Balanced diets, balanced world

Sustainable Development Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture
The goal

By 2030, we should all be eating safely, sufficiently and nutritiously, all year round, no matter where in the world we live.

That is the second Sustainable Development Goal (SDG2), and it is an achievable and exciting one. We really are in a position to end hunger and malnutrition for the first time in human history.

But the statistics show the current food system is not working.

Malnutrition – caused by too much food, not enough food, or too few micronutrients – is endemic. Every country of the world has a severe malnutrition problem.

Yields per acre have plateaued across the developed world, soil fertility is declining, and climate change is affecting all production systems. And by 2030, forecasts are that there will be an extra 1.5 billion people worldwide.

Sub-Saharan Africa, where Send a Cow works, is the worst affected region on the planet. Yet the region’s problems cannot be viewed in isolation. They are part of a global food system that has become seriously skewed.

We believe we can achieve SDG2 – if we rebalance the world’s food system for the benefit of all people and the environment.

This paper shows how Send a Cow helps smallholder farmers in Africa grow, eat and trade healthily. It illustrates how our underlying principles could be applied more globally, to rebalance our food system for the benefit of people and the environment.

We believe that today’s children can be tomorrow’s healthy adults – wherever they live.

“Both [overweight and underweight] are forms of malnutrition... One of the great mistakes we’ve made in the past is to treat them as separate problems.”

– Professor Corinna Hawkes

The Big Debate, 2.2.17

**Sources:** WHO/FAO

| Hungry people worldwide: 795 million |
| Hungry people in sub-Saharan Africa: 220 million (23%) |
| Overweight adults worldwide: 1.9 billion |
| Stunting among under-5s in sub-Saharan Africa: 31% |
| Micronutrient deficient people worldwide: 2 billion |
| Wasting among under-5s in sub-Saharan Africa: 7% |
| % of under-5s deaths linked to malnutrition worldwide: 45% (3.1 million annually) |
Send a Cow’s approach

Food touches all areas of our lives. To reach SDG2, we need to take into account the environment, society, and livelihoods, as well as farming, trade and health.

Send a Cow’s holistic approach to international development does just that.

We work in sub-Saharan Africa, where one in four people goes hungry. The subsistence farmers we support are generally malnourished and food insecure. Yet by the end of our projects, they are giving their families healthy diets, trading surplus produce, and protecting the land for future generations.

Our work is based on the following principles:

- **Nutrition rather than productivism:** Rather than measuring yields or calories per acre, we assess the nutrition produced, and the livelihoods supported by each farm
- **Food sovereignty:** Control and informed choice for producers and consumers
- **Farm systems:** Natural, economic, social, cultural and human resource management that respects the environment and biodiversity, minimises waste, and meets families’ needs
- **Farming for nutrition:** Ensuring that food is grown to feed the family, as well as cash crops for market
- **Territorial markets:** Investment in the less formal markets where smallholders sell the bulk of their produce
- **Complexity:** Working with farmers to find different solutions for different communities and landscapes

On 2 February 2017, Send a Cow hosted a Big Debate on SDG2 at London’s City Hall. Chaired by BBC broadcaster and Send a Cow patron Jonathan Dimbleby, panellists were:

- Simon Billing, Principal Sustainability Advisor at Forum for the Future
- Mark Buckingham, a Director of Monsanto in the UK
- Professor Corinna Hawkes, Director of the Centre for Food Policy at City, University of London
- Kathy Kahn, Senior Programme Officer at the Bill & Melinda Gates Foundation
- Professor Ruth Oniang’o, Chair of Board at the Sasakawa Africa Association
- Keynote speaker: Professor Alan Dangour, London School of Hygiene and Tropical Medicine

We are grateful for their views, and those of the audience, which have informed this report.
What is a healthy diet?

Dorcas Ndiare, her husband, son and two daughters live in western Kenya. It is a very poor area, but they eat better than many people on earth. Their diet is:

**Safe:** They know where their food comes from: they grow most of it themselves, or buy it from local markets. They eat it fresh, or store it carefully. Their hands and utensils are clean – the latter dried on racks in the sunshine.

**Sufficient:** They eat three meals per day, all year round. All members of the family get a fair share: they know that children and pregnant or breastfeeding women have high protein needs. Their diet suits their tastes and local culture too.

**Nutritious:** Food comes from at least six different food groups per day. It includes vegetables: many people in poorer areas eat only wild greens, and these only when seasonally available. It comprises around one-third carbohydrates: people in poorer areas often eat a higher proportion. By eating largely fresh and unprocessed foods, they avoid hidden fats, salt and sugar. It includes all essential nutrients, including those often lacking in poor diets: protein, iron, zinc, iodine, Vitamins A and C, B vitamins, and calcium.

- **Fruit**
  - Freshly picked.
  - The stronger the colour, the more vitamin C.

- **Vegetables**
  - Local, seasonal, leafy greens cooked only briefly to avoid Vitamin C leaching out.

- **Grains and tubers**
  - Maize ugali. Dorcas’ family also eats bread, chapatis, or potatoes for breakfast.

- **Water**
  - From a protected source eg well or capped spring, purified by straining or boiling

- **Animal products**
  - Chicken, fish, occasionally beef.
  - Milky tea with sugar for breakfast.

- **Oil**
  - Locally bought, and essential for the absorption of Vitamin A.
The protein question

Protein is essential for the growth and repair of the body. Whereas the other macronutrients, carbohydrates and fat, are relatively easy to obtain, many people in poorer areas lack protein.

Adults need roughly 0.8g of protein per kg of body-weight per day. Pregnant and breastfeeding women need proportionally more, as do growing children.

Families supported by us can now meet these needs through a varied diet, with some of their protein being of animal origin: eggs, milk, meat and fish.

It is possible for people who have no access to animal products, or who choose not to eat them, to get enough protein from beans, peas and nuts. Smaller amounts of protein are also found in green leafy vegetables and cereals.

However, it is harder to obtain both protein and all the necessary micronutrients, especially B vitamins and iodine, in this way – particularly for families in rural Africa who lack access to the manufactured supplements available in the developed world.

We therefore seek to increase access to good quality animal products among people in very poor areas. But in areas where there is an overabundance of cheap meat, we support efforts to reduce consumption on health, environmental, and animal welfare grounds.
On the farm

**MONOCULTURES OR BIODIVERSITY**

With our farm systems approach, even smallholders with tiny plots of land can provide for their families from their land, using a minimum of external resources.

Farmers learn how to identify and map all their resources. This includes things they had never considered: eg the bare land around their homes and the potential of women. Then they learn the skills necessary to plan and integrate those into a sustainable farm.

We encourage farmers to farm for nutrition: produce food which they need to give their families a balanced, healthy diet, plus a surplus to sell. Crops grown purely for market should be limited, as should staple crops such as maize which provide few nutrients. This results in farms that not only provide families’ nutritional needs, but are also biodiverse. Large-scale farms are often cultivated on deforested land. They are based on monocultures of staple crops, increasingly used to make biofuels or commercial animal feeds. Those crops which are used for food for humans are rich in carbohydrates, but little else. The world does not lack calories; it lacks good quality, diverse food.

“*We’re wrapped up in a sort of productionist paradigm, that’s the big driver behind this food system at the moment. It needs to move to a much more sustainable, nutritional framing.*”

Simon Billing, The Big Debate, 2.2.17
**TOO MUCH LIVESTOCK OR NOT ENOUGH MANURE**

By integrating small numbers of animals into mixed farming systems, our approach avoids or mitigates the environmental hazards associated with intensive livestock farming.

In brief: farmers learn how to keep animals in such a way that they can collect and store animal manure, compost it, and use it to restore soil fertility to grow crops. The animals are fed on fodder grown on marginal lands or from leguminous trees, which fix essential nitrogen into the soil and remove carbon from the air.

This means farmers do not need to buy environmentally damaging commercial fertilisers. While both compost and commercial fertilisers add nutrients to the soil, only compost improves the structure of the soil. This increases its capacity to retain water, and thereby improves resistance to droughts and floods. Farmers also avoid the expense of commercial grain feeds for their animals. These are produced on large-scale farms with all the associated environmental damage (see p6). They may also contain antibiotics, thus worsening the worldwide problem of antibiotic resistance.

Of course, cows do still produce the greenhouse gas methane. But recent independent research found that the environmental benefits of our work in one project in Uganda outweighed the negatives by 21.

On environmental grounds, we believe that there needs to be a reduction in livestock worldwide. But it is the ranches producing beef destined for the developed world, not the smallscale farms in Africa, where change needs to happen.

**BIOTECHNOLOGY VS NATURAL**

Our approach is pragmatically organic. We make exceptions where necessary: eg we use non-organic acaricide, as we have not yet found an alternative way of managing ticks.

This does not mean we are not willing to learn and innovate. We are working with a research institute on a natural ‘push-pull’ technology to counter striga weed and stem borers, which decimate maize crops in Kenya. This form of companion planting is easy and cheap for farmers to try on their own land; they can take control of it themselves and work in harmony with nature.

At present, we do not believe that genetic modification (GM) is necessary. Our research shows that our organic agro-ecological farming approach can do all that GM promises: increase yields, resist the effects of climate change, such as drought, and improve nutrition. And it does so while keeping control in the hands of the farmers.

Likewise, our approach enables people to produce a diverse diet with all the micronutrients they need rather than rely on biofortified foods such as Vitamin A-enriched golden rice.
In the market

LOCAL OR INTERNATIONAL MARKETS

Trade is vital for smallholder farmers – and smallholders are vital for trade, as they produce 70% of the world’s food. But their contribution is often overlooked.

The playing field needs levelling. We support recent calls by the Committee for World Food Security for investment in ‘territorial markets’: the marketplaces, both informal and more regulated, where smallholders meet one another and their customers.

Currently, much of the produce formally marketed in the developing world is destined for export. Much of the most fertile land in Africa is growing commodity crops such as palm oil, widely used to make processed foodstuffs, household goods, or biofuels. Maize, which should be a staple for the families who labour to grow it, is processed into corn syrup to make snacks for consumers in the developed world, where it adds to the increasing obesity problem.

Diversifying markets

<table>
<thead>
<tr>
<th>Market Type</th>
<th>Baseline 2013</th>
<th>IMPACT 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village</td>
<td>56%</td>
<td>61%</td>
</tr>
<tr>
<td>9% increase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selling to neighbours</td>
<td>8.6%</td>
<td>0.5%</td>
</tr>
<tr>
<td>94% decrease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-op</td>
<td>225% increase</td>
<td>143% increase</td>
</tr>
<tr>
<td>Marketing HUB</td>
<td>46%</td>
<td>70%</td>
</tr>
<tr>
<td>80% increase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selling to cooperative/marketing association</td>
<td>25.5%</td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>25%</td>
<td>9%</td>
</tr>
<tr>
<td>Hotel</td>
<td>7.7%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Hotel</td>
<td>3.7%</td>
<td>9%</td>
</tr>
<tr>
<td>Trading post</td>
<td>25%</td>
<td>25.5%</td>
</tr>
<tr>
<td>Village</td>
<td>61%</td>
<td>56%</td>
</tr>
<tr>
<td>Village</td>
<td>56%</td>
<td>61%</td>
</tr>
</tbody>
</table>

The data in the graphs above is taken from surveys carried out among members of self-help groups and members of marketing hubs. Data for all other graphs in this report is from self-help groups only.
CITIES OR LOCAL COMMUNITIES

Food insecurity is one of the factors that forces people to leave poor rural areas to seek opportunities in the cities – or even abroad. This depletes local communities of their people and their talents, especially their entrepreneurial youth. It also depletes local soils: more food is taken to the cities, where waste products will be simply thrown away rather than composted and returned to the earth.

We believe that family farms should form the basis for thriving local communities. Once farmers are providing well for their families, they can start to sell their surplus and invest their profits. They spend their money locally, boosting the local economy. Other farm-related employment opportunities spring up in the market towns, and local youths can seize opportunities to put their talents and skills to good use.

By contrast, large-scale farms provide fewer employment opportunities, and these are mainly in the form of low paid labouring. Much of the money made from these farms is taken and spent outside the local economies.

PROCESSED OR NATURAL

Processing and storage are essential components of the food system. They see people through the months between harvests, and tide them over times of crisis eg when floods destroy food supplies. They reduce cooking and preparation time, thus freeing up women and girls. They can reduce food waste.

The storage and processing methods that we teach smallholders in our projects are simple and healthy. They include raised and covered grainstores for families, reducing their post-harvest losses; and refrigeration for dairy marketing cooperatives. A recent pilot scheme to train Ethiopian farmers to process their taro crops into flour to give them a longer shelf life has won an innovation award.

By keeping things simple, local and in the hands of smallholders, we avoid the pitfalls of overprocessing. These include foods packed with hidden sugar and salt, and environmentally damaging packaging. Heavily processed foods are also highly wasteful. By processing foods locally, waste such as peelings can be composted and returned to the soil.

As value chains are short, there is less chance for things to go wrong and unsafe foods to enter.

“Even the private sector has to be held responsible, there are things they can do where they don’t take advantage of the smallholder farmers. Every farmer, no matter how small, does not want charity or else they have lost their dignity.”

Professor Ruth Oniang’o
The Big Debate, 2.2.17
In the home

PERSONAL CHOICE OR PUBLIC POLICY

As families’ fear of hunger recedes, they can start focusing on getting not just enough food to eat, but on making sure meals are nutritious too.

Education on nutrition is an intrinsic part of all our programmes in Africa. Our training covers basic nutrition awareness, as well as the skills needed to cook healthily. Furthermore, as people’s self-esteem and purpose in life rise, so too does their wish to look after their health.

But even among people who are educated about food, making the healthiest choices can be hard for cultural and social reasons. Public policy and corporate action in areas such as advertising and food packaging can make it easier for families to make better choices.

MEN FIRST OR FAMILY EQUALITY

In many households, men consume the lion’s share of the meat. However, it is in fact children and pregnant and breast-feeding women who have proportionally the highest protein needs (see p4).

Nutrition during the first thousand days of a child’s life – in the womb, and up to the second birthday – is particularly crucial. Malnutrition during this time can lead to stunting, which affects one-third of African under-5s and can harm a child’s development.

Men doing hard physical work do, of course, need a lot of food. But their calorific needs diminish as their farms start making more money: they can replace hand-held hoes with oxen and ploughs, machinery, or by employing people on the land.

“My son has sickle cell disease and used to go to hospital frequently, but since we’ve had milk he goes much less often. We can also sell surplus milk to pay for the children’s schooling. When we give milk to people in the community they become family friends.”

– Agnes Mulindwa, farmer, Uganda

People who are confident that they can provide enough food and income from their farm after one year

10
Our gender training helps to ensure that women’s rights and needs are respected, resulting in fairer distribution of quality foods within the household. Without such training, any increase in household food supply might benefit only men.

**DEPENDENCY OR INDEPENDENCE**

Many smallholder farming families struggle to envisage a future where quality food is abundant. Some have become accustomed to a diet consisting largely of starchy staples, such as the drought-resistant yet poor quality ‘famine food’ enset in Ethiopia. They may believe that their land is of too poor quality to grow anything else. Others are used to receiving food aid.

Our approach recognises that training in farming skills will only work alongside a change in mindset and an ability to envisage a better future. Embarking on our projects requires bravery. Families have to place their trust in us when we tell them that our approach will work for their farms. They have to be prepared to learn – even if their lack of formal education means they think themselves incapable.
Conclusions and recommendations

In our opinion, a one-size-fits-all solution to the food security and nutrition crisis will not work. Only context-specific responses that optimise local resources will yield sustainable solutions.

If today’s children, wherever they live, are going to become healthy-eating adults in 2030, action is needed in four broad areas:

**Food availability:**
- There needs to be a paradigm shift towards a more sustainable food system that prioritises nutrition over yields. Farms should be measured in terms of the sustainable nutrition-per-acre they produce, not the yields-per-acre.

**Food access:**
- Consumers need to exert pressure on the market by choosing sustainable and nutritious foods.
- Families should see that all members’ nutritional needs are met, giving special consideration to children and pregnant and breastfeeding women.

**Food utilisation:**
- Families and schools should educate children about healthy eating.
- Producers, traders, and all those involved in food should work together in local food webs.

**Food stability**
- Governments and others should invest more in territorial markets, and in extension services for women farmers.
- Donors should invest holistically in food and nutrition, recognising the links with gender, the environment and other areas.

For more details about the data from this report, visit www.sendacow.org/our-impact

© Send a Cow 2017 / Registered charity no 299717 / Thanks to all those involved in the production of this report. Front cover photo shows Evariste, aged 15 from Rwanda

“The right to food is the right to have regular, permanent and unrestricted access, either directly or by means of financial purchases, to quantitatively and qualitatively adequate and sufficient food corresponding to the cultural traditions of the people to which the consumer belongs, and which ensure a physical and mental, individual and collective, fulfilling and dignified life free of fear.”

– UN special rapporteur on the right to food