Understanding global food security and nutrition

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DEAR READERS,

Germany is a highly-developed, privileged country when it comes to food and agriculture. This also gives rise to an obligation to take on a reasonable share of the responsibility for global food security and nutrition. The supply situation is not as good in all regions as it is in Germany. Roughly 800 million of the world’s people suffer from hunger and chronic malnutrition, and this situation continues although the right to food is a human right. The fact that the number of people suffering from hunger has fallen by more than 200 million since the beginning of the 1990s shows that something can be done about hunger despite the population growth.

However, the issue at stake is not merely a matter of clearly recognisable hunger and malnutrition, but also of the hidden hunger caused by micronutrient deficiencies. It is also about preventing overweight, and hence all forms of malnutrition in general. It is about ensuring adequate access to a healthy diet for the world’s growing population. This needs to be achieved in the face of a large number of challenges such as climate change, growing competition for natural resources, political, economic and financial crises and a poorly organized agriculture in some regions.

Worldwide food security is a major task for policy-makers. An adequate nutrition for all is the challenge facing us in the decades to come. The focus here is on agriculture and on the question: Will it be possible to adequately feed more than nine billion people in 2050? Any discussion of global food security and nutrition must necessarily also refer to the agricultural sector – understood in a comprehensive sense, which also looks at trade, processing, distribution and global markets and brings them together at regional level. As the Federal Minister of Food and Agriculture, I hold the portfolio within the Federal Government for matters related to agriculture and food. My department represents Germany in questions related to global food security and nutrition in the relevant international organisations and bodies.

This brochure will provide you with information on the underlying contexts of nutrition and agriculture globally, and will inform you about the activities of the BMEL on food security and good nutrition.

Yours,

Christian Schmidt MdB

Federal Minister of Food and Agriculture
How is the world fed?

The world’s agricultural output is sufficient today to feed all its people, at least in purely arithmetical terms. Nonetheless, one out of nine people in the world goes to bed hungry every day. And this happens despite the fact that the right of everyone to be free from hunger – that is to have access to food in sufficient quantity and quality – is a human right which is entrenched in terms of binding international law in the International Covenant on Economic, Social and Cultural Rights (UN Social Covenant). There are many reasons why people do not have adequate access to food, but hunger is never acceptable.
IS FOOD BECOMING SCARCE?

According to the United Nations Food and Agriculture Organization (FAO), 805 million people worldwide were suffering from hunger in 2014 — a number larger than the combined population of the European Union (EU), Russia and Japan. Does this mean that food is becoming scarce? Quite the opposite: Agriculture currently produces roughly one-third more calories in arithmetical terms than would be needed to feed everyone, and food production is still growing faster than the world population. Hunger has other causes: for instance poverty, lack of access to land, water and other resources, as well as poor governance.

Undernutrition and malnutrition are distributed highly unevenly – by regions of the world, by poor and rich, and by gender. The vast majority of those suffering from hunger live in rural regions of developing countries – in other words in those places where the food is actually produced. They have virtually no chance to defend themselves against hunger caused by poverty, war, environmental disasters or drought. Women are particularly badly affected. In many countries, they bear the brunt of the work in the field, but still have fewer rights, given that 90 percent of the world’s arable land belongs to men. Put briefly: The face of hunger is rural and female in most cases.

THE WORLD’S APPETITE IS GROWING

In 2050, the world will be host not to roughly seven billion, but to more than nine billion people. They will need more food and, as prosperity increases, will also become more demanding, for instance in terms of meat and dairy products. In order to be able to meet these demands, agricultural production would have to increase by around two-thirds by 2050. In order to achieve this, especially water, fertile land and biodiversity would have to be used and maintained more intelligently – and in particular more effectively. At present, roughly twelve million hectares of agricultural land are being lost in the world each year – as a result of over-grazing, unsuitable cultivation methods, erosion or road building and urban construction. If this trend were to continue unabated, agricultural output would fall by up to twelve percent in the next 25 years.

A BALANCED, HEALTHY DIET FOR EVERYONE

Roughly two billion people suffer from a shortage of vitamins and minerals. Another 1.4 billion are overweight or even obese as a result of unhealthy diet – not only in rich countries, but increasingly also in developing countries and emerging economies. Roughly half of the world’s population does not receive an adequate diet. It is therefore not only a matter of increasing agricultural production, but of providing a balanced, healthy and sustainable diet for everyone.

THE VICIOUS CYCLE OF MALNUTRITION

[Diagram showing the cycle: Malnourished mothers give birth to malnourished children, leading to more hunger and malnourishment and poverty, which results in physically and mentally underdeveloped children who are prone to disease, poor concentration, and poor performance in school.]

SPOTLIGHT: WHAT IS THE DEFINITION OF HUNGER?

It would appear as if nothing could be simpler: If people do not eat enough, they are quickly afflicted by hunger. According to experts, the situation is more complicated: They speak of chronic hunger or undernourishment if people take in too little energy over a prolonged period to live healthy, active lives. The energy requirement varies, and is between 1,700 and 2,000 kilocalories per day for adults, depending on the region, activity level, age group and gender. Extreme undernourishment or acute hunger begins when people consume fewer than 1,400 kilocalories. What is more: Average consumption in Germany is more than 3,500 kilocalories.

But calories are not the whole story. Poverty and an unhealthy diet – frequently as a result of poverty – lead to deficiencies of vitamins, minerals such as iodine and iron, as well as other micronutrients. These micronutrient deficiencies are also referred to as “hidden hunger”. They are not visible at first sight, but impair mental and physical development and capacity.
WHERE DOES FOOD COME FROM?

Who else does provide food in sufficient quantity and quality for a growing world population if not agriculture, with arable farming and livestock, fisheries, aquaculture and forestry? Large, highly-modern farms, which achieve a high level of output with considerable capital, know-how, machinery and high-performance varieties, make their contribution to global food security and nutrition, as do small family holdings which, using less capital and technology, produce coffee and bananas for sale and field crops for their own use; nomadic cattle breeders, collectors in the forests, as well as farmers planting vegetables for their families.

Production itself is however only one part. The preconditions for this must also be available: land, water, seed, fertiliser and feed, capital, as well as the right know-how. The harvest must be properly stored, transported and processed. Wholesalers and retailers, importers and exporters, as well as local and international markets, are needed to get the food “onto the fork”. Experts refer to these many steps taken by food from a raw product via processing and transport to the end consumer as the “supply chain”.

WHO PRODUCES THE FOOD?

The vast share of the world’s agriculture is not in the hands of high-capacity, modern farms as we know them in Germany, but of family smallholdings. Whilst an average family farm in Germany has more than 43 hectares, 85 percent of the world’s farms are smaller than two hectares, but together they farm roughly 60 percent of the world’s acreage. Most of these farms are located in Asia and Africa.

They satisfy local and regional demand, and they produce the vast majority of the food. Many of them however are not yet operating very productively. They produce much less per hectare than farms in Europe or North America do. In Sub-Saharan Africa, for instance, the average cereals yield is 0.5 to 1.5 tonnes per hectare, whilst it is up to eight tonnes in Germany. Small farms in developing countries operate under more difficult conditions than our farmers do. Most have poorer access to land, water, seed, fertilisers, pesticides and energy, and produce their food using simple tools and machinery and without modern methods. Their yields are therefore frequently only just enough to live on.
WHY DOES THE DEVELOPMENT OF RURAL AREAS IN POOR COUNTRIES LAG SO FAR BEHIND?

National governments and international development policy have invested virtually nothing in agriculture in the developing countries for many decades. There is therefore a shortage of advice, knowledge, capital and well-functioning infrastructures. Whilst German farmers store their harvest for instance in granaries before going on to sell it with the aid of the telephone, as well as by e-mail, using well-developed market structures and good road connections, farmers in developing countries frequently have access to none of these things. They lack opportunities to process the products or to preserve them. There is a lack of support from agricultural policy as well as of good governance.

WHERE CAN YIELDS BE INCREASED?

Modern, highly-developed agriculture in industrialised nations, with its high-yield varieties and precise application of pesticides, fertilisers and feed, accounts for a large share of the growth in food production which has taken place in recent decades. It has therefore exploited most of its potential. In contrast, there is major potential for increasing the yields of small family farms in developing countries and emerging economies, particularly because their productivity has been low in the past. Much can be achieved by expanding their capacities from a level of self-sufficiency to additionally producing for the market, as well as achieving organisational changes such as cooperation in cooperatives: If they can harvest more, they can distribute their products more widely.

WORLDWIDE DISTRIBUTION OF THE 525 MILLION FARMS

AVERAGE FARM SIZE

SPOTLIGHT: HOW TO INCREASE PRODUCTIVITY

How can agricultural productivity be increased in developing countries both with regard to subsistence farming and to commercial farming? This can be achieved for instance with improved cultivation methods, sustainable irrigation and erosion control, with adequately adapted seed, pest control and fertilisation. Financial aid, support to form cooperatives and support in commercialisation create a strong economic impetus for rural regions. Socially, economically and ecologically sustainable cultivation methods, preserving clean water, fertile soil, forests and biodiversity in the long term are however equally important.
SUSTAINABLE AGRICULTURE

- provides a variety of affordable, quality food with a high micronutrient density,
- produces food locally, adjusted to the local culture and conditions,
- ensures the income of many people, particularly in developing countries, who can therefore afford an adequate, healthy and sustainable diet,
- uses sustainable methods to avoid negative consequences for the environment, society and health, as well as conserving natural resources for future generations, and
- enhances the role of women in the family, industry, society and health.

WHAT FACTORS PLACE FOOD SECURITY AT RISK?

The world’s population is growing. Will we all have enough to eat in the future? This is unlikely to be a question to be seriously faced by most Europeans in view of the varied range of goods on offer. However, a survey carried out by the European Commission all over Europe in 2012 showed a different picture: Three-quarters of Europeans are concerned about whether sufficient food is produced to meet the needs of the world’s population. Whether all people have access to sufficient food and a healthy sustainable diet does not depend on the production quantities alone, however. Food security is a highly-complex matter where many factors have a role to play.

Natural resources are the most important foundation for food production – fertile soil and fresh water, as well as the fish stocks in the seas and inland waters. Our planet only hosts limited amounts, and they have now also been overexploited or damaged through mistreatment in many regions.

SPOTLIGHT: FOOD, FEED OR FUEL?

Agriculture and forestry have always provided both food for people and feed for livestock, as well as raw materials: wood for construction and firewood, leather for shoes, wool for clothing, flax for linen, hemp for ropes, raw materials for medicines and cosmetics. Because renewable raw materials are increasingly substituting oil and other fossil raw materials for sustainability-related reasons, and due to climate and environmental protection, demand for biomass is growing today on the raw materials markets for industry and for renewable energy production.

This “biobased economy” is opening up new sources of income for agriculture and forestry. The production of raw materials can create jobs in agriculture, provide family smallholdings with income and developing countries with foreign currency. It is however also a challenge: Each plant and each square metre of arable land can only be used once. Is the idea to improve car owners’ CO₂ footprint, manufacture consumer durables, fill feed troughs for meat production, or manufacture plant-based foods? The growing competition to use the limited supply of agricultural land is a factor which may impact food prices.

The Federal Government advocates the realisation of the human right to adequate food, as well as global rules on the sustainable production of food products and agricultural raw materials. The cultivation of raw materials must not be permitted to lead to the overexploitation of natural resources or to the displacement of family smallholdings. For the BML, which is in charge of the bioeconomy strategy within the Federal Government, food security and good nutrition take priority over the production of raw materials for industry and energy. Strategies are needed here to safeguard food and at the same time to use the potential for renewable raw materials for innovation.
FOOD SECURITY – WHAT IS BEHIND IT?

The Food and Agriculture Organization (FAO) defines four dimensions of food security:

- **Availability**: The supply of sufficient quantities of food of appropriate quality where it is needed.
- **Access**: People have secure access to this food so that they can cultivate or purchase adequate food.
- **Utilisation**: Food can be used and digested suitably and as needed – this includes healthy preparation, physical health as well as good care and feeding practices as a prerequisite for being able to take up food at all.
- **Stability**: The supply of food is stable in the long term – therefore also if regional crop failures occur.

Food security therefore depends on both agricultural production and on distribution and infrastructure, sufficient income, access to land, health and hygiene, good governance and much more besides.

SPOTLIGHT: FOOD LOSSES AND WASTE

Roughly one-third of all the world’s food is wasted on the way from the farm to the fork. These losses add up to roughly 1.3 billion tonnes per year. Estimates for cereals run to up to 30 percent post-harvest food losses, and indeed as much as up to 50 percent for fruit and vegetables, fish and seafood. This is caused by pest infestation, mould and rotting caused by poor drying and storage. Additional losses occur during harvesting, transport and processing. It is estimated that cereal worth four billion Dollars per year is lost in sub-Saharan Africa. It would be enough to feed 48 million people. All in all, however, FAO calculates that consumers in the industrialised nations throw away more than ten times as much food than those in developing countries.

The BMEL is informing consumers how they can avoid food waste with the campaign *Zu gut für die Tonne* (Too good to throw away) [www.zugutfuerdietonne.de](http://www.zugutfuerdietonne.de).

WHY DOES SOIL BECOME INFERTILE?

This may result from a variety of causes: Large areas have become virtually infertile in some of the world’s dry zones as a result of over-grazing. The grass grows abundantly when rainfalls are good, so that large numbers of cattle, sheep and goats can graze there. These herds are however too large in dry years. They eat the sparse vegetation cover and consume the roots as well. The soil is unprotected from erosion caused by wind and rain. Neither meadows nor field crops can grow on land which has been “degraded” to such an extent, this being the term used by experts to describe this phenomenon.

HOW MUCH FOOD DO CONSUMERS THROW AWAY?

<table>
<thead>
<tr>
<th>PER CAPITA PER YEAR</th>
<th>Europe and North America</th>
<th>Germany</th>
<th>Sub-Saharan Africa and South Asia/South East Asia</th>
</tr>
</thead>
<tbody>
<tr>
<td>95 - 115 kg</td>
<td>82 kg</td>
<td>6-11 kg</td>
<td></td>
</tr>
</tbody>
</table>

Source: Agriculture at a Crossroads - Global Report 2009

82 kg PER CAPITA PER YEAR IN GERMANY

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>44%</td>
<td>fruit and vegetables</td>
</tr>
<tr>
<td>12%</td>
<td>leftovers</td>
</tr>
<tr>
<td>8%</td>
<td>dairy products</td>
</tr>
<tr>
<td>20%</td>
<td>baked goods and pasta</td>
</tr>
<tr>
<td>6%</td>
<td>meat and fish</td>
</tr>
<tr>
<td>7%</td>
<td>beverages</td>
</tr>
<tr>
<td>3%</td>
<td>other</td>
</tr>
</tbody>
</table>

Source: Study by the University of Stuttgart (2012), sponsored by the BMEL
Slash-and-burn farming and large-scale deforestation also impair soil fertility. Most forests in developing countries and emerging economies are slashed and burnt in order to obtain new agricultural acreage. Tropical forest beds however frequently only have a thin, sensitive soil layer whose nutrients are exhausted after only brief agricultural utilisation. It is therefore frequently no longer possible to restore the original state of the forest.

Particularly in dry climate zones, fertile soil is lost through incorrect irrigation. Where rainfall is scarce, groundwater is pumped onto the fields. This dissolves the salt contained in the soil, which rises to the top with the evaporated water. If it is not removed using proper drainage, it becomes enriched in the soil, which becomes completely salinated within a period of a few years, so that no arable crop can grow.

Such non-sustainable methods have contributed to the loss of roughly one-quarter of agriculturally-used land in the past 25 years, whilst the world population has gone up by roughly two billion people. Deserts take over an area the size of Germany every three years.

**WILL THE SEAS STILL BE ABLE TO FEED US IN THE FUTURE?**

The world’s seas are one of the most important sources of food, and amongst other things provide the basis for supplying protein and iodine for billions of people, primarily in coastal regions. According to the Food and Agriculture Organization (FAO), fish yields in the seas have been stagnant since 1990, and have now actually started to fall. This particularly impacts in-shore fisheries with small boats. Catches in lakes and rivers have also been declining. This is also caused by the strong utilisation of fishing...
WHERE IS HUNGER MOST PREVALENT?

A study of the worldwide distribution of hunger reveals major differences between the countries. The situation in Asia, and particularly in East and Southeast Asia, has improved considerably since 1990, as it has in Central and Latin America. Many millions of people there continue to suffer from hunger and undernutrition, but their numbers have fallen in comparison to the population sizes. The situation has improved in a total of 26 countries, but the supply situation remains highly critical in 16 countries, largely in Sub-Saharan Africa.

WHY DO NOT ALL PEOPLE HAVE ACCESS TO FOOD?

What are the causes of the uneven distribution and lack of access to food? Drought, flood, earthquakes, epidemics, but also wars, certainly contribute in some regions. They destroy the harvests and affect people in rural regions particularly badly. However, political and structural reasons for supply shortages are prominent: the failure of policy-makers, taking the wrong decisions on investment or infrastructure and hence impairing the conditions for agriculture and for rural development.

SPOTLIGHT: AGRICULTURE – A VICTIM OF AND A CONTRIBUTOR TO CLIMATE CHANGE

Agriculture depends on the climate, and therefore reacts sensitively to climate change, and particularly to the anticipated increase in the incidence of extreme climatic events such as drought and flood. The spread of the impact is very uneven. Whilst the productivity of agriculture in the countries to the North and South of the equator, that is in parts of Africa, South East Asia and Latin America, threatens to fall by up to 50 percent, it might increase by up to 35 percent in the countries of the Northern hemisphere. Because of the considerable degree to which they depend on agriculture, family farmers in developing countries are affected most. They have virtually nothing with which to arm themselves against the consequences of climate change.

Agriculture however also contributes to global warming: It produces roughly 14 percent of the world’s greenhouse gases, 80 percent of these being emitted in developing countries and emerging economies. The greenhouse gases carbon dioxide, methane and nitrous oxide are emitted by cattle, in fertilisation, soil treatment, burning off of crop residues and paddy cultivation. Roughly 720 grams of CO₂ are generated from the field to the fork for one kilogramme of bread, whilst approx. 13,300 grams of CO₂ are generated for one kilogramme of beef.

Additionally, the deforestation of tropical forests to obtain agricultural land releases CO₂ that had been stored in the forest and in the forest soil. This also makes a major contribution towards global warming.

A reduction in the emission of agricultural greenhouse gases, and the adjustment of agriculture to the consequences of climate change, are key to food security in the 21st Century.
The decision to build roads in rural regions makes a major contribution towards a country’s food security: Better transport infrastructure means that farmers gain faster access to markets and that less food spoils. Selling local cereals, vegetables and fruit means that villages earn more and motivates farmers to increase their production.

If governments finance an agricultural advisory service in rural regions to help farmers install proper irrigation or prevent pests, if loans are provided and schools in rural regions receive better equipment, all of this goes to create the structure needed to ensure food security and rural development. And if this means that young people in the villages receive an economic and social perspective for their own future, the rural exodus will be reduced too.

**INVESTMENT SHORTFALLS**

Policy-makers continue to fail to appreciate farmers and rural regions in many countries. Investment takes place primarily in the towns and cities, where large numbers of voters can be mobilised. Food prices are kept low there in order to pacify the poorer population groups. The consequence is that farmers are not incentivised to sell, so that they produce less and earn less. Education and training in the villages are neglected, as are healthcare, electrification, building and maintenance of roads and the establishment of a well-functioning banking system.

Uncertain farming and water use rights make it easier to displace farmers, shepherds and other land users if for instance influential investors have cast an eye on fertile arable land. This is primarily a problem in countries where governance is poor and rule-of-law standards are low. Some countries have for instance transferred the utilisation rights for hundreds of thousands of hectares of land for decades to investors who build large, highly-mechanised farms there and frequently put considerable strain on the available natural resources. The harvests of these large farms are frequently not intended for sale on local markets, but are exported to buyer countries where purchasing power is high. Local farmers have to resort to less fertile areas where harvests are frequently inadequate.

**CREATING A FAVOURABLE POLICY ENVIRONMENT**

Why is what is needed not taking place in more countries; why do not more persons with political responsibility advocate greater support for agriculture and the rural regions? In fact, this is precisely what has been happening in those countries which have reduced the number of people afflicted by hunger and malnutrition and increased farmers’ incomes.

“A vital step is to provide agricultural producers with a favourable policy environment that will make agricultural growth more sustainable”, is how the International Food Policy Research Institute in Washington, an independent research facility, summed up the results of its surveys.
SPOTLIGHT: OVERWEIGHT ALSO BECOMING MORE WIDESPREAD IN DEVELOPING COUNTRIES

The income of many millions of people in Asia, Latin America and Africa is rising. They are referred to as the “new middle classes” of the developing countries and emerging economies. They are growing in number, and will reach the billion mark in mid-century. As previously in the industrialised countries, lifestyles and consumption habits change as prosperity increases. Sedentary activities increase, as does the consumption of meat, sugar, sugar-sweetened drinks, dairy products, fat, vegetable oils and in general of processed food, whilst that of leguminous plants, vegetables and coarse grains falls. This change in eating habits has consequences for food security and good nutrition. Increasing meat production increases the competition for land between food and feed. The changes in eating habits lead to increased obesity and “lifestyle-related diseases” such as hypertension. Diabetes is already being referred to as Africa’s new endemic disease. Where previously undernutrition was largely prevalent, today it is more an unhealthy diet and malnutrition that occur, even among the poorest groups of the population. Undernutrition, nutritional deficiencies and overweight even occur in one and the same household at the same time.

OVERNUTRITION IS ON THE INCREASE
(SHARE OF THE OBESE* AMONG THE POPULATION/STATED IN PERCENT)

* BMI > 30 kg/m²

Source: WHO 2012

Women and children are particularly badly hit: The political and structural causes are exacerbated by cultural traditions and adverse social structures in many poorer countries. Women in villages and in the poor quarters of the rapidly-growing cities are much more frequently poor and malnourished than men. Most of them are less well trained, and therefore they have fewer opportunities to make a living. Women in the villages frequently have worse access to land and other productive resources. Children are frequently not adequately fed, this also resulting from lack of knowledge.

to provide their families with sufficient food: If they do not have access to good soil, access to income and food is also denied them.

Lack of appreciation for farmers, neglect of rural regions, a lack of political participation on the part of the rural population, people’s ignorance of their rights, and frequently also corruption, form the “breeding ground” for poverty. This leads to a paradoxical situation: Three out of four malnourished people live in the countryside; almost all of them produce food themselves – but not enough for a sufficient and healthy diet, and they are too poor to be able to buy additional food.

Women and children are particularly badly hit: The political and structural causes are exacerbated by cultural traditions and adverse social structures in many poorer countries. Women in villages and in the poor quarters of the rapidly-growing cities are much more frequently poor and malnourished than men. Most of them are less well trained, and therefore they have fewer opportunities to make a living. Women in the villages frequently have worse access to land and other productive resources. Children are frequently not adequately fed, this also resulting from lack of knowledge.
SOLUTIONS FOR FOOD SECURITY

How can food security be secured? Agricultural experts and nutritionists, economists and ecologists worldwide have been addressing this question. They are developing different solutions, but they all presume one finding: The agriculture of the future must be guided by the principles of sustainability and a more efficient use of resources.

A few examples: It would require only a relatively minor effort to stop the loss of fertile arable soil.

→ Small rain water retention walls and hedges to provide shelter against the wind on the fields reduce soil erosion caused by rain and wind.

→ Gentle “drip irrigation” applied directly onto the roots of plants is more efficient than large-scale field irrigation where large quantities of water evaporate, causing soil salination.

→ Well-coordinated mixed cropping, such as coffee and cacao trees together with banana trees, increases yields whilst causing little extra effort, and helps protect the soil.

Positive tendencies are also unfolding in other areas: Where in many places small family farms did not have any access to loans, today various forms of microfinance provide loans at acceptable interest rates.

Agricultural and food research also provides new information and a better understanding of small farming. Researchers are working on sustainable pest control and on soil improvement, cultivating vegetable and fruit varieties which have high yields, are rich in nutrients and better able to withstand pests or drought. Almost forgotten local cereal or vegetable varieties are also used here, which are frequently better suited to the respective local conditions. Research is hence helping to promote higher productivity and nutrient density and to ensure gentle, more efficient use of natural resources.

WHAT PERSPECTIVES DO SMALLHOLDERS HAVE?

In order to enable family smallholdings to continue to form the backbone of global food security and nutrition, they must considerably increase their production and productivity. This will not be possible without modernising the rural regions and professionalising farmers. Their future, and with it the future of global food security and nutrition as a whole, cannot lie in subsistence farming (self-sufficiency) alone.
Smallholdings must be able to get to know the markets better and be able to supply their produce to them. Particularly access to markets in the cities is a major challenge to many smallholders. These are being increasingly taken over by large retail chains which expect their suppliers to provide constant, reliably unchanging quality. One opportunity for family farms is to join forces in cooperatives in which they can organise the production, processing and marketing of their produce jointly and effectively.

Another form of market access is contract farming, which consists of future buyers, for instance a food company, guaranteeing to buy produce at an agreed time and price. Smallholders in particular can benefit from this: The purchase and price guarantees offer certainty for the advance funding of crops and reduce the sales risk.

Modern market production therefore by no means reduces the opportunities for small farms. “Small” is in any case a relative term since, in fertile regions of developing countries, a farm can also earn an adequate income with a small number of hectares. In other places, the areas will have to be larger to be able to make a sustainably adequate income, taking ecological and economical aspects into account.

All this can increase the income of the rural population in agriculture, crafts and services. It is only when living and working in the rural regions are “worthwhile”, if the living conditions there and the prospects for the future improve, that the world can indeed be sufficiently well fed and rural exodus avoided.

**SPOTLIGHT: FOOD PRICES AND SPECULATION**

Considerable price fluctuations have been observed on the world markets for agricultural raw materials since 2000, entailing extremely high peak prices. They had a problematic impact on the food situation, and above all in the least developed countries. Developments in the fundamental factors (including the growing world population, changes in consumption habits in emerging economies, demand for bioenergy, finite availability of acreage, the reduction in the availability of fossil energy and water, resource scarcity in ecologically-sensitive regions resulting from climate change) drive prices up in the long term. What is more, major fluctuations must be expected to continue in food prices in the future.

Commodity futures are a useful tool for agriculture and the food industry for hedging against unexpected price fluctuations. On the other hand, the exchanges on which commodity futures are transacted provide signals on current and anticipated price developments. Commodity futures markets hence need to be protected against excessive speculation and market abuse. If this does not happen, false signals may distort pricing on the physical markets.

In this spirit, the Federal Government is also supporting the current reforms of the financial market at EU level with regard to agricultural commodity futures markets. They are focussed on creating transparency for agricultural raw materials on such markets, and on suitable regulation which does not strangle the positive characteristics of the commodity futures markets. The appropriate legislation in Europe and the USA (where the main exchanges for agricultural raw materials are located) have already been largely adjusted.
Why does Germany bear a responsibility?

There are many reasons why the Federal Government has taken up an active commitment to safeguard global food security and nutrition: All forms of malnutrition cause human suffering. It is a profoundly humanitarian task to address this. There are however other reasons for helping to ensure that all people have a sufficient supply of food at all times in order to be able to lead an active, healthy life. Where there is no food security, social and political stability are placed at risk and peace and security are threatened. Agricultural and food policy serve to help prevent crises, and are hence part of active peace policy. Above all, however, the right to food is a universal human right. Viable, sustainable agriculture is a major foundation for enforcing this human right for everyone.
THE HUMAN RIGHT TO FOOD

Overcoming all forms of malnutrition is not only a job for those countries in which food shortages occur, but it is a global task. It was realised in the wake of the world food crises and famines of the 1970s and 1990s that considerable joint effort is needed to achieve food security and realise the human right to food. It states that people must either have access to resources enabling them to produce sufficient food in quantitative and qualitative terms, or need to earn enough to buy food not only to protect themselves from hunger, but also to ensure their health and well-being. Only in exceptional cases – in disasters or where people are unable to make a living – does this mean classical food or social aid to keep people alive and healthy. A particular obligation is incumbent on the states vis-à-vis vulnerable groups such as children, women, the sick and old people, as well as the landless and the poor.

GUIDELINES TO ENFORCE THE HUMAN RIGHT TO FOOD

In November 2004, the United Nations Food and Agriculture Organization (FAO) adopted the “Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security”. The Federal Government made a major political and financial contribution towards the development of these Voluntary Guidelines through the Federal Ministry of Food and Agriculture (BMEL).

The Guidelines call on the states to step up efforts to combat hunger and provide recommendations to realise the right to adequate food, for instance to enshrine human rights in legal and institutional terms, to secure access to production resources such as land, water or seed, to improve agricultural structures, productivity and marketing, as well as to establish social security systems. The Guidelines help states, media and civil society in the worldwide fight against hunger and malnutrition as a major orientation for greater domestic responsibility and good governance.

SPOTLIGHT: WHAT DOES THE HUMAN RIGHT TO FOOD MEAN?

Article 25 of the 1948 United Nations Universal Declaration of Human Rights states as follows: “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, (...).” In international law terms, the human right to food is entrenched in the International Covenant on Economic, Social and Cultural Rights (Social Covenant) of 1976, to which more than 160 states have so far acceded. In accordance with its Article 11 (1), the States Parties recognise “the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions”. In Article 11 (2), they confirm that more urgent measures are needed in order to guarantee “the fundamental right of everyone to be free from hunger and malnutrition”. The right to food hence encompasses both the principle of accessibility and the principle of availability. States must respect existing access to food, and therefore must refrain from any action depriving people of such access. States must protect access to food against attacks perpetrated by others, be this through statutes or enforcement measures. States must guarantee access to food if it is not already secure. Companies also have a political responsibility to respect the human right to food, and may not contribute towards its being violated.
SECURING FOOD AND NUTRITION GLOBALLY – A TASK FOR ALL

Five compelling reasons for a commitment by Germany:

➤ The human right to food obliges states to act.
➤ Food security cannot be achieved by developing countries and emerging economies alone.
➤ We have an interest in worldwide agrifood systems which are more climate-friendly and more resource efficient.
➤ A reliable supply of food and raw materials is also in the interest of German consumers and the food industry.
➤ Food policy is also peace and security policy.

ENSURING STABILITY AND SECURITY

Food policy is always also security policy. Territorial conflicts are frequently also conflicts for resources, above all for land or water. Overexploitation, displacement of smallholders or neglect of the needs of the rural population amplify this effect. Preventing people from cultivating anything on their land takes away their livelihood. Persons without a livelihood are threatened in their survival, and have no prospects. This uproots people and displaces the rural population, and can pose a threat to the stability of entire regions. Conversely, conflicts in turn endanger the food supply. Promoting agriculture and rural regions, by contrast, strengthens regional political stability. The governments of the countries in question therefore need to be supported in actually achieving the right to food.

PROTECTING THE ENVIRONMENT AND THE CLIMATE

The production of food for humanity requires large quantities of natural resources. It is in our interest not to overexploit these finite resources, but to preserve them by propagating modern, efficient, sustainable cultivation methods worldwide. Agriculture is already the world's largest consumer of water: It accounts for more than 70 percent of the fresh water used in the world. A total of more than 15,000 litres of water are needed to produce a kilo of beef, whilst only 250 litres are required for the same quantity of potatoes. If more feed is cultivated in less developed countries to satisfy the growing need for meat, this may also exacerbate the water shortage. With methane and nitrous oxide, which for instance are generated in paddy cultivation and emitted in cattle farming, agriculture is one of the sources of greenhouse gases.

In order to meet growing demand, more needs to be produced on the existing land and with the available water. Water as a resource must be used more efficiently and more sustainably, not only in the industrialised nations, but also by the millions of smallholders in the developing countries. This will make it possible to protect the environment and the climate.

SAFEGUARDING INCOMES IN THE PRODUCER COUNTRIES

Investments in agriculture in the developing countries and emerging economies strengthen the purchasing power of the local population and make a major contribution towards realising the human right to food. Smallholders in particular play a major role here: They particularly ensure local food security – by means of local products such as millet or manioc. At the same time, they are confronted by considerable restrictions given that they have poor access to education, healthcare services, markets and loans. It is hence recommended for example
by the United Nations Committee on World Food Security (CFS) to make more public investment in roads, energy and telecommunication, in the sustainable management of water and genetic resources for food and agriculture, as well as in the conservation of soil and forests. When strengthening smallholding structures, the Federal Government particularly emphasises women’s and girls’ participation rights. According to international estimates, the number of people afflicted by hunger worldwide could be reduced by more than 100 million if women had the same access to land, education and technology as men.

**BENEFITING FROM ONE ANOTHER – GLOBAL RESPONSIBILITY**

The EU is a major sales market for developing countries and emerging economies. They largely supply important products which either do not compete with EU products, or where such competition is very slight: exotic fruit and vegetables, as well as coffee, cacao and tea, and various raw materials. Roughly 70 percent of agricultural imports and about 50 percent of exports are transacted with the developing countries and emerging economies. The EU imported agricultural goods to a value of roughly 80 billion Euro from these countries in 2013. Exports from the EU to the developing countries and emerging economies, by contrast, are much lower, at roughly 58.3 billion Euro (2013). The EU is also a particularly open sales market for the developing countries and emerging economies in an international comparison. Benefiting from duty-free status, or at low rates of duty, they supply more agricultural products to the EU than to the USA, Canada, Japan, Australia and New Zealand combined.

Consumers and the food industry in Germany depend heavily on a secure supply of food and agricultural raw materials in consistent high quality from developing countries and emerging economies. A high-performance, competitive worldwide agricultural sector which also adequately feeds family smallholdings is just as much in our interest as is equal, free access for the developing countries and emerging economies to the international food and raw materials markets.

Moreover, consumers in Germany can also take responsibility: For instance, handling food carefully by throwing away less food or deliberately buying sustainably-produced products. Consumption and eating habits in industrialised nations such as Germany can also tend to contribute towards creating shortages, and hence towards increasing food prices. And this hits the poorest of the poor worst.

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**THE HUMAN RIGHT TO FOOD: IMPORTANT STEPS TOWARDS ITS REALISATION**

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1948</td>
<td>The right to food is introduced in the United Nations Universal Declaration of Human Rights.</td>
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<td>1976</td>
<td>The human right to food is given its fixed place in international law when the UN Social Covenant comes into force.</td>
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<tr>
<td>1996</td>
<td>The right to food is endorsed at the World Food Summit. The states are called on to reduce the number of undernourished people to half their present level no later than 2015.</td>
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<tr>
<td>2000</td>
<td>The goal to halve the proportion of people who suffer from hunger is incorporated in the Millennium Development Goals.</td>
</tr>
<tr>
<td>2002</td>
<td>The second World Food Summit calls for voluntary guidelines by which the states are to gradually implement the right to adequate food.</td>
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<tr>
<td>2004</td>
<td>The Food and Agriculture Organization FAO adopts the “Voluntary Guidelines to support the progressive realization of the right to adequate food”. The BMEL played a major role in their development.</td>
</tr>
<tr>
<td>2009</td>
<td>At the third World Food Summit, the foundation is laid for a “Global Partnership for Agriculture and Food Security”. A network consisting of UN organisations, as well as of donor and developing countries, is to coordinate action on world food security.</td>
</tr>
<tr>
<td>2014</td>
<td>The Committee on World Food Security (CFS) adopts a catalogue of principles for Responsible Investment in Agriculture and Food Systems (RAI principles).</td>
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</table>

If the right to adequate food is acknowledged as a fundamental right, this has a major influence on strategies against hunger. If hunger is understood as a blow that is dealt by fate, caused by external circumstances such as drought or war, a response in the form of charitable relief supplies is more likely to occur. Adequate food as a legal right, by contrast, requires structural and political action to be taken against the causes of hunger and malnutrition.
How can food be secured?

Feeding the world population in the 21st Century requires more than just an increase in agricultural production. It is indeed about more than eradicating hunger by meeting dietary energy requirements. An integrated approach is called for which also considers the quality of food and a diverse diet. Food security with all its aspects – availability of and access to food, utilisation of the available food and stability of supply – is connected within a wider context of health, society, economy and environment.

No country can meet these challenges alone. The responsibility is also incumbent on the international community to eradicate hunger and realise the human right to adequate food. A major role is naturally played here by agricultural and food policy, but the problems – such as poverty or climate change – require a coherent approach across all relevant sectors.

The Federal Ministry of Food and Agriculture (BMEL) is taking action in international institutions and political processes to shape an overarching policy for healthy and sustainable diets. Local projects are being used by the Ministry to establish a high-performance, sustainable agriculture and food industry.
WHAT CONTRIBUTION IS THE FEDERAL GOVERNMENT MAKING TOWARDS GLOBAL FOOD SECURITY AND GOOD NUTRITION?

The Federal Government attaches considerable importance to the eradication of all forms of malnutrition in the world (hunger, micronutrient deficiencies, overweight and obesity). It is advocating rules for sustainable agricultural production all over the world. It has pursued the reduction of subsidies for the exports of agricultural goods, achieving the result that the export refunds have been reduced to zero since 2013. For instance in the Group of the 20 major industrialised countries and emerging economies (G20), it is campaigning for greater transparency on the agricultural markets, for assured access to land and other natural resources, as well as for more investment in the agricultural sector. The Federal Government views the human rights-based approach towards food security and good nutrition as constituting the most promising one, and is putting its weight behind its realisation. It is stressing here the responsibility of the partner countries to empower their agriculture and food industries, as well as other fields that are relevant to food such as health and education.

WHO IS RESPONSIBLE FOR THIS TOPIC WITHIN THE FEDERAL GOVERNMENT?

The expertise and experience within the Federal Government lies with the Federal Ministry of Food and Agriculture (BMEL), which is therefore the main player when it comes to these topics. In this area, it works together closely with other departments such as the Federal Foreign Office and the Federal Ministries for Economic Cooperation and Development, for the Environment and Building, for Education and Research, as well as of Health.

WHY IS THE BMEL ENGAGED IN INTERNATIONAL COOPERATION?

Each country bears its own responsibility for ensuring a sufficient supply of food and a healthy diet for its own population. Many poor countries however lack the requisite administrative structures, experts, knowledge and capital, as well as the legal framework, to carry out this task. Strengthening the governments, institutions and civil societies in cooperation that is built in a spirit of partnership forms the goal of international cooperation, and is the task of a number of international initiatives and bilateral cooperation projects.

The BMEL is taking on a major role here. At practical level, it is using its experience and skills to support the work of the United Nations, and cooperates particularly closely with FAO, to which Germany is the third-largest donor. What is more, the Federal Ministry is working in FAO, in international institutions and political processes such as the G7, G20 and in the Post-2015 development agenda to establish international standards and guidelines in order to entrench food security and good nutrition as priority political goal globally.

WHAT DOES FAO DO?

The United Nations Food and Agriculture Organization (FAO) was established on 16 October 1945 in order to improve the production and distribution of agricultural products and food, and thus to ensure the supply of food. It analyses the world markets and the global food situation, and publishes an annual report on food insecurity (“State of Food Insecurity in the World”). It supports its members through policy advice and technical cooperation to improve the quality of food, the sustainable increase in agricultural production and the promotion of rural development. As a knowledge-based organisation, it promotes the development of international norms and standards such as the “Codex Alimentarius” on food security. FAO is seated in Rome, and its members included 194 states and the EU, as of 2014. The BMEL supports FAO in drafting international frameworks and standards, and in advising governments and institutions.
An Equitable Environment for Everyone

Problems with food supply exist primarily where governments fail to live up to their responsibility to safeguard their country’s food security. Good governance, the rule of law, protection and granting of human rights, as well as the accountability of those who are in government, are among the prerequisites for sustainable food security and good nutrition. The BMEL is hence placing the emphasis of its international work – for instance in the United Nations Committee on World Food Security (CFS), on which the BMEL represents the Federal Government – on the implementation of legal standards and guidelines anchoring food security and good nutrition as a primary political goal.

The BMEL organises expert meetings and international conferences at which representatives of governments, investors, organisations, financial institutes, civil society, foundations and academia are included. The fundamental concept here is: Only if all concerned have a common understanding of the goals which are being striven for, will the result also be backed and implemented by all concerned.

Responsible Agricultural Investment: How the BMEL is Engaged

In October 2014, the members of the Committee on World Food Security (CFS) unanimously adopted the “Principles for Responsible Investment in Agriculture and Food Systems” (CFS-RAI). The goal pursued by these voluntary guidelines is to shape agricultural investment in such a way that it benefits the population in developing countries and emerging economies. The BMEL has supported the negotiations on the principles, which were carried out over a number of years, with knowledge and funding. Since these negotiations involved all stakeholders, governments, industry and civil society, as well as representatives of smallholders, fishermen and farmers, private investors and foundations, the principles are likely to be well received by all concerned. The BMEL was able to ensure that the focus was placed on smallholders and producers, and that governmental obligations and responsibilities of private investors were clearly identified.

Guidelines on Land Tenure: How the BMEL is Engaged

As a reaction to increasing land investment and increasing “land grabbing”, the 124 members of the UN Committee on World Food Security (CFS) unanimously adopted the “Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security” in 2012. In particular private investment is important for food security, but may not violate the human rights and land rights of the local population.

The Voluntary Guidelines on the Responsible Governance of Tenure stipulate minimum standards for land investment, taking account of the human right to adequate food, as well as of the rights of the local population. At the initiative of Germany, the participation rights of women and girls were particularly accommodated. The BMEL contributed roughly two million Euro towards the drafting of the Guidelines. In addition to 96 states, representatives from civil society, academia and industry also contributed towards the negotiations, lending a considerable degree of legitimacy to the Guidelines. They are not binding under international law, but constitute a de facto voluntary obligation on the part of the CFS members.

Legal Safeguards for Access to Land and Water

Land and fertile soil, forests, water and fishing grounds are finite commodities, and hence frequently the subject of conflicts and competing utilizations. On the one hand, access and utilisation rights for land and productive resources are essential for the survival of people in rural areas. However, ownership and utilisation rights – which are frequently not entrenched in the law – are increasingly clashing with the growing agricultural investment in developing countries and emerging economies. Where no rule-of-law protection is guaranteed, smallholders are frequently displaced or expropriated without compensation. What we see then is referred to as land grabbing. If ownership rights are unclear, however, there is also no interest in making any major investments or in long-term sustainable cultivation. This also applies to water rights: If irrigation is not regulated in an equitable and clear manner, water becomes scarce at some point. If it is not established who may fish in a lake, this leads to the risk that stocks may be overfished in the long term.

The examples show the significance attaching to the enforcement of standards and guidelines of international law for the promotion of food security and good nutrition. For this reason, international institutions such as FAO, which develop instruments of international law, must be strengthened in political and financial terms.
SPOTLIGHT: LANDGRABBING

Particularly in developing countries and emerging economies both international and local investors secure large parcels of land for themselves, using long-term purchasing or lease agreements, in order to cultivate food, feed or energy crops, particularly for export. In view of rising agricultural and land prices, land is however also increasingly becoming an object of speculation for investors. Many of these large-scale land purchases and leases lead to the displacement of the local population and endanger the local and regional food supply. This acquisition of land (frequently highly dubious in legal terms) is referred to as landgrabbing. It frequently takes place behind closed doors, and no reliable figures are available. More than 1,000 cases of large-scale land purchases or leases (at least 200 hectares) by foreign investors, mostly in developing countries and emerging economies, have been documented on the independent online platform www.landmatrix.org/en/ since 2000. They comprise roughly 39 million hectares of land – more than four times the area of Portugal. Negotiations are currently underway with regard to another 15 million hectares of land (as of December 2014).
PROMOTING SMALLHOLDERS, WOMEN AND FAMILY FARMS

Family farms and smallholders already today play a major role in securing food and nutrition globally. It is hence easy to imagine what an upturn the production and productivity of agriculture could undergo in the developing countries if family farms, and women in particular, were to be promoted in a more targeted manner and could develop their considerable potential.

Amongst other things, the BMEL strengthens family farms via the Bilateral Trust Fund with FAO, via EU-funded twinning programmes and via many projects in the context of the Bilateral Cooperation Programme. Farmers’ associations and agricultural cooperatives work together here in order to impart knowledge to family farms and smallholders, thus enabling them to improve their market positions, gain access to funding opportunities and further their economic development.

THE BILATERAL TRUST FUND WITH FAO

The BMEL has been funding the “Bilateral Trust Fund” since 2002, currently to a tune of 8.75 million Euro per year. More than 90 projects against hunger and malnutrition have been funded so far via this joint fund with FAO – ranging from school gardens in Afghanistan through nutritional education and soil-efficient cultivation methods in Africa, to business training of farmers. The focus – in addition to the right to food and to access to land and natural resources – is on the promotion of women, of adequate nutrition, of sustainable production methods matching the local conditions, as well as on the reconciliation of bioenergy and food security.

THE BILATERAL COOPERATION PROGRAMME (BKP)

The BKP currently encompasses roughly 30 projects and activities in 15 countries in Africa, Asia, Latin America and Eastern Europe. With the BKP, the BMEL supports partner countries in establishing productive and resource-efficient agriculture and food industries. The projects target countries with a considerable agricultural potential in order to make as efficient a contribution as possible towards ensuring the supply of food to people in the region, but also worldwide. The focus is on political exchange and legislative advice, as well as on technology and knowledge transfer. Educational facilities, associations, research facilities and companies from the agricultural and food industries are involved in the projects and contribute their expertise, while industry in particular also contributes benefits in kind.

WHAT ARE “TWINNING PROGRAMMES”?

The EU supports its neighbours and states that wish to accede to it with the “twinning programmes” in introducing European standards, approximating legal provisions and administrative standards. To this end, the administration of an EU Member State seconds a long-term advisor to the agency of the partner country. The twinning programmes on agricultural and consumer protection topics are coordinated by the BMEL. They strengthen the countries to engage in cross-border cooperation and make it easier for them to gain access to the EU market.

MAKING AGRICULTURE AND FOOD SYSTEMS NUTRITION-SENSITIVE

The food situation in the world is not balanced: On the one hand, there is hunger and undernutrition, whilst on the other hand changes in eating habits and lifestyles are also increasing the number of overweight people in

MALNUTRITION AND OVERWEIGHT: HOW HUMAN BIOLOGY AND MODERN TECHNOLOGY INTERACT

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<thead>
<tr>
<th>Biology</th>
<th>Technology</th>
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<tr>
<td>Sweet preferences</td>
<td>cheap caloric sweeteners, food processing benefits</td>
</tr>
<tr>
<td>Thirst is not linked to the hunger/satiety mechanism</td>
<td>Caloric beverages</td>
</tr>
<tr>
<td>Fatty food preference</td>
<td>Easily obtainable, cheap edible oils and fats</td>
</tr>
<tr>
<td>Desire to eliminate exertion</td>
<td>Technology means no need to engage in physical work and to move by our own strength</td>
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Source: Popkin, 2008
The food base in many villages in developing countries is rather small. The staple foods such as rice and bread do not provide sufficient vitamins and minerals. Children are particularly badly affected. The first 1,000 days after conception are vital to their mental and physical development. Malnutrition of the mother and of the child during this period, cause lasting damage to development and make children highly prone to illness. In addition to the lack of sufficient food, another frequent cause is inadequate knowledge about nutrition. A project that is being promoted by the BMEL via the Bilateral Trust Fund with FAO is studying how the nutritional situation of infants and young children in Malawi and Cambodia can be improved by improving weaning food through improved food security and complementary feeding. To this end, for instance midwives are trained as multipliers and families receive advice in how to cultivate diverse locally available, nutrient-rich and affordable foods.

**HORTICULTURE AS AN OPPORTUNITY FOR SMALLHOLDERS**

The cultivation of fruit and vegetables on small plots of land offers major opportunities to smallholders in developing countries. Fruit and vegetable cultivation does not require large machinery. The demand for such high-value food has also increased in developing countries and emerging economies in recent years, and the production of fruit and vegetables has increased two-fold. Even opportunities to export to industrialised nations are opened up here for family smallholdings.

**PROTECTING PEOPLE AND PLANTS**

International trade and commerce are important for growth and development, but they also entail new risks, for instance with regard to agricultural products such as food and seed. The BMEL hence pays particular attention to compliance with and improvement of standards for the protection of soils, plants and animals, as well as for food safety. Additionally, the Federal Ministry is supporting the World Organisation for Animal Health (OIE), for instance in containing avian influenza or in the development of animal welfare standards. The BMEL is pursuing the goal of a consistent, blanket reduction of the use of antibiotics in animal husbandry in order to reduce the spread of antibiotic resistance, which is growing in all parts of the world.
MAKING AGRICULTURAL MARKETS TRANSPARENT AND ACCESSIBLE

International trade is key to worldwide prosperity development. Without it, standards of living would be much lower, the selection of products would be poorer and prices would be higher. Trade works better the more uniform the rules for it are and the fewer unnecessary barriers hinder it. Interference in trade distorts the worldwide flow of goods. It can impair local food supply, particularly in the developing countries. Agreements to forego activities that distort trade can stabilise markets and improve the global nutrition situation.

The BMEL aims to structure trade agreements in such a way that the European model of multifunctional agriculture is maintained and the high standards achieved in European consumer protection are not restricted. The developing countries are to be enabled to take part in global trade on an equal footing. The BMEL particularly advocates the abolition of agricultural export refunds at both European and international levels, as well as the reduction of subsidies which distort trade. Agricultural exports intended as humanitarian aid should be exempted from export restrictions. Exceptions should also be retained that apply to poorer developing countries.

FACTS AND FIGURES

Developing countries and emerging economies supply more agricultural products to the EU than to the USA, Canada, Japan, Australia and New Zealand together. Germany primarily imports coffee, oilseed, fruit including exotic fruit, as well as fish from the developing countries. 71 percent of Germany’s agricultural imports from third countries come from the developing countries and emerging economies (15.9 billion Euro). German exports to these countries in 2013 were only 7.3 billion Euro, in contrast (primarily cereals and cereal products, dairy produce, meat and meat goods, as well as tobacco products).

BACKGROUND: WHAT EXERTS THE GREATEST INFLUENCE ON AGRICULTURAL PRICES?

- Weather and climate (crop failures caused by drought or flood)
- Good or poor harvests
- Stocks – high or low stock levels
- The price of oil
- Growing demand for food
- Demand for agricultural raw materials for bioenergy and industrial utilisation
- Growing world population
- Changes in eating habits
- Excessive demand without utilisation, food waste
- Political crises

HOUSEHOLD FOOD EXPENDITURE

A family in a developing country spends approx. 70% of its income on food.

What happens when prices go up?

Source: World Food Programme 2012
SPOTLIGHT: TRADING WITH DEVELOPING COUNTRIES AND EMERGING ECONOMIES

International agricultural trade entails contrasting interests. Developing countries and emerging economies are pushing for the industrialised nations to open their agricultural markets. The latter in turn wish to ensure better export opportunities to rapidly-growing economies and secure access to raw materials.

Developing countries however fear negative consequences for their domestic agriculture if they quickly open up their markets to imports. This is understandable in many cases, given the unequal starting position. Their agriculture is frequently not yet producing in a manner that is competitive at international level. What is more, there is no processing industry there. Developing countries therefore export mostly unprocessed raw products – such as green coffee, oil seed or feed. The value added by processing and refining – such as blending and roasting when it comes to coffee – by contrast takes place in the industrialised nations in most cases. The developing countries therefore primarily import processed products (such as dairy products or meat from animals fed on imported fodder). This makes it difficult to establish supply chains in these countries. The BMEL is pursuing the goal of taking the particular needs of developing countries into account in international trade agreements.
PROMOTING SUSTAINABLE RESOURCE USE

The growing world population can only be fed if the natural resources for agriculture, forestry and fisheries are used and maintained in a sustainable manner. The BMEL is pushing for globally-valid guidelines on resource-efficient production, sustainable utilisation and responsible investment.

BIODIVERSITY: DIVERSITY IN THE FIELDS ENSURES DIETARY DIVERSITY

A major loss of biological diversity in general, and of agricultural biological diversity in particular (“agrobiodiversity”), has been observed since the middle of the last century. Agrobiodiversity is the part of biological diversity which is used for food and agriculture and which is vital to the sustainable performance of the agricultural ecosystems. The BMEL bears a particular responsibility for the diversity of crop species and livestock with their different plant varieties and animal species (frequently referred to as plant and animal genetic resources). Maximum biological diversity of plant varieties forms an indispensable basis for breeding high-yield varieties for special climatic conditions – important for food security and good nutrition against the background of climate change.

The BMEL is taking up this challenge in international cooperation, the aim being to achieve cooperative management of agrobiodiversity oriented towards achieving justice in international terms. To this end, the Ministry has been supporting the many activities of FAO’s Commission on Genetic Resources for Food and Agriculture for a long time. Via the project fund of FAO’s “International Treaty on Plant Genetic Resources for Food and Agriculture” (the members are 133 states and the EU, as of 2014), the BMEL is funding the conservation of arable crop diversity and making such crops available for research and breeding. The Ministry is moreover lending both political and financial support to the work of the Global Crop Diversity Fund, which amongst other things helps run the Global Seed Vault on Spitzbergen.

CONSERVING FORESTS AND USING THEM SUSTAINABLY

Not only arable land secures our food, but the forest does so too: 1.6 billion people worldwide largely depend on it for their livelihoods. For instance, the forests in the Tropics provide considerable amounts of fruit from trees and shrubs for local markets. And some forest products are also sold in our supermarkets, such as cashews or some of the cacao which thrive in the shade cast by trees. What is more, forests have an important part to play in the regulation of the climate, and absorb the greenhouse gas CO₂.

Sustainable forest management is hence a component of food security and climate protection. Illegal timber harvesting, by contrast, places forests at risk, and hence endangers the livelihoods of large numbers of people. Furthermore: An average of roughly 17 percent of the timber traded worldwide comes from illegal logging, and this figure is estimated to be much higher for timber from the Tropics.

The BMEL is therefore advocating sustainable forest management worldwide. A major instrument towards achieving this is the Act to Secure the Timber Trade (Holzhandels-Sicherungs-Gesetz), based on an EU Regulation and facilitating sanctions for trading in illegally-harvested wood. The BMEL is furthermore supporting the certification of forests via systems guaranteeing sustainable management. For instance, the Federation’s procurement regulations prescribe that all federal authorities must only procure wood that can be proven to have been produced sustainably.

A FEW IMPORTANT SEALS

A few well-known seals for ecological or social sustainability are mentioned below: The non-profit TransFair association awards the Fairtrade seal to producers who comply with the Fairtrade standards (including stable producer prices and fair working conditions).

The Fairtrade cacao seal is only awarded to the cacao in products. Timber products from sustainably managed forests can be recognised by the Forest Stewardship Council (FSC) or “Programme for the Endorsement of Forest Certification Schemes” (PEFC) seals. The seal of the Marine Stewardship Council (MSC) labels products from sustainable fisheries. The organic seal can also be found on organic products from developing countries. These are accompanied by many other seals which facilitate sustainable consumption.
SPOTLIGHT: LABELLING AND SUSTAINABLE CONSUMPTION

Anyone who, as a consumer, would like to contribute towards sustainable resource use, and hence to food security, can do so via the purchases they make. Various labels show which products meet particularly high social or ecological sustainability standards.

Having said that, the sheer number of seals and labels is often confusing, and the criteria for awarding them are not always transparent for consumers. For instance, are all the ingredients of processed food bearing an organic seal “organic”? And what are the differences between the various Fairtrade seals? What is more, some companies award their own seals for advertising purposes where the criteria cannot be verified.

However, transparency is needed if seals are to inspire consumer confidence. The BMEL is therefore supporting the Verbraucherinitiative e.V.’s www.label-online.de Internet portal, which provides reliable information on product, service and management labels.

USING SEAS, RIVERS AND LAKES IN RESOURCE-EFFICIENT WAYS

Seas, rivers and lakes are a major source of food for the world’s population, and constitute essential elements of the ecosystem. Fisheries depend on an intact environment, but themselves also influence the maritime environment – for instance by overfishing or with fishing methods which destroy maritime life. For fishery to have a future, the BMEL is advocating sustainable fisheries. This is the only way to ensure that waters are maintained as a habitat and biodiversity is maintained. A major element of this is the EU’s Common Fisheries Policy, to the recently-adopted reform of which the Federal Government made a major contribution. It ensures that the waters are used in resource-efficient ways, such as by means of fishing quotas which keep fish stocks stable, with technical adaptations which protect young fish and undesired species, or by bans on dumping and requirements to bring the entire catch to shore, which are intended to ensure that fishing is carried out in ways that protect fish stocks more effectively. The consistent introduction of sustainability in fisheries has been successful: Whilst 94 percent of the fish stocks in the North Eastern Atlantic were regarded as overfished in 2007, this figure is already less than 40 percent today.

Since fish do not respect borders, the BMEL is also contributing towards international marine conventions, such as the revision of the fishing agreement on highly-migratory species, as well as on stock management within the Regional fisheries management organisations (RFMO).
RESEARCH FOR FOOD SECURITY AND GOOD NUTRITION

Sustainably increasing agricultural production and productivity requires knowledge. Agricultural research has contributed much in the past decades towards reaching a better understanding of these tasks, and towards coping with them.

Scientists have developed resource-efficient cultivation methods and high-yield seed for dry regions, but also methods of sustainable management of tropical forests and scarce water supplies. They have studied the interaction between funding agricultural production, market incentives for smallholders and the development of rural areas. The results of their research have helped to successfully remedy animal epidemics and to reduce the amount of land used for agricultural production. Practical solutions have been developed to avoid or reduce post-harvest and food losses.

A few comparisons make it clear how significant international agricultural research is: Without the results of its research, the increase in the world's food production that has taken place in the past 50 years would have been inconceivable, the land available for cultivating food crops in developing countries would have had to be expanded by another eleven to thirteen million hectares – and this would have meant the destruction of even more virgin forest and ecosystems – and many more millions of people would be suffering from hunger today.

The dangers of climate change for food security and good nutrition, regional water shortages, declining biodiversity and overutilisation of natural resources are new challenges for agricultural research. Moreover, one-sided breeding for yield, “larger grain” and higher energy content has frequently led to a fall in the nutrient density, and thus in the percentage content of micronutrients such as minerals, vitamins or special fatty acids.

In order to combat micronutrient deficiencies, varieties need to be developed and used which have a high yield but unchanged nutrient density. This requires increased interdisciplinary research, amongst others with nutritionists. To this end, the BMEL is promoting research cooperation on global nutrition, for instance with two million Euro for the “Nutrition Research Initiative”.

THE NUTRITION RESEARCH INITIATIVE

Under the title “Nutrition – Diversified Agriculture for a balanced nutrition in Sub-Saharan Africa”, the BMEL is promoting research projects which, with the involvement of African stakeholders, are studying how local – frequently neglected – fruit and vegetable varieties can be used in Eastern and Southern Africa for adequate nutrition. In addition to research units, they are also to bring on board decision-makers and multipliers from consultancy, education and the political arena for the topic of “adequate nutrition”. This aims to improve food and health by increasing the variety of available foods.

GERMAN CONTRIBUTIONS TO AGRICULTURAL AND FOOD RESEARCH

The BMEL will be contributing roughly five million Euro per year in future to support application-orientated research and information and knowledge management for global food security and nutrition. This concept forms part of the Federal Government’s national “Bioeconomy 2030 Research Strategy”, in which global food security and good nutrition constitutes a major field of action.

When it comes to questions on global nutrition, the Federal Government is advised by the BMEL’s six departmental research facilities: the Julius Kühn Institute for Cultivated Plants (JKI), the Max Rubner Institute of Nutrition and Food (MRI), the Friedrich Loeffler Institute for Animal Health (FLI), the Thünen Institute for Rural Areas, Forestry and Fisheries (TI), the Federal Institute for Risk Assessment (BfR) and the DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH (DBFZ). These application-orientated research facilities, as well as the six Leibniz Institutes which are also within the portfolio of the BMEL, cooperate with agricultural and food research facilities in developing countries in order to help improve the global nutrition situation and establish lasting partnerships.

The finite nature of fossil raw materials and the grave environmental problems which their utilisation entails are causing demand for sustainably-produced raw materials to increase. Production and processing of renewable raw materials create income opportunities, particularly in the rural regions, and are an effective contribution towards reducing poverty. On condition that priority is given to ensuring food supply, the BMEL is pushing for agriculture that promotes biobased, sustainable supply chains.
THE INTERNSHIP PROGRAMME

The BMEL promotes several-month-long internships for young people from the agricultural industries in the Russian Federation, Ukraine, Belarus and Vietnam. The future experts and managers receive expert knowledge and commercial concepts and activities in farms in Germany which they can then apply in their home countries. The programme is implemented by the German Farmers’ Association, the Bavarian Farmers’ Association, the Arbeitsgemeinschaft für Projekte in Ökologie, Landwirtschaft und Landesentwicklung in Osteuropa e. V., promoting ecological, agricultural and land development in Eastern Europe, as well as the Agricultural Engineering College in Nienburg.

RESEARCH COOPERATION FOR GLOBAL FOOD SECURITY AND NUTRITION

The German Agricultural Research Alliance, of which more than 40 German research facilities are members, is to combine the potential of German agricultural research and also make it accessible to the tasks of global food security and good nutrition. The Council for Tropical and Subtropical Agricultural Research (ATSAF) is the information and communication platform of internationally-orientated agricultural and ecosystem research in Germany. With the knowledge of the German agricultural research within its portfolio, its departmental research, and with the Federal Office for Agriculture and Food (BLE), the BMEL has a major academic base enabling it to observe and evaluate the global nutrition situation. The resulting research-based policy advice supports the Ministry in its political activities.

BILATERAL AND INTERNATIONAL PARTNERSHIPS

With the above resources, the BMEL supports application-orientated research projects in which German facilities of the agricultural and food sector cooperate with corresponding facilities in developing countries and emerging economies. There is frequently still a lack of processing of the research results on global food security for practitioners. This knowledge is therefore to be made more accessible, for instance for the responsible ministries in developing countries and emerging economies and for work especially in the rural regions. These tasks are taken on by FAO and other international and European partners of the BMEL, such as the Consortium of International Agricultural Research Centers (CGIAR). German partners involved here include the ATSAF and the BLE.

EDUCATION FOR PRACTICE

Qualified vocational training is a way for smallholder families in developing countries and emerging economies to free themselves from the poverty trap and to turn from being merely self-sufficient into commercial producers. To this end, highly-practical curricular offers and farm consultancy are needed, which should connect with the needs of farmers. This is not only about better cultivation methods, but also about imparting basic commercial knowledge: What products are profit-making? What factors determine the price, and how do I take my own costs into account here? What standards and quality criteria do products have to meet to market them better, or indeed perhaps to even be able to export them? It is here, at grassroots, that the results of agricultural research, translated for practical utilisation, become one of smallholders’ most important tools.

The BMEL is supporting developing countries and emerging economies in establishing highly-practical consultancy projects. This is where young experts are given further training to become rural agricultural advisors. German experts help to provide further training and advise the facilities in the partner countries.