand, there are the contract caterers, the caterers who supply in large measure to many institutions they might be hospitals, schools, factories, what have you.

Of course, we're all eaters but that doesn't mean we're all consumers which is the word we hear most about today because consumers are the people take economic decisions about what to buy - the shoppers and what businesses are interested throughout the system is influencing what you buy and the buying mix. But of course shopping is actually quite complicated. If you're in an urban area somewhere in the world today with a supermarket imagine the task I'm going to set you. Okay you've got 45 minutes, an hour, I want you to go somewhere there's 30,000, 40,000, 20,000 items. I want you to choose 30 or 40 of those items and come out with what you need. That's actually a very challenging thing to do, and it means shoppers face complex decisions, but shoppers and consumers are unorganized. We're individuals who don't have lots of information and people are trying to influence what we buy.

But we have a bigger role than simply as purchases of something. Our bigger role is as citizens in the societies in which we operate. And when we think about that role, that connects us into the final set of actors that we can look at and they are governments. The governments and what they do to set the framework in which the actors operate. Who makes the rules of the game? And then it becomes very important who can influence the rules of the game - so you have lobbyists and you have sometimes citizens getting together in groups through non-governmental organisations concerned about the environment or health and arguing for concerns that they have that they be taken account of by governments, as well as individuals lobbying their representatives in government.

So we've got this now mix and if we look at a list of this group, now from the top to the bottom from the farmers and the input suppliers, I would argue that it's those groups in red highlighted in this list who have been fighting or competing with each other for who makes what money out of the food system. And what we've seen is shifts in the balance of power for quite a long time the manufactures were major players. They determined the price that goods were sold at. But with the rise of multiple retailers you've seen a shift, erm, to them becoming much more powerful actors - and that has also seen a shift in what one analyst used to call the profit pie and how that was divided up.

In, in the past the manufacturers got quite a large chunk and that got squeezed as the retailers got more. And then you see a dynamic between as retailers get bigger manufacturers try to get together they kind of push to get bigger so that they can have a fairer relationship in arguing over the prices that they're going to get paid for what.

So you've now got this complex mix of actors trying to influence and shape the rules of the game.

### *Part 3. A changing world*

Now if we think about these key actors and the world in which they've inhabited for the last 50-75 years, especially post second world war in the rich countries - in Europe and North America - the key problem they faced actually is that we don't need very much food for an active and healthy life. There's a limited demand for food. And that they have largely saturated markets and as the OECD pointed out that the rich world's club, erm, the Organisation for Economic Co-operation and Development, 30 years ago or more, that puts real pressures on these businesses because they're competing in the market for funds for companies that can have, erm, you know, they can sell you lots of pairs of shoes. They can sell you lots of dvds, lots of clothes but actually you really can't increase your food consumption, erm, 4, 5, 6 fold without significant problems - like you'll die, erm, or you'll get diseases. So there are real pressures to increase the competition between them, to look for new technologies so they can be first movers, to diversify in the areas that they operate in.

One of the results of this has been shifts in power in the last few decades because of a key trend - one of four that has happened- and that is a growing economic concentration of power in any one of those sectors that were highlighted in red on that slide before. So what that means is fewer and fewer players control more and more of the action. It means that just four or five supermarkets in the UK are responsible for nearly 80% of the food that moves into consumption, and four grain traders move most of the grain around the world, and increasingly large number of catering outlets are controlled by fewer and fewer actual businesses. So that economic concentration of power has seen a shift and what you've seen - the numbers are indicative on the side - that you can see is really this funnelling down so you get a few buyers in supermarkets now controlling most of the food that moves into consumption. So that's a power shift that's happened.

Three other key trends have been the emergence of global markets, truly global markets following the fall of the Soviet Union and the embracing of market economics by China. And that has meant businesses can operate globally. And if you produce widgets or cups or tetra pak you can sell them globally, but actually farming is a really locally, specific business. It depends on the local environment. So there's something of a disjoint between trying to sell a seed that will work globally, 'cause it won't, versus selling a jumper, or a tin, or what have you because that will work anywhere. So there's a tension around global businesses when it comes the heart of the food system what we grow.

Another element that is really very recent, and I saw develop during the time I was working with negotiators at the World Trade Organisation, has been a real shift in geopolitical power. And this is epochal. It's a big shift - for 500 years Europe and European derivative societies have really ruled the roost.

And when I started working with WT negotiators in mid-nineties people said, well, what the quad want or what they don't want is what goes - and the quad was the US, the EU, Japan and Canada. That is not true any more. Whether it's in climate change negotiations or whether it's in the World Trade Organisation. And we've hardly begun to understand the implications of this because poor people all over of the world need to consume more, the rich don't need to consume more, and the demands that currently the rich make for resources around the world will be needed by the poor. So there's a real big geopolitical shift. And how that's going to play out is the issue for this century.

#### *Part 4. Tools for control*

The final thing that businesses and others been trying to do is look for better means of control. Now they've been lots of different tools for control that people use and that governments have used over the centuries. Obviously the big one nationally and with governments has been political, military and economic power. And that is what shaped the food system that we've seen today. and as that power shifts and the people start negotiating more hardly we need to find a way of agreeing rules that don't lead to the kind of problems we had in the past around that.

We tend to think though more often about tools for control that relate to science and technology for example. Now I think there's one thing to really emphasise when we think about science and technology, and that come from when I did my history of science degrees afterwards and people often miss, is that you don't need to have a correct scientific understanding of something to develop a technology that works. When they first started canning and putting, erm, meat in little cans and heating it giving it to the troops it was fine - this was early 19th century - and when they then put big cans with meat in and gave it the troops they started getting ill because the heat couldn't penetrate to the middle and kill the bacteria but no one knew why because the germ theory of disease wasn't developed another 30, 30, 40 years. But sometimes we need a real revolution in our understanding of the world that scientific investigation brings to even imagine technologies. To be able to do things differently. Einstein did it when he helped us understand that you could convert matter into energy, and it releases a vast amount of energy, and only then could you think of creating a big bang in a new way, you could think of nuclear power. You couldn't conceive of it until that point. We've had a similar revolution in biology, which has been linked to a revolution in information and data, and which together has really brought a huge shift in our potential for what we can do with living organisms. That shift of course goes back to understanding the DNA, Watson and Crick in the 50s and everything that is developed since then in our understanding that, er, we have a digital code based on just four letters that operate in many, many long strings and are related to genes and how they function and what makes them tick, and that is something that underpins the capacity we have for what's called modern biotechnology.

Now biotechnology, very trivially, is basically using a biological process to make something - bread, beer that's biotechnology. It's using a biological process but modern biotechnology really is something different. It could not exist without that revolution in science and what that means though is that we now have the capacity to do things that could never been done before - that is move genes from one species to another, from a fish to a plant to what have you, and that we can redesign living organisms for any end. The question is: what end? who carries the risks? who gets the benefit? Is it wise to do it? When we developed nuclear power we made a decision, collectively as a world, that you couldn't use nuclear explosions to make big holes in civil engineering projects - 'cause

that's not sensible, because it releases radiation. Whether we need to take similar decisions about some aspects of biotechnology is one of the big issues. But currently what we have is a convergence - what the ETC group's called BANG - bits, and atoms, neurons and genes. Nanotechnology, biotechnology, synthetic biology, cognitive neuroscience - all coming together to mean we have a much greater understanding of how biological organisms fit but that also gives a potential for people to use that understanding to seek to control and influence behaviour. So these are really big areas of influence and control. And the issue is who has this right, what framework do we want to set as societies through our government acting as citizens.

Now one of the things that happens when you get major periods of invention and technological development is pressures to change the rules so that different people can benefit from these. It happened in the late 19th century over the patent regime when the larger firms that had research labs like the Edison, Thomas Edison and George Eastman, really were wanting to have a strong patent regime and a lot of the smaller firms were not keen on that. There was a big fight over about 25 years. Now a similar thing has happened with the advent of modern biotechnology. And you've seen pressures, which were succumbed to in the United States, to extend rules on patents - so-called 'intellectual property rights' - into this new biological sphere and that happened first in United States in the 1980s. And that's really important in the impact on the future control of food and I'll talk about that in, in a separate talk but that's one of the key areas that you see a fight over the tools for control. Because it's the laws and the rules and regulations that frame what the actors can do - whether it's the temperature in the chill cabinet or whether it's intellectual property regime, so that's where there's a real fight over who sets these rules. And one of the things that's happened in the last 30 to 40 years is a progression from having rules set nationally to regionally. So the UK becomes part of the EU and you have European wide rules and then globally to institutions like the World Trade Organization.

But there are other tools for control as well. One of which is information. And there's different forms of information. There's information that's there for, information to help you understand, to educate you to make you better informed so you can make better decisions. Information that's there to try to influence you, push you in a particular way and that's advertising. And I think one of the great functions of advertising is to help you not to think. So that when you go into a supermarket, if you're urban citizen and have access to these, and you face this massive array of choice, it helps you to narrow it down - it helps what's called discounted decision-making: you can associate things with different images and ideas you've got from the advertising, or more subtly the marketing that goes on through what happens through films and product placement and so forth.

And there's another kind of information that is not public and is kept very quiet - that's market research information. And information is increasingly gathered, er, and I don't know how many of you carry things like these though, erm, these kind of cards that you get now from different supermarkets, and, and businesses - often misleadingly called loyalty cards - because what these are about is customer profiling. Helping them understand you better than you understand yourself. And so the companies with the most sophisticated, er, research analysis of this data - they'll know if you've had a baby or a lover has moved in and out or has happened and they'll target the offers you get to what their understanding of your situation is, to help influence and nudge you into what you are doing. So information is really important.

But if you actually look for example at advertising and you look at this picture of the pyramid of the kind of foods it's recommended you eat and you look at where advertising goes they're really an inverse relationship - the stuff that you shouldn't be eating too much of is the stuff that's most heavily advertised. So there's a real issue around how much advertising we allow. And also, of course, how we seek to influence children - the future consumers and the current pesterers of those who make decisions about what those children are going to eat.

So there's some big areas where information matters, supermarkets

And the final area where we have tools for control is management. How do you manage the operation you control to maximise the benefits you get from it and to minimise the risks. Well, one way always is, can you put those risks onto someone else? If you can, say, have contracts with farmers so that if the farmer doesn't deliver the product between a particular time frame or a particular specification then you can just reject it the risk goes onto the farmers not on you having to go onto a wholesale market and buy what's available. Erm, if you can restructure the logistics of your business, so that, for example, you can have all the suppliers bring stuff to you and then you distribute it in a way that is most cost effective for you that may not necessarily be the most cost-effective environmental way to do something or what have you then you can do that. And, in fact, in Britain the supermarkets in the 80s spent a lot of money on this. I think if I remember rightly the figures for someone like Tesco's are about half a billion pounds. And then, by the late 90s or the late 80s early 90s, they started to become the main advertisers so that - and you can see some of the figures - it was not the Coca-Cola's or the McDonald's, the major consumer-based product or catering service deliverers, who were the main advertisers it was the supermarkets. And essentially it was around come to me, trust me, walk through my door, anything you want I have. Whether you're rich or poor I'll cater for it, and that was a big shift and help that shift in power as well that we saw.

### *Part 5. Food policy and practice*

So, when we think about the food system, then, we've got the basics that the actors have to deal with, we've got a whole set of actors with different interests and different concerns they have and a range of tools that they try and use to control and influence what goes on. And that means when we're trying to look at influencing the food system from within and thinking about food policies, we're actually talking about dealing with a set of relationships and activities that interact to influence who produces what, how it's managed, moved, used, processed and who consumes what. So it's a complex mix when you're trying to pull together food policy. And if we look in the last few years we've seen a great deal of concern about what's happening in the food system - from price rises, from poverty and hunger and continuing levels of malnutrition to obesity. And in the late 2000s, there was a major problem with price rises and people being pushed into poverty and, and hunger in many countries.

I wonder if you'd like to guess who said this and when. "The food crisis of the past two years has drawn attention dramatically to both the interdependence of production, trades, stocks and prices and the serious unpreparedness of the world as a whole to meet the vagaries of the weather."

So when do you think this was written? People often say the World Bank or the President of the United States or the current government or whoever but, in fact, that statement is

from the assessment that was made for the first world food conference in 1974, which is when I started to come into this work. And when I was given the fantastic opportunity as a young man to help start and develop

a new journal on food policy - with the idea that we tried to get people to cross the boundaries from their disciplines and from the different ways of thinking, to help understand what the challenges were, at how we might meet them in feeding everyone well in the world. And if you look at that issue it's really quite revealing. In 1974, we'd had a major energy crisis in '73, where the price of energy had zoomed up, there'd been major famines a couple of years before, we'd seen a lot of shifts in the world. And in that first issue we were dealing with issues around malnutrition hunger and nutrition. We were dealing with energy and food production. We were dealing with the use of food as a weapon. We were dealing with many of the things that we're talking about today - the only thing that was really missing is climate change.

So. I think there's a real challenge to think about, really how we move and do something different, because we've had the capacity to feed everyone well for the last 50 years, for my lifetime. But we have to think about the things that we need to influence if we're going to bring about change. And those things we can think of as being about the institutions that operate within which we work and whether they are fit for the purposes that we're trying to achieve. The other area is the instruments that we need to use to achieve the results we want. And finally is what's the kind of information we need. And all of this is geared to trying to achieve what I would argue is the core goal of the food policy and that is to create a food system that delivers a safe, secure, sufficient, sustainable and nutritious diet for everyone, always, and with equity. And that's the key challenge.

And in the other couple of talks I'm gonna do, I wanna talk about the issues around the changing institutions and instruments that are shaping the future control of food in the intellectual property regime. And, finally, looking both at the challenges we face and the different ways we could approach the future, and the kind of opportunities we have to reshape the food system - but as part of understanding that reshaping of the food system helps us understand and reshape the economic system we face and the geopolitical world in which we live if we are to get through the 21st century without the kind of conflicts and horrors that we saw in the 20th.