



Resources and Ideas



2015
European Year
for Development



Food Topics

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1) Is it the right time to eat strawberries?

Problematic trend n°1: any food at any time, from anywhere...

Food is a reflection of local natural specificities. Because natural conditions are different in each region of the world, the food that grows in each region is different too. The temperatures but also the humidity or the sunshine vary from region to region and change season after season. Bananas grow best in tropical climate in regions close to the equator like the Ecuador for instance. They don't have a specific harvesting season, they can grow all year round. On the other hand, apple trees would not survive tropical temperatures but grow well in a temperate climate like in Europe and have a specific harvesting season: summer and autumn.

In every country, week after week, we move into another

season that brings different local food. Eating seasonal food is a guarantee of eating fresh food, richer in nutrients. Eating local food is also a guarantee that it has not travelled long distances to reach us, and therefore, did not cause unnecessary emissions of CO₂.

For people who live in cities and buy food from supermarkets, it may seem as if there weren't any seasons, nor distance. The supermarket shelves look pretty much the same, almost all year round. Tomatoes, cucumber, apples or grapes are available during the whole year. This means that these foods travelled long distances and/or were produced in heated greenhouses, use a lot of energy and production of CO₂ in both cases. Or it may mean that these foods are several months old, and have

received some treatment to slow down their aging (for instance fungicide and waxing on apples). In that case they may have lost a big part of their precious nutrients and hold residues of pesticides.

As an example, for those living in central Europe, apples should always be chosen over bananas but if it's June, the more delicious seasonal food available should be chosen, like strawberries, for instance. However in January, it will be more sustainable to eat stored apples rather than strawberries in central Europe whereas in countries like Malta strawberries grow

locally from as early as February depending on the weather.

Seasonal local food can often be cheaper than non-seasonal food, more tasty, and supportive of the local economy.

Definition corner

Fungicides: chemical product used to kill or inhibit growth of fungi

Ozone layer: a layer in the stratosphere, about 15 km above the earth's surface, that acts like a giant umbrella protecting the earth from ultra-violet rays (that are bad for plant and human health)

The story

A (low-carbon) surprise dinner

"It's almost 16.30! There's someone ringing at the door!" said Cynthia, who was helping Agnieszka look for extra cushions to put on the floor to sit on.

Josip, arms full of bottles of apple juice, entered the room with five other boys. Michaela who was hosting the meeting was frenetically running to open the door again to let in another group of people. All her seventeen friends from the international study program were there, except for Gregor.

Razvan opened the discussion: "So guys, what do we prepare for Gregor? Today is 18th of November, so there is only two weeks left before the farewell party! I am sad he will be the first one to go back to his country, Slovenia, but I am very excited about our surprise party preparations!"

"We have found a great place!" continued Cynthia, "Michaela's grandmother, our only real local friend, has offered to use her house for the celebration. It is spacious enough for thirty people, even to sleep-over and there is an open fire place. What we need to decide now is what we will prepare for dinner."

"Since Gregor will be studying environmental studies next semester, it would be logical and nice to prepare a meal that would be environmentally friendly. No? Something like a low-carbon surprise dinner...!" said Agnieszka.

"Oh, yes! Good idea! It could have zero food miles!" added Cynthia.

Martin confused, asked: "What language are you speaking girls? Zero what?"

"Zero food miles! It means food has not travelled hundreds or thousands of kilometres to reach you. A low carbon footprint means that the production or travel of your food did not emit too much greenhouse gases that warm up the atmosphere and cause climate change." replied Cynthia.

Josip, who had been silent until now, added: "If we want to lower our carbon footprint, we should make a seasonal meal. For instance, we should not use strawberries because the season here is over, so they would have to come from Spain, which is 2000km away. The same stands for tomatoes, which by now, are produced in heated greenhouses, thus using energy! So we need to choose locally produced food which is in season."

"But we won't have any fresh ingredients then! Nothing is growing here in November and December. You can only find food coming from abroad." said Martin.

“That’s not true,” Josip said. “We could make a very nice soup from fresh pumpkin for instance, because it was in season two months ago and they stay good very long. And before the soup, we could make delicious chips from kale that is currently sold at the farmers’ markets. You just dry them in the oven with a bit of salt and a few drops of oil and they become very crispy. It is delicious and much healthier than fried potato chips.”

Michaela agreed. “Mmm, that’s a great idea! We can also have fresh carrot and celery-sticks because they can be harvested even in the winter! I can make a nice sauce with yoghurt and dill. In September I dried the dill I grew in my balcony!”

“I would love to make something with spinach, potatoes and local goat cheese for the main meal.” said Agnieszka. “I will think about a recipe. I guess that if we want to reduce the carbon footprint, we should avoid meat, especially red one.”

“I don’t like goat cheese that much!” said Martin. “But I can cope with it if we have a good desert. What about grilled pineapple?”

Agnieszka quickly said, “Well, that’s maybe seasonal but that’s not very local! Pineapples are grown in The Philippines or Costa Rica - they travel thousands of kilometres. Let us rather prepare some cake with apples and nuts. I filled up boxes and boxes of apples from my grandmother’s old trees back in September. They are smaller and not as pretty as those you find in stores, but they are nicely sweet and a bit acidic.” “And they don’t come from the other side of the planet, like New Zealand which is 12,000km away!” added Michaela. “That’s more than all the distance I travel in one whole year! And it is not only all the fuel needed for such a long distance that is problematic. Do you know that many fruits and vegetables coming from abroad are harvested before they are ripe and receive post-harvest chemical treatment such as fungicides to increase their shelf-life?”

Josip added: “And methyl bromide, a toxic pesticide is also widely used as a fumigant on the apples before transport, to kill insects that could be amongst the apples. This gas is bad for the ozone layer!”

“And if you buy local apples, you also support the local economy and preserve local varieties.” said Cynthia. “I suggest adding a confit of plums on the apple cake. I made some last month, with a bit of cinnamon, sugar and rum. Our neighbours gave us so many plums this year that we made eighty jars of preserves

“You know so much about seasonal food, guys.” exclaimed Martin. “I am really impressed and am really looking forward to taste all this! I am sure Gregor will be amazed to discover how we are able to cook meals that are tasty and respect the planet!”

Questions for discussion

- Which food is available in which season locally?
- How seasonal do we eat at school and at home?
- What is the average distance of one meal? What is the equivalent in GHG (greenhouse gas) emissions?
- What are the multiple benefits of eating according to seasons?

Do you know that...?

- Fruits and vegetables that are not seasonal grow in heated greenhouses or come from far away. When fruits and vegetables are transported by air, they consume between 10 to 20 times more fuel than the same fruit or vegetable produced locally during the season.¹
- 1kg of strawberry in the winter can require up to 5 litres of fuel to reach you.²

¹ <http://www.ademe.fr/sites/default/files/assets/documents/rac-assiette-bdef.pdf>

² <http://www.ademe.fr/sites/default/files/assets/documents/rac-assiette-bdef.pdf>

Resources to go further:

- Try to eat low carbon (take the quiz):
<http://www.eatlowcarbon.org/>
- Food carbon footprint calculator:
<http://www.foodcarbon.co.uk/index.html>
- About food miles:
http://www.sustainweb.org/foodandclimatechange/archive_food_miles/
- Activity for students on local and seasonal food:
<http://www.nourishlife.org/teach/curriculum/activity-2-seasonal-local-foods/>
- About food miles and health:
<https://food-hub.org/files/resources/Food%20Miles.pdf>

Connecting the dots:

- Eating seasonal local food helps to limit using energy for unnecessary transport.
- Eating seasonal local food helps to reduced GHG emissions which cause climate change.
- Eating seasonal local food contributes to preserve biodiversity.



Climate Change



Biodiversity



Transport

2) Uncovering the link between chicken wings and the Amazonian forest

Problematic trend n° 2: global increase of meat consumption

What if something as simple and usual as a piece of meat was in fact at the centre of many questions over the future of the planet? This question comes as two trends are at play: The first is that there are more and more people on the planet and by 2050, there will be 9 billion of us, requiring more food to be produced. The second trend is that meat and dairy products (milk, cheese, yogurt, etc.) are entering the diet of more people everyday a little bit more. And raising livestock takes a lot of resources. In short there are more people eating more meat and dairy while the resources at disposal, our one and only planet, remain the same.

The growth in consumption is particularly visible in countries like China but the biggest meat eaters live in Europe, United States and other industrialized countries where consumption is rather stagnating.

Raising more animals pose more and more sustainability challenges. Meat consumption is considered by UN experts as a driving cause of climate change and is frequently linked with the overuse or pollution of natural resources (water, land, ecosystems).³

But how has meat become more problematic than

³ Chatam House study , 2014
https://www.chathamhouse.org/sites/files/chathamhouse/field/field_document/20141203LivestockClimateChangeBaileyFroggattWellesley.pdf?dm_i=1TY5,30JL0,BHZILT,AUGSP,1

transport for the climate? The reason is that a lot of land is needed for animals. Deforestation for growing feedstuff like soybeans and maize, or extending pastoral lands releases enormous amounts of carbon dioxide. Moreover, livestock itself is also known to directly emit large amount of methane, a gas that warms the climate twenty-three times more than carbon dioxide does. Eating less meat can therefore be a very concrete step to mitigate climate change, and probably easier than transforming the entire transport system.

Learn also in the following story how our meat consumption is linked with environment and livelihoods in Latin America.

Definition corner

Sustainable development:

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Carbon dioxide (CO₂): a colourless gas that is formed by burning fuels, by the burning of plant matter, and by the act of breathing. In large amount, CO₂ contributes to climate change.

Climate change: a long-term change in the earth's climate, especially a change due to an increase in the average atmospheric temperature.

The story

From Paraguay to my plate

When Myriam passed the imposing door of the Czech school, she suddenly felt her mouth go dry. She was anxious about her speech to the students. "How were they going to react?"

It was the same question that she was asking herself two weeks before when the plane took off from her country, Paraguay. As a small farmer, but also as a teacher, she believed that it was important to share with European youth what was happening in her region, but also in many other neighbouring countries like Brazil or Argentina. “Sharing and learning are the first steps to change the world”, she thought.

All the 120 seats were taken in the auditorium. Students were getting extra chairs from other classrooms to take part to the event. It was the first time they would do something special at the occasion of the World Food Day that happens every 16th of October, the day when all over the world, the human right to Food is celebrated.

When silence was made, she started: “My name is Myriam. I live in Paraguay, a country in Latin America and I came here to speak about an important problem for my community but also many others in Latin America. This problem has only 4 letters: S-O-Y-A”.

Myriam showed a picture. The picture was taken from the sky. One part seemed to be a forest, while the other part was a large field. She continued: “Today, in the region where I live, most of the fields are covered with soybean plantations. Big parts of the forests are cut down to make space for soy production. The same is happening in Brazil with the Amazonian forest. With the forest around, temperatures used to be lower because trees help to bring humidity from the soil in the air. Now we observe that the climate is hotter with these big fields. But what is the worse for us now, are the planes.”

Planes? The students looked very confused. What could be the connection between planes and soy plantations?

She explained: sometimes, planes spray the fields with chemical products to kill the insects that may threaten the soy beans. It is

called pesticides. They also use tractors to do it, but given how big are the fields, they use planes to go faster. We breathe this air full of dangerous products for health, and the water we drink also start to be contaminated.

She added: This model of agriculture is called intensive or industrial agriculture and it is very different from the way I, my brother and the rest of my family are farming. We grow many different crops, not just one in mass scale. We grow in harmony with nature, that means we use rather than against her, and we are producing in priority food for people.

A student raised his hand: for people? So, it means that soybeans are not for people? Who eats it then?

With shiny eyes, Maria said: Animals. Most of the soybeans are exported to your countries, in Europe. And this is not for human consumption but for pigs, chicken or cows. It is used mostly by intensive farms where animals are kept inside, and unfortunately this model of farming is growing in Europe.

Students could not keep silent; they were very surprised with what they heard. One teacher, Ms Frelichová, the teacher of sciences had to ask for silence.

One student shook his hand and asked: “It means all this soy is traversing the Atlantic Ocean to get here? Does it mean there can be a link between my pork steak and the destruction of the Amazonian forest?”

“Yes, there is, unfortunately. Your food can link you to faraway places, and sometimes we don’t know it. You know, food changes the world. It can be for better, or for worse. It is worse when it causes violation of human rights or destruction of the Earth on which we all depend.”

“And how do I choose better?” asked the same student.

Well, you are already on good tracks when you start asking questions, like you do now! Then, the next step is about choosing more consciously what you eat, and look for food that was produced in a way that respect your values. There are farmers in Europe who try to raise animals in ways that is respectful of life and nature, and instead of importing soy from my country, they let the animals graze outside or feed them with feedstuff they grow themselves. This is very wise, and we should thank them for this.

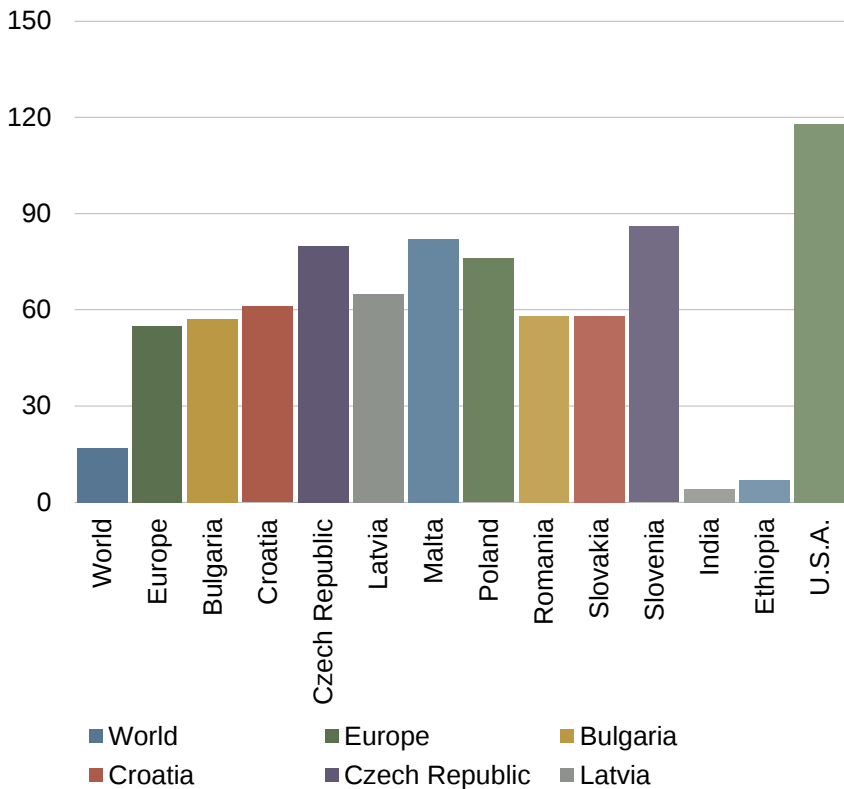


Chart: Information on meat consumption levels in partner countries

Questions to go further:

- What are the main causes of deforestation of the Amazonian forest?
- How much meat per week do we eat? How much does that make per year?
- How is the meat I eat produced, where does it come from?

Do you know that...?

- Already one third of the world's arable land is used to feed livestock. By 2050, half of the arable land may be needed to feed livestock.⁴
- Only to feed European farm animals, we need 20 million hectares of land, which equals the size of Germany.⁵
- There is 2400 litres of water in a hamburger.⁶
- The United Nations Environment Programme recommends that people reduce the amount of meat consumed to 37kg per person per year worldwide⁷.

⁴ De Schutter, the meatification of diets, speech at the European Parliament, 3 December 2009

http://www.europarl.europa.eu/climatechange/doc/speeche_Mr_de_schutter.pdf

^f

⁵ De Schutter,

http://www2.ohchr.org/english/issues/food/docs/SRRTF_CAP_Reform_Comment.pdf

⁶ FAO, facts on virtual water <http://www.fao.org/nr/water/promotional.html>

⁷ UNEP, The environmental food crisis, p 26

http://www.grida.no/files/publications/FoodCrisis_lores.pdf

Resources to go further:

- Campaign against the expansion of soy plantation (video: “Soy in the name of progress”)
<https://www.youtube.com/watch?v=8y3pPt3dlTQ>
- Article “UN says eat less meat”, in the Guardian
<http://www.theguardian.com/environment/2008/sep/07/food.foodanddrink>
- Article “Eating less meat curbs climate change”, in the Guardian
<http://www.theguardian.com/environment/2014/dec/03/eating-less-meat-curb-climate-change>
- Article on dairy farming and pollution of rivers
<http://www.theguardian.com/environment/2015/oct/05/think-dairy-farming-is-benign-our-rivers-tell-a-different-story>
- Article on meat consumption and health
<http://www.theguardian.com/science/2014/mar/04/animal-protein-diets-smoking-meat-eggs-dairy>
- The Meat Atlas by Heinrich Boll Foundation and Friends of the Earth <https://www.foeeurope.org/meat-atlas>

Connecting the dots:

- Eating less meat helps fight climate change.
- Eating less meat helps save water.
- Eating better meat (raised in a sustainable manner) helps save underground water, preserve soil quality and save animal breeds.



Climate Change



Water



Biodiversity



Eating more
fresh and
whole foods

3) Taking another look at biscuits

Problematic trend n°3: we eat more of highly processed foods

What is the common characteristic between cookies, ice-cream, chips and a chocolate bar? Simply, all these foods are highly processed food. On the contrary to an egg that is non-processed, or bread, that is moderately processed, items such as cookies, chips or chocolate bars, are highly processed foods. All these foods required a lot of preliminary steps to be made; and unless they are home-made, they are likely to contain added sugar, fat and salt to make the taste more appealing or conservatives to prolong their shelf life.

Along with bigger portions, highly processed foods are identified as a driver of the

worrying increase of overweight and obesity worldwide. In the last ten years, obesity has become the world's number one health problem! One adult of three is concerned. While highly processed food cause health concerns, they are also problematic from an environmental perspective. Baking, frying, drying and freezing are all processing methods which require a lot of energy. Processed foods are thus much more resource-intensive than plain food like vegetables, fruits or eggs are.

Another common characteristic between these foods is that they are all very likely to contain palm oil. It is estimated that that this vegetable oil is found in 50% of all packaged processed goods in your local supermarkets and shop, like

food but also cosmetics, cleaning agents, animal food and even in motor fuels⁸. Most of the production of palm oil comes from Indonesia and Malaysia where huge areas of rain forests and peatlands have been replaced by large-scale palm plantations. In consequence, palm oil is directly linked with the disappearance of precious ecosystems and with remaining indigenous tribes losing their traditional way of life and means of livelihood. In the two following stories, you will learn more about healthy food, and the impact of palm oil plantation in Indonesia.

Definition corner

Nutrients: Nutrients needed in small amounts are called micronutrients, like vitamins and minerals while those needed in large quantities are called macronutrients, like carbohydrate, protein and fat. Nutrients provide the body with energy and what it needs for growing.

Peatland: wetlands made of a mixture of decomposed plants that has accumulated in water-saturated environment over thousands of year. The peatland ecosystem is the most efficient carbon sink on the planet.

Carbon sink: natural systems that remove carbon dioxide from the atmosphere and store it. Oceans, peatlands, soil and plants act as carbon sinks.

⁸ WWF (World Wild Fund for Nature), Palm Oil Buyers Scorecard. Measuring the Progress of Palm Oil Buyers, 2013

The story

Does that nourish me?

From the distance, Ondřej could see that his grandfather was already outside the house, ready to start work. His grandfather was wearing old pants torn at the ankles and an old leather belt on which were hanging all sorts of tools.

“Ah! My grandson, I'm glad you're helping me to repair this garden fence! But what do you have there Ondro?” said the grandpa.

“It's chocolate biscuits with cherry jelly inside. They are very good!”

“Hmm, good for what? Didn't you have lunch, with a dessert just a while ago?” asked grandpa.

“Hmm, yes, but it's good for me! It is written here...full of energy!”

“Ondričko, you will soon be twelve... Do you really think so?”

Ondra leaned his head on the side: “What do you mean?”

“I think you are old enough to think with your own head, not with that of one of the characters on the biscuits packet or the advertisement! These shiny packaging and advertisements on TV make you stop asking questions. Now I am going to tell you something important, something I learnt and that I would like you to remember all your life.”

Grandpa paused, and placed his hammer back in one of the pocket of his belt and then said: “Food that brings you real energy is food that contains life inside.”

Ondra was astonished and repeated: "Life inside? Like when there is a worm in a fruit?"

"Hahaha!" Grandpa was shaking all over with laughter. "Not exactly, but you are getting close. Why do you eat food?"

"Because it tastes good," Ondra answered without hesitation. "And also because it keeps me alive. Without food, I would get sick, and I could die."

"Yes, you get it right. Food brings life to you. So, the best you can do for your body, is to look for food with life inside! Life inside means that your food still holds the energy of life. Think of a seed. For instance, imagine a small pea. If you put water over it, and let it in the dark, the next day it will start germinating. It means there is a big energy of life in this pea. It could become a big pea tree if you would not eat it. The same is happening with the sweet potatoes your grandma is cooking now. If I plant them next year again, I will have a lot more potatoes."

"Ah, but then what about fruits? They also contain life in them, right?"

"Yes, they do, the fresher, the more life you get. The best is to eat food that has just come out of the soil, or that has just been picked up from a tree."

"So, it means we are lucky that you are growing the food we eat Grandpa!"

"Yes, we are. And it is also important to understand that the least you try to alter the food as nature makes it, the best chance you have to get most of the life inside. Your uncle, who studied medicine, would say the same thing in different words, insisting to preserve the maximum amount of nutrients and vitamins, but I prefer to simply speak about life!"

“What does it mean to alter the food?”

“Well, to alter the food is when you transform it, change it, process it. Look at your biscuits now... how much life do you think there still is inside?”

Do you know that...?

- About 43 million children under age 5 were overweight in 2010⁹.
- At least 2.6 million people die each year as a result of being overweight or obese (obesity is linked to a rise of chronic diseases such as cancer, cardiovascular disease and diabetes)¹⁰.
- Nowadays, worldwide, people eat on average 20% more sugar and sweeteners than their parents or grandparents did in 1960¹¹.



Focus on palm oil: a cheap ingredient with costly impacts

The story

Our forest, my home

Bujang stopped and looked down from the top of the hill. This place used to be his favourite one. If he climbed into the Langsat tree, he could actually see a lot without even being seen. This was quite a special tree: not only did it give delicious fruit, but parts of the tree were also used for making traditional medicine. The bark could be used to treat malaria, which was quite important in a tropical country like Indonesia. Bujang's grandmother taught him how to make the antidote. She also told him that all medicines are around in nature

⁹ World Health Organisation, Challenges,
<http://www.who.int/nutrition/challenges/en/>

¹⁰ World Health Organisation, Challenges,
<http://www.who.int/nutrition/challenges/en/>

¹¹ In 1960, the average world daily consumption of sugar and sweetener was 54 grams per person. It increased to 66 grams by 2011. Source :
<http://www.nationalgeographic.com/what-the-world-eats/>

and that people who can recognize plants hold the most important knowledge.

From that tree, he could also spot more easily wild pigs to be hunted. Although life was not always easy in the forest, that was his home and that of his parents and ancestors for many generations, and they had never been hungry.

But in just a year time, everything had changed. The Langsat tree was no more there. A deep frown appeared on the face of Bujang. Instead of a wild landscape with various different trees, flowers and other plants, there were oil palms growing in straight lines like soldiers. The straight palm trees were all the same. Although beautiful in appearance, nothing else grew around them except for some small grass between them. Only a few wild pigs were left. Food all around had become very scarce.

There had been a lot of noise of machines that were brought to cut the wild forest and that had replaced a symphony of birds, bugs, monkeys and orangutan that lived there before. Now it was silence everywhere. He couldn't get used to the silence. There was no life left – his home had become a green desert.

Information on Palm Oil in Indonesia

What is palm oil?

Palm oil is the most traded oil in the world. Since its beginnings, in the 1960s, palm oil production has doubled every ten years¹². It is widely used by the food industry because it is cheap to produce and can be easily processed and blended into various products. That is why it can be found in a vast number of highly processed foods. It is also used as cooking oil, as agro fuel, and in cosmetics and detergent products.

¹² UNCTAD, Profile of palm oil, <http://www.unctad.info/en/Infocomm/AACP-Products/Palm-oil/>

Where is palm oil produced?

Most of the production takes place in Indonesia and Malaysia, followed by Thailand, Columbia, Nigeria, Papa New Guinea and Ecuador. Globally, it is estimated that more than 13 million hectares of land are used for palm oil plantations.¹³ This represents 1.6 times the entire land of Czech Republic, over 400 times the area of Malta! This is due to the growing mass demand for palm oil plantations which are spreading in tropical regions.

How does palm oil relate to the environment?

The fruit of palm trees can be harvested all year round and in average, ten tons of fruits can be produced per hectare. This means that for the same amount of oil, palm oil will require ten times less land than soya, sunflower, or rapeseed oil¹⁴. This makes it an efficient oil crop. However, the growth of the demand and the predominant model of production pose serious environmental challenges.

The mass expansion of monoculture plantations lately made it the primary driver of deforestation in Indonesia¹⁵. Indonesia's rate of deforestation is one of the highest in the world¹⁶. Every year, more of the forests and peatlands that act as important carbon sinks, are burnt down to be replaced with palm oil plantations. As a result, Indonesia is one of the world's top emitters of greenhouse gases in the world, although it is not an industrial country¹⁷. This year, the

¹³ <http://greenpalm.org/about-palm-oil/where-is-palm-oil-grown-2>

¹⁴ <http://greenpalm.org/about-palm-oil/why-is-palm-oil-important>

¹⁵ A study of Greenpeace using the data of the Indonesian government for the year 2009-2011 demonstrate that palm oil was the single largest driver of deforestation

http://issuu.com/greenpeaceinternational/docs/rspo_briefing_for_print_2sept_noble/8?e=2537715/4676226

¹⁶ UNDP, <http://www.id.undp.org/content/indonesia/en/home/countryinfo/>

¹⁷ PEACE, Indonesia and climate change : current status and policies, 2007
http://siteresources.worldbank.org/INTINDONESIA/Resources/Environment/Clim ateChange_Full_EN.pdf

intensity of forest fires has been so important that even neighbouring countries (Malaysia, Singapore) now have pollution levels (Pollutant Standards Index) peaking to 341 (300 being already considered as hazardous for health)¹⁸.

The destruction of precious ecosystems also threatens to see wildlife disappear. As a consequence of deforestation, the orangutan and Sumatran tigers and elephants are three of the many species facing risk of extinction.

What are the impacts of palm oil on livelihoods?

Suku Anak Dalam (meaning “Children of the Forest”) is one of the last Sumatran tribes whose traditional way of life is fully dependent on the tropical forest. Of the approximately 200,000 members of the tribe, only 1,500 individuals retain the traditional way of life. As a result of the shrinking forest, a large number of these nomads have been forced to settle directly in palm plantations.

A third of the palm plantations in Indonesia are managed by smallholder farmers. Palm oil can be an opportunity for many to earn money. Yet, this business does not necessarily guarantee a long term and stable source of incomes. Prices of palm oil are unstable and fertilizers that smallholders must buy are expensive. When palm oil price decrease, smallholders are those most at risk to earn no money.

What are the solutions?

On the production side, it is necessary to put a halt to deforestation and as a priority support communities to conserve and protect their forests and manage plantations sustainably. Conserving forests can present other sources of more sustainable incomes. Besides, it is necessary to encourage the food industry to avoid palm oil or at least, to commit to the highest standards of sustainability.

As a consumer, the best approach is to choose foods that do not contain palm oil. In fact, given that palm oil is mainly present in

¹⁸ BBC news, „Singapore anger as haze from Indonesia hits highest level this year“, <http://www.bbc.com/news/world-asia-34355825>

highly-processed foods with little real benefits for health, avoiding palm oil can also be a great push to orient our diets to other foods that are healthier. If one cannot avoid palm oil, it is necessary to choose products from brands that commit to the highest standard of sustainability. Although imperfect, a certification system exists that tries to put in place guarantees for more sustainable palm oil production.



Tropical forests disappear to make way to palm oil

(photo: creative commons)



A smallholder harvesting fruits from oil palm in the province Jambi in Sumatra, Indonesia (photo: glropolis)



*Plantation of oil palm
seen from plane*



Oil palm fruits



*Truck gathering the
harvest in the
province of Western
Sumatra, Indonesia
(photo: glopolis)*

Questions to go further:

- What can be the health effects of eating highly processed food? And how can it affect the environment?
- Why is the protection of ecosystems important?
- Is there palm oil in the food we have at home or in our snacks at schools? And which food we like, does not contain palm oil?



Children from the tribe Suku Anak Dalam in the province of Western Sumatra, Indonesia.



Haze in Penang (Malaysia) due to fire in Indonesia, hundreds of kilometres away, in September 2015 (photo: glopolis)

Resources to go further:

- Infographics on diets and rise of obesity:
<http://www.odi.org/future-diets>
- Interactive statistics on diets in the world by National Geographic:
<http://www.nationalgeographic.com/what-the-world-eats/>
- About healthy diet: <http://www.healthyplate.eu/>
- Solutions to destructive industrial scale palm oil plantations (with videos):
http://www.greenpeace.org/international/Global/international/code/2012/Forest_Solutions_2/goodoil.html
- Project of a French student who lives without palm oil:
<http://www.lifewithoutpalmoil.org/>
- Article about an Indonesian village that refuses to grow palm plantations: <http://news.mongabay.com/2015/10/advances-from-oil-palm-interests-leave-sulawesi-village-unmoved/>
- About certification of sustainable palm oil:
<http://glopolis.org/en/palm-oil/>

Connecting the dots:

- Eating less highly processed foods, and more fresh and whole foods contributes to better health.
- Eating fresh food is the less energy intensive than processed, or frozen foods and therefore does not cause climate change.
- Choosing food without palm oil is preserving Indonesian rainforests, and livelihoods of local inhabitants.



Health and Well Being
Food and the Environment



Biodiversity



Energy



Climate Change

4) Wasting our future?

Problematic trend n°4: one third of food is wasted globally

As much as one third of the world food ends up lost or wasted. Every year, consumers in industrialized countries waste almost as much food (222 million tons) as is produced in Sub-Saharan Africa (230 million tons)¹⁹. When it comes to the European Union, it is estimated that about 89 million tons of food is being wasted every year²⁰. To make it more concrete: imagine that for every person, every week, four full meals are being thrown away.

Food wastage is hard to understand in a world that is not yet free from hunger. At

present, one person out of nine does not have sufficient access to food. But let us refrain from the easy solution of saving food on one side to give it on the other. Food donations do no present long term solution that address the root causes of the food insecurity problem. The contrast of food waste and hunger should lead us to question how much we truly value food as an essence of life and avoid wasting it, given that, at the same moment, somewhere else in the world, some people haven't eaten as much as they need.

But food wastage is also hard to understand in a world of limited resources. It is particularly alarming to note that 30 % of fish from the sea never gets to our plates although fish stocks are rapidly decreasing. One third of the food being wasted means that one third of all

¹⁹ FAO, Cutting food waste to feed the world.

<http://www.fao.org/news/story/en/item/74192/icode/>

²⁰ EUROSTAT (2006)

fuels, fertilizers and water for production were used in vain. It also means that deforestation, damage to soil and greenhouse emissions related to food production were unnecessary. Worse still, additional pollution is caused when uneaten food ends up in incinerators rather than in composting systems. Imagine that we waste precious resources to produce food and on the top of it, we

cause additional air pollution and emissions of CO₂ that warm up the atmosphere. The following story is about the virtual resources behind food production.

Dictionary corner

Virtual resources: the volume or quantity of resources that were used for producing the product, measured over its full production chain

The story

All the water we eat

Although the radio was playing loud, John still felt drowsy when he got to the kitchen. His younger brother Matthew was licking his fingers from the honey that was trickling down from his bread. His feet were moving with the rhythm of the music, and softly kicking his red backpack that was just beside his chair.

“Good morning John,” said his mum. “I can see that early mornings are not your friends. Your puffed eyes are asking for more sleep. But, don’t worry, we are still on time; you still have 15 minutes’ chance before the school bus picks you up. Come and have some breakfast.”

The 7 o’clock news jingle made her mum stop speaking.

A male voice announced “Fires in Southern California force thousands of people to flee their homes. An order of evacuation was

launched yesterday afternoon for the city of San Marcos which has become engulfed in a thick layer of smoke. About 30,000 hectares of land have been destroyed by the flames since the beginning of the fires early last week. The fire-fighters said such intensity had never been seen before.”

“How big is 30,000 hectares?” asked Matthew with a full mouth.

“Well, that makes about 30,000 football fields!” said John.

“How come so much can get burnt?” asked Matthew.

“Because the wind is pushing the fire in all directions,” said his mum.

“And because the trees, bushes and grass are very dry, it makes the spread of the fire very easy and quick,” added John.

The news presenter continued with a serious tone, on another issue: “And now the local news: The students of Berkeley campus yesterday launched an action campaign against food wastage. They want to draw everybody’s attention on the resources wasted when food is thrown away. Our reporter was on the campus last night, with Linda and Ralph, two 19 year old students from the Faculty for Economics. He interviewed them while they were projecting giant pictures of food waste on the facade of the faculty building. Listen to them.”

A positive voice followed: “Hello my name is Linda. Our campaign named ‘Don’t waste our future’ is aimed is to draw everyone’s attention to the fact that food waste means also waste of precious resources like water, land or energy. We decided to take action after we realized how many problems are interconnected.”

The reporter interrupted, “Yes, on the posters that you placed in the corridors of your faculty, we see a bin full of food but also fire. Do

you mean that food wastage is linked to the fires in South California? Can you explain this to our listeners?”

“Yes, we waste about a third of the food we produce,” Linda continued. “It basically means that farmers pump out an incredible amount of water in vain. Overusing water gets our country drier and drier, which increases the risks of fire!”

“Ralph, can you tell us where the idea of campaign comes from?” asked the reporter.

With a dynamic voice, Ralph explained: “I eat at the university canteen every day of the week, and I noticed that almost two students out of three don’t eat all the bread they are served. Hundreds of slices end up as trash. So, since I study economics, I wondered how much money the canteen could save by serving one slice of bread less to 4000 students. But in truth it is not only about how much money the university can save, but it is also about how much resources society could save!”

“Yes,” Linda added, “we got shocked to learn how much water we EAT! We consume much more water through eating than through anything else. This water is called virtual water. It is the water needed to grow the food. This is something that greatly surprised us. My mother always told me to be careful to close the tap when brushing my teeth to avoid unnecessary wastage of water, but in fact, this is nothing compared to all the water that is wasted when we throw away food!”

“Could you please give us one example?” asked the reporter.

Ralph obliged: “For instance, a glass of milk contains two hundred millilitres of milk but in fact to produce it it took 200 litres of virtual water. One kilogram of chicken requires 4300 litres of water. Can

you imagine that? If you waste it, it is like flushing your toilet 470 times for uselessly.”

“And that could result in problems to our environment, is that right?” the reporter asked.

“For sure it does.” said Linda. “There are more and more droughts in California. It is visible at Pine Flat Lake which is a reservoir of fresh water many cities depend upon. Its level is going down more and more every year. We are using the water faster than the natural cycle can make up for it and replace it. This makes our surrounding more prone to fires, but it also means we risk not having sufficient water for people in the future.”

“You are making important links that people don’t often hear about,” said the reporter. “And what are the solutions according to you?”

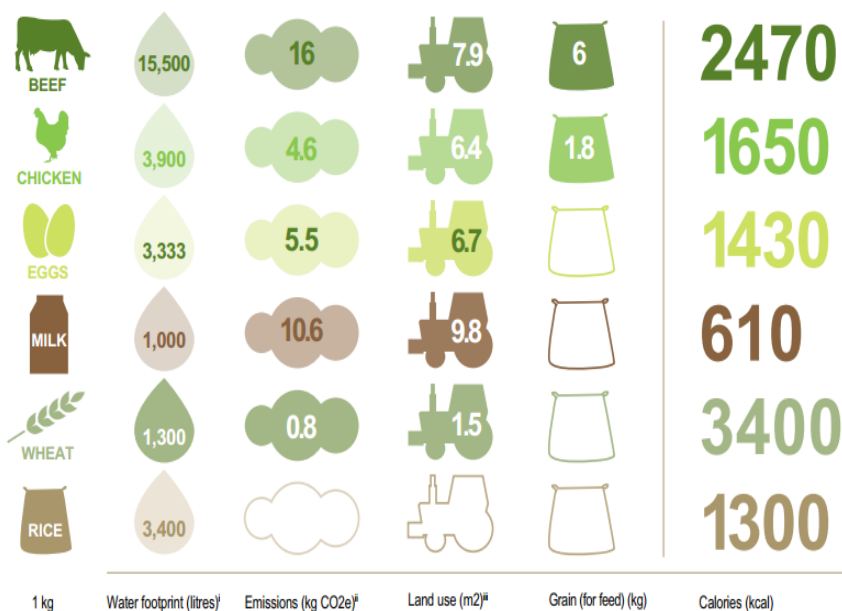
“Well,” replied Ralph, “you can directly decide to stop filling private swimming pools and limit the watering of lawns. But if we want to have a larger, long term impact, we need to stop wasting food! If we stop wasting, we don’t have to produce so much, and we can then save one third of the water of California...”

Matthew and John were interrupted from continuing to listen to the radio by the sound of a loud horn from outside. Through the window they could see the yellow school bus. Quickly they grasped their backpacks ready to rush out of the door. As if on cue they both froze at the same time. They looked at each other and then at their glasses of milk still half full on the table and turned back. They simultaneously turned back, reach out for their milk glasses and gulped down all the remaining milk. That was their first conscious action against food wastage, later, followed by many others.

Questions to go further:

- What are the direct and indirect impacts of food wastage?
- How much food is wasted as food snacks and for lunch at your school?
- How do you store food in the fridge and outside?
- What can we do with the food scraps?
- What is the difference between “sell by”, “best before” and “use by” dates?

The ecological footprint of food



¹Assumes an average egg weighs 60g, and the density of milk is 1kg per litre.

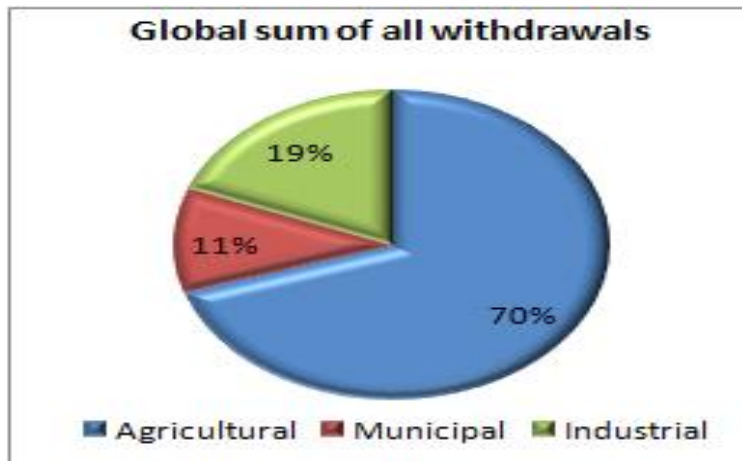
²Based on production in England and Wales

³Based on production in England and Wales, assumes all production is on land of an equal grade

Sources: Water <http://www.waterfootprint.org/?page=files/productgallery>; emissions and land use UK DEFRA (2006), <http://goo.gl/T12ho>; grain National Geographic, <http://goo.gl/4CgFB>; calories USDA National Nutrient Database, <http://goo.gl/7egTT>

Source: Oxfam (2011), *Growing a Better Future. Food Justice in a resource-constrained world*, Oxford.

What is the world's water used for?



Source: FAO

The virtual water in our food



Source : FAO <http://www.fao.org/nr/water/photos/2008/virtual.html>

Do you know that...?

- People in developing countries waste only between 6 to 11kg per person per year, compared to 95 to 115kg in industrialized countries²¹.
- Globally, about 30% of cereals, 40-50% of fruits and vegetables, 20% of all oilseeds, meat and cereals and 30% of fish are being wasted²².
- To produce 1.3 billion tons of food waste, about 250 billion m³ of water were needed. This is as much as the annual flow of the Volga, the largest European river²³.
- We use about 1.4 billion hectares of farmland to produce food that will never be eaten. This is more than the total surface of China²⁴.

To explore further:

- Discover the water we eat everyday- interactive web:
<http://www.angelamorelli.com/water/>
- Virtual water poster from FAO:
<http://www.fao.org/nr/water/photos/2008/virtual.html>
- Think, Eat, save campaign:
<http://www.thinkeatsave.org/index.php/multimedia/videos>
- Food Wastage - the environmental cost (6 minute video):
<https://www.youtube.com/watch?v=VaouOWx3Bmo>
- Food wastage footprint (3 minute video from FAO):
<https://www.youtube.com/watch?v=loCVrkcaH6Q>

²¹ FAO, Key facts about food waste <http://www.fao.org/save-food/resources/keyfindings/en/>

²² FAO, Food losses reduction strategy
http://www.fao.org/fileadmin/user_upload/ags/publications/brochure_phl_low.pdf

²³ FAO (2013), Reducing the food wastage footprint. Toolkit, Rome.
<http://www.fao.org/3/a-i3342e.pdf>

²⁴ FAO (2013), Reducing the food wastage footprint. Toolkit, Rome.
<http://www.fao.org/3/a-i3342e.pdf>

- How much does food wastage cost? (3 minute video from FAO): <https://www.youtube.com/watch?v=Md3ddmtja6s>

Connecting the dots:

- Reducing food wastage helps save water.
- Reducing food wastage contributes to fewer emissions of greenhouse gases.
- Reducing food wastage helps save energy.



Climate Change



Water



Energy

5) Preserving diversity in my food garden

Problematic trend n°5: with more standardized foods, we are losing varieties

When we enter a supermarket, we are surrounded by shelves full of all kinds of food, sometimes coming from far away countries. It gives the impression that there is a large choice, and an ever increasing diversity of food available, but appearances can be misleading.

The United Nations agency on food, called the Food and Agriculture Organization (FAO) explains that although 7000 species of plants have been cultivated in human history, presently, 75 per cent of the world's food is generated from only twelve plants and five animal species²⁵. Four crop

species (rice, wheat, maize and potato) are responsible for more than 60% of human energy intake²⁶. Due to people's dependency on this relatively small number of crops for their food, it is crucial to maintain a high genetic diversity within these crops through the preservation of varieties. But the FAO warns about the serious problem that for each crop species (for instance wheat), the world has already lost a big number of varieties (there are thousands of different varieties of wheat but less and less varieties of them are being planted and so they are lost forever).

Over 100 years (1900-2000), 75 per cent of the agro

<http://www.fao.org/docrep/007/y5609e/y5609e02.htm>

²⁶ FAO, biodiversity,
<http://www.fao.org/biodiversity/components/plants/en>

²⁵ FAO, What is happening to agrobiodiversity?

biodiversity has been lost because farmers worldwide have abandoned numerous open-pollinated varieties²⁷. Due to the change over to industrial farming methods and also due to complex laws, farmers have more and more frequently chosen commercial hybrid varieties. These have helped to give bigger yields, and have uniform size, look, or taste. They also thus meet the demand of consumers who ask for cheap food of predictable quality²⁸. But the down-side is that farmers have been growing considerably less diverse wheat, tomato or potato varieties. This loss reduces the chances to grow enough food for all in the future. From the following story one can learn why preserving agro biodiversity is important.

²⁷ FAO, What is happening to agrobiodiversity?
<http://www.fao.org/docrep/007/y5609e/y5609e02.htm>

²⁸ FAO, State of the World's Plant Genetic Resources
<http://www.fao.org/docrep/013/i1500e/i1500e01.pdf>, p 4

Definition corner

Biodiversity: The amount of diversity between different plants, animals and other species.

Agro biodiversity: The biodiversity among agricultural crops or livestock such as wheat varieties or cattle breeds. Agro biodiversity is a vital part of biodiversity, which is developed and managed by farmers, herders and fishermen.

Food security: When all people in the world have sufficient access to safe and nutritious food at all times.

Open-pollination: When pollination occurs by insect, bird, wind, humans, or other natural mechanisms. Open pollinated plants adapt to local growing conditions and climate from year-to-year.

Hybridization: a controlled method of pollination in which the pollen of two different species or varieties is crossed

by human intervention. The first generation of a hybridized plant tends to grow better and produce higher yields than the parent varieties but the following generations produce low yields, therefore gardeners who use hybrid plant varieties must purchase new seed every year.

The story

A mysterious animal

It was in the middle of the afternoon when the first drop of rain fell on Tereza's cheek.

"O-oh... we should quickly find somewhere to shelter before the storm starts."

A flash of light appeared in the grey sky. Tereza and Jana started to pedal faster on the muddy path as the rain was now pouring on them. Their bikes were skidding on the wet soil. "Look! There! What if we go over there?" Jana was pointing at a white building just round the turn of the path. From a few metres away from the building, they could smell the odour of wet straw and understood that the place was a farm. They went through an open fence, dropped their bikes on the ground, and pushed open the first door they reached. The air was warm inside and the ground was soft. When their eyes got used to the darkness, they thought they were dreaming...

"Is that a sheep, or... a pig?" mumbled Jana. A few seconds later, the hairy animal surprised by the two intruders, made a sound that left no doubt...

"A pig!" both said together.

A second later, someone entered the stable. A tall woman, wearing a raincoat, was smiling at them.

“Hello young ladies. I saw you coming in, so I thought I would offer you some warm tea while waiting for the rain to stop. Come with me into the kitchen.” Jana and Tereza gladly accepted the invitation. The girls entered a kitchen where the soothing scent of herbal tea was mixed with something baking in the oven. They sat down quietly, both hoping to learn more about the mysterious pig that looked like a sheep.

“You must have been a bit surprised to meet Ruby” said the lady.

“Ruby?...That’s the name of the pig?” asked Tereza

“Yes, it is,” smiled the lady. “Ruby is a pig from the breed named Mangalitsa. As it mostly lives outside, it gets woolly like a sheep, especially during winter. This breed was under threat of extinction but has been saved. That’s because in Hungary, they have started to seriously breed more of them again.”

“Extinction? You mean that it could disappear forever? How is that possible?”

“Because nowadays, farmers are asked to produce a lot for little money, so most of them choose amongst the five most popular breeds that grow fast and give a lot of meat. Large intensive farms are succeeding small scale farmers like me that usually go for more diverse breeds. Here, I also keep other pigs from the breed Turopolije²⁹, originating from Croatia, and that breed is almost extinct too. It is a pig that can be raised sustainably outside but grows slowly.”

“The disappearance of diversity is not only the problem of animals. It is also a problem in the case of fruits, cereals and veggies!” said a man who had just entered the kitchen. Water was dripping from his

²⁹ FAO, Worldwatch List for domestic animal diversity, <ftp://ftp.fao.org/docrep/fao/009/x8750e/x8750e.pdf>, 2007, p 186

hat as he placed it on the hook behind the door, he said: “Well, hello there, I am Petr!”

“Good afternoon”, said Tereza and Jana together.

“I heard you talking about diversity. Would you like to taste our carrot cake?”

A sweet smell spread all over the room when Petr opened the oven.

“You make it from your own carrots?” asked Tereza.

“Yes, I harvested the first ones yesterday. Petr brought a carrot that was red in colour, and had a strange shape. That is surprising, isn’t it? I am growing fifteen different varieties of carrots here. Every year I collect the seeds and replant them the year after. I am exchanging my seeds with other people as well. The loss of varieties is a global problem, but solutions start locally.”

“It is the first time I saw such a funny-looking carrot. It gives a beautiful colour to this cake. Is that why you say it is important to preserve crop diversity or are there other reasons?” questioned Jana.

Petr stopped cutting the cake and looked at her.

“That’s a very important question. Well, there are at least three reasons why one should preserve old varieties. First of all, it helps me to keep my food garden healthy. I realized it when my cabbage was being attacked by insects for the second year in a row. So, I planted two old varieties of cabbage. They were smaller but I noted that the problem disappeared. Then I started to look for more open-pollinated seeds of other crops that can adapt on their own to the local environment. Have you learnt in history class about the big Irish potato famine from 1845?”

“When all the Irish potatoes got destroyed by some pest?” said Tereza. “It lasted several years. Thousands of people were starving and had no other choice but to migrate in order to survive. Many moved to the USA.”

“Yes”, said Petr, “they were cultivating only two or three varieties of potato that got attacked by mould and potatoes rotted in the fields. Thus, that crisis was clearly linked to the low number of cultivated varieties.”

“The second reason why it is important to preserve crop diversity”, continued the lady, “is that it is our best chance to adapt to climate change. You probably have seen how low was the river this summer, right? It was very hot. In the future, average temperatures will keep rising and there will be more frequent droughts or flash rains like today. Some varieties cope better with droughts, some with humid climate. If today we lose some varieties, we might need them tomorrow. Preserving crop diversity is essential for our own future. If agriculture won’t adapt to climate change, neither will we!”

“That sounds very serious, I never heard of this before”, said Jana.

“Yes, we are probably not taking it seriously enough”, added Petr. “It is important to start looking for solutions. For instance, I have a friend in India who plants five different varieties of rice in the same field, just to make sure that there will be at least some that will grow, no matter, if it was too hot or not.”

“That’s clever! Especially since rice is the basis of diets in Asia”, reacted Tereza.

Petr added, “To stop the extinction of varieties that are not cultivated much, a gigantic seed vault has been built in the ice of the island of Svalbard in Norway. You should learn more about this.”

“And the third reason”, added the lady, “is that, diversity of plants and animals is part of our cultural heritage. Behind each traditional apple or pig there are stories of farmers, families, regions who gave their name to the variety they helped nature to create. It is a heritage that should be seen as valuable as our castles, monasteries or temples!”

“But the most important reason of all”, concluded Petr, “you will understand it when you taste this cake or one of the delicious yellow tomatoes I picked just before the rain! Enjoy!”

Question to explore further:

- What was the Irish potato famine about?
- What is the Svalbard seed vault³⁰ and why was it created?
- How many different varieties do we grow in the school garden? Do we have a seed bank (also called ‘seed library’) in the school?
- What are the varieties and breeds grown in my region? Why should we keep growing/raising them today?



Pig from the breed Turopolije

³⁰ <https://www.croptrust.org/what-we-do/svalbard-global-seed-vault/interactive-visit/>



Pig from the breed Mangalitsa (photo: Robinson)

WHY CONSERVE FARM ANIMAL DIVERSITY?

The conservation of domestic animal diversity is essential to meet future needs. The earth comprises a vast range of environments in which agriculture must be practised. These environments are not static but are dynamic and may change through seasons, years and decades. Maintaining genetic diversity is an insurance package against future adverse conditions. Due to diversity among environments, nutritional standards and challenges from infectious agents, a large number of breeds are required.

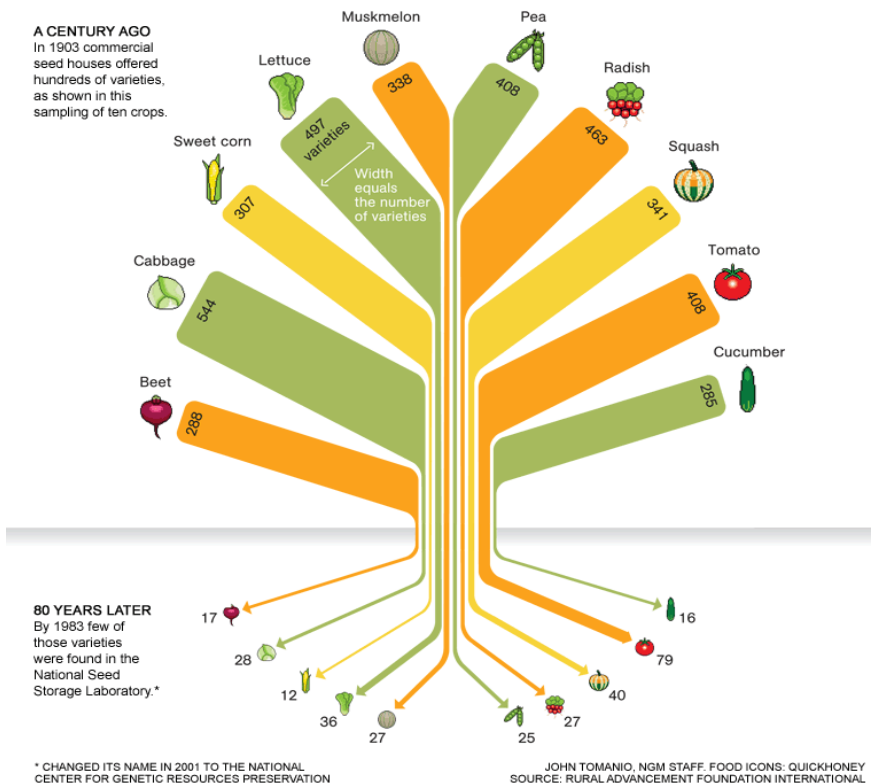
Maintaining diversity also provides stability. If more than one breed or species is kept, given the failure of one to produce under certain conditions, others can be drawn upon. By maintaining more breeds and species, farmers are thus spreading risk.

In addition, with increasing global human population pressures, the quantity of food and other products must increase. Indeed, it is predicted that more than a doubling of meat and milk production will be required over the next 20 years. The increasing demand for a broad range of products, both locally and globally, requires a dynamic, adaptable, adjustable livestock system.

Extract from FAO, Worldwatch list for domestic animal diversity, 3rd edition, 2007 <ftp://ftp.fao.org/docrep/fao/009/x8750e/x8750e.pdf>, p 22

FRUIT AND VEGETABLE VARIETIES LOSS

As we've come to depend to a small number of commercial varieties of fruits and vegetables, thousands of traditional (also called heirloom) varieties have disappeared. It's hard to know exactly how many have been lost over the past century, but a study conducted in 1983 by the Rural Advancement Foundation International in USA gave a clue to the scope of the problem. The survey, which included 66 crops, found that about 93 per cent of the varieties in USA had gone extinct. More up-to-date studies are needed.



Source: National Geographic

<http://ngm.nationalgeographic.com/2011/07/food-ark/food-variety-graphic>



Different varieties of carrots



Different varieties of maize

To explore further:

- Video on preserving biodiversity from Slow Food (9 minute video): https://www.youtube.com/watch?v=JvNG986_3RU
- Video on food diversity loss from Cary Fowler, ex-director of the Global Crop Diversity Trust (20 minute video): <https://www.youtube.com/watch?v=Uwl012o8P7I>
- Video on how seed laws reduce biodiversity from the Greens/EFA (3 minute video): <https://www.youtube.com/watch?v=NEztiaM2vF4>
- Short text on preserving seed diversity, quartet course from the University of Chicago:

<http://foodsecurity.uchicago.edu/research/preserving-seed-diversity/>

- Short text on agriculture and biodiversity:
<http://www.sustainabletable.org/268/biodiversity>
- Study from FAO on Sustainable diets and biodiversity, 2010:
<http://www.fao.org/docrep/016/i3004e/i3004e.pdf>
- Campaign against factory farming by Compassion in World Farming:
http://www.ciwf.org.uk/factory-farming/?gclid=Cj0KEQjwtaexBRCohZOAoOPL88oBEiQAr96eSJmuJbOXjoMN3YPE5sxFzLxI8ADBBo_jRL1kH-4UXAkaAhjq8P8HAQ

Connecting the dots:

- Preserving food crop varieties and animal breeds contributes to preserve biodiversity as a whole.
- Planting local varieties helps our food system to adapt to climate change.
- Consuming diverse varieties helps to maintain a healthy and tasty diet.



Climate Change



Biodiversity



Health and Well Being
Food and the Environment

6) Who are the people behind my food?

Problematic trend n°6: a growing gap between farmers and consumers

What is the percentage of our food for which we know where it was produced, by whom and in which conditions? If the answer varies from case to case, the general trend is that (unless we produce ourselves) we know little about who is behind our food. The gap between consumers and farmers is growing. This gap is not only geographic but also reflected by the fact that there are many actors (processors, brands, supermarkets, etc.) that stand between consumers from the farmers.

How then, can we know if farmers or farm employees receive a fair price for their produces? In Europe, many farmers quit farming because they don't earn enough. In developing countries, small scale-farmers face sometimes very difficult situation that can cause them to live with hunger and poverty. For farm

workers employed in large-scale production for exports (of banana, tea, cocoa, etc.) the work can sometimes be unsafe and miserably paid.

This situation is in total contradiction with the crucial roles farmers and farm workers play as those who feed us and those who must manage humanity's most important resources: soil, water, biodiversity. Farming is also what shapes the countryside's landscapes and stands as an important motor of local economies.

Local initiatives like direct supply of canteens by local small farmers, direct sales at the farm, farmers' markets, community-supported agriculture can help to narrow the gap between production and consumption. Without wholesale or retailers, farmers can retrieve a higher share of the sale price. The closer consumers are to the farmers, the more they also have a chance to learn and influence how was their food produced

and ask for farming without synthetic fertilizers and pesticides.

Consumers also have the opportunity to influence the model of farming abroad. The system of labels such as

“biological”/ “organic” and “fair trade” helps to ensure farmers or farm workers got a decent wage. In the following story, learn more about working conditions in the orange juice industry.

The story

What was squeezed for my orange juice?

The ladder was sinking deeper into the soil as Eduardo was putting more and more oranges into his bag. He was now standing 2 metres above the ground and all his body was stretched to get hold of a branch full of the shiny fruits. With one hand, Eduardo pushed his black hair away from his forehead. Pearls of sweat rolled down his face.

From the top of his ladder, Eduardo, 18 year old, looked around at the small orange plantation with a smile of satisfaction. Although the work was demanding, he was glad of where he was today. Life was much better for him and his mother since they joined the fair-trade movement two years before. Now, they had enough money to rent a small house, and live decently. This was not the case a few years before.

Eduardo remembered how he felt imprisoned in the big orange plantation that he worked in at that time. The memory of the accident was still vivid. It was a day in November 2015. That day, Eduardo was having a bad headache because of the heat. He could feel the heavy bag full of fruit painfully digging into his shoulder. It was 5:00PM and he had only 2 hours left to fill 15 bags of oranges. If he would pick less than the 60 bags-a-day required, he could be fired. Each bag should weigh a minimum of 20 kg for which he

would receive only 15 euro cents. Sometimes it could even be less if the price of the orange juice went down.

Eduardo's mother was also a worker in the same orange plantation. She had been at this job for 10 years already. It was obvious that her health had deteriorated as a result of the hard physical work and intense repetitive movements. She frequently had back pain and her breathing was not at all smooth due to the pesticides that were sprayed on a regular basis while workers were around.

That day in November, Eduardo's mum fell from the ladder. He was not close to her when it happened but he heard Antonio, another worker screaming. He rushed to the next tree alley and saw her on the ground, laying still. At that moment, Eduardo could not hear anything else besides his own heartbeat accelerating. He could hardly breathe himself, until he saw his mother make a slight movement and gave some signs of life.

After several weeks of absolutely needed rest, his mum recovered. But their deepest fear became reality. Neither of them got hired again the next season. Never in ten years had she dared to stay home, even when she had fever because she feared she would lose her job. But that did not matter for the plantation manager.

Following that, Eduardo and his mother had gone through a very difficult time, but Eduardo's optimistic nature helped him believe that life would get better. One day, he met Salvatore from the Fair-trade premium committee. Salvatore explained to him with passion that he worked at producing Fair-trade orange juice. Fair-trade meant that workers were receiving a minimal wage that would not change, even if the price of the juice would fall on international market. The plantation where Salvatore worked was also growing orange organically. The harvest was a bit lower, but the quality of the juice was higher and workers were not getting sick. Consumers were paying more but in fact that price was just the true price of dignity.

From the top of his ladder, Eduardo was thinking of people in Europe, who were at that very moment drinking Fair-Trade orange juice. Did they have any idea what a big difference they made for him and his mum?



Fair trade label and bio label



Worker in an orange plantation - Brazil

(photo: Christiliche Initiative Romero)

Questions to go further:

- *Where is the food from the canteen bought? Could local small farmers directly supply the canteen?*
- *What is Fair-trade? Which guarantees does it give to food producers?*
- *Is it possible to find Fair-trade products in our country?*

Did you know that...?

- Only a small percentage of juice consumed by European is Fair-trade.
- Workers in orange plantations earn their salary based on the weight of oranges they harvest, not on a salary per hour. Each day a worker carries about 2 tons of oranges³¹.

Resources to go further:

- Study on the orange juice industry:
http://www.ci-romero.de/fileadmin/media/informieren-themen/studien/CIR_Orange_juice_study_low_sp.pdf
- About fair trade: <http://www.fairtrade.net/about-fairtrade.html>
- About farmers' markets at schools:
<http://www.soilassociation.org/schoolfood/schoolfarmersmarkets/londonfarmacademy>

Connecting the dots:

- Shopping at the farmers' market, buying from the farm, or finding a farmer to bring food to my home means I have a chance to ask and learn what methods of production were used and choose organic methods.
- Choosing food from abroad according to labels lets me take better decisions over the impacts of my diet on other people and environment.
- Knowing our farmer also means we can reduce the distance between the farm and our fork!



Biodiversity



Transport

³¹ <http://www.festival-alimenterre.org/sites/www.cfsi.asso.fr/files/fiche-pedagogique-jus-d-orange-vf-20141121.pdf>