**Food, famine & climate change: How we feed the world on 85p**

As successive droughts and financial turmoil push a billion people worldwide to the brink of starvation, Plumpy'nut, a fast-food wonder snack, is quietly saving children's lives

[John Vidal](http://www.guardian.co.uk/profile/johnvidal) [The Observer](http://observer.guardian.co.uk), Sunday 11 October 2009

Fatima Ibrahim was having two of her children weighed, measured and fussed over when we found her with 30 other mums and more than 50 hungry kids at an emergency feeding centre in northern Kenya. Barwaco came in at 12.8kg and her brother Mohamed at 8.1, and both were crying lustily as people crowded round Dida Jirma, a young community doctor.

Jirma noted the children's weights and height and measured the circumference of their left upper arms. Some were ominously quiet and clearly ill, others playful. When it was Fatima's turn, the doctor dived into a big cardboard box and counted out two dozen silver foil sachets of Plumpy'nut – one of the 21st century's true superfoods.

Barwaco and Mohamed come from Nana, a small village way up on the stony Kenyan Ethiopian border. But like millions more children around the world, they owe their lives to this brand of [food](http://www.guardian.co.uk/environment/food) which is never advertised and is unknown outside disaster spots. The sweet paste, invented by a French scientist, is made under licence to UN children's charity Unicef on an industrial estate outside Le Havre, and its mix of peanut butter, vegetable oils, powdered milk, sugar, vitamins and minerals is the equivalent of royal jelly, açaí berries and chocolate all wrapped into one for malnourished children. It's cheap – a sachet costs about 85p – and because it needs no cooking or added water, children can safely feed themselves on it at home. In just a few years "ready-to-use therapeutic foods" (RUTF) like Plumpy'nut have revolutionised the treatment of severe malnutrition.

One month ago, says Jirma, both Barwaco and Mohamed were at death's door. Their muscles were wasting, their hair was turning orange, and they were showing sure signs of marasmus, a type of malnutrition caused by a diet deficient in protein and carbohydrates. When Jirma first saw them he feared for their lives. Now, with the Plumpy'nut provided by Irish charity Concern Worldwide, they have recovered nearly 10% of their body weight – the difference between life and death for a young child. In another week or two they will move on to a corn and soya blend flour and in two months they should have recovered completely.

Just 10 years ago, their chances of survival would have been slim unless they had been admitted with their mother to a specialised clinic. The severe malnutrition they have experienced may yet lead to stunting and possibly brain damage, but they will survive without ever knowing how close they came to death.

Barwaco and Mohamed are the smiling face of starvation averted, but their mother Fatima is one of a new group of people – the 100 million extra who the UN estimates have been left hungry and malnourished in the past year in the wake of the global recession, high food prices and growing environmental disaster.

We walked with the family several miles down a wide, mountain-ringed valley to their village just over the Ethiopian border. Land that should have been full of crops and livestock was now baked hard in the third major [drought](http://www.guardian.co.uk/environment/drought) to have hit Kenya in less than eight years. Many of the village's cattle had been sent hundreds of miles away in the hope of finding better pasture. Most of the small animals had been sold or eaten, and all that was left in the village were a few thin chickens and goats and some very hungry people.

We sat on low wooden stools outside Fatima's mud and thatched house with three of her other children, Rachna, Alima and Gibril. "What does hunger feel like? Let me tell you," she said. "For a start, I feel very, very weak. When I wake up I just want to eat something. My stomach cries. And when I go to sleep – well, I never sleep properly. I don't dream about food, no. But it's all I think about. I have known droughts before, but this is the hungriest I have ever been. One old man and an old woman have died of hunger in this village this year. There will be more."

Only last year she and her husband Emoy had 20 cows and 10 goats – more than enough, she believed, for everyone. But the crops they planted withered when successive rains failed, and one by one the cattle have died. Then personal disaster struck. Just a few weeks ago Fatima's husband left home, ostensibly to find work in Moyale, a regional market town about 20 miles away. In fact, Fatima knows he is now living there with his second wife, with whom he has had 12 children. Fatima says he is too old to get a job and does not expect to see him again, or be sent any money.

So she's been left with a few goats and seven hungry children. Every few weeks she must sell a goat, and at this rate she will have none left by mid-October. "I used to have butter from the cows; we would sell the bulls for a good price and buy good food. A bull used to get us 15-18,000 shillings [£128-153]," she says.



Fatima with two of her children and her entire food store: one sack of scrawny maize stalks that a neighbour gave her.

Photograph: John Vidal

She brings out her entire food store – one small sack of scrawny maize stalks. "A neighbour gave it to me. In the morning we don't eat anything. At around 4pm, I will prepare a maize porridge. That means pounding the maize for an hour. Then I mix the maize flour with water, and I will add a few beans and salt. We will eat this evening, but what I cook will never satisfy. It's a very small amount." Do the children complain? "Of course they do, all the time, especially when they see our neighbour cooking. Hunger leaves them more open to diseases, like colds and malaria. But they love the Plumpy'nut. They fight over it. I have to stop them."

"I really like milk," says Alima, her eldest daughter. "I want to drink it all the time, but I never get it."

**Just 15 years ago, the UN, western charities,** governments and some food companies all thought that world hunger could be more or less eradicated. Politicians and agronomists reasoned that there had never been so much food grown in the world, and better seeds and improved technologies appeared to be keeping up with rapid population growth. India and China's dash for economic growth was taking millions of people a year out of out of poverty, trade was booming, and food prices in the global market were declining. There were, said World Bank economists and world leaders, reasonable grounds for thinking that the 750 million hungry people in the world then could be reduced to less than 350 million by 2015. Every rich country dutifully signed up to the millennium development goals and pledged to halve world hunger by 2015.

Fat chance. What no one foresaw was that oil prices would peak in 2007, and then all grain and fertiliser prices would double. No one expected, either, the credit crunch or the recession, or the massive takeover of cropland in the US and elsewhere to grow fuel for cars. No one thought developing countries would be hit so hard by a recession brought on by the west putting tens of millions of people out of work; or that food prices would not drop when the oil price fell. They were blind to the food riots that took place in more than 30 countries last year, and despite warnings by climate scientists, they did not take into account the deep droughts that have kept hitting major food-growing countries such as Australia and places like Kenya and Texas year after year.

The world is now officially going backwards on food supplies, with more people malnourished than ever before in history. In August the UN said it expected 642 million people in Asia and 265 million in sub-Saharan Africa – more than one billion people – to go hungry this year. A new World Bank report last month predicted a further 25 million children could be hungry by 2050.

"A four-decade positive trend of nations pulling themselves out of hunger has been reversed," says Josette Sheeran, head of the UN's World Food Programme, which provides emergency food for more than 100 million of the most vulnerable people. "Poor households all over the developing world are eating fewer and less nutritious meals, and many are cutting back on healthcare and schooling for children. Unless the world responds, we are in danger of losing a generation to hunger and malnutrition. We have the know-how, the tools and the technology to feed the world. Let history not say of our generation that we let the opportunity of ending hunger slip through our fingers."

But hunger – real, long-term, gnawing hunger, the kind that Fatima's family knows but no one in Britain ever experiences – is officially on the march from sub-Saharan Africa to Asia. Only in Latin America have absolute numbers reduced in the past 30 years. In September there were food emergencies in Kenya, Yemen, Somalia, Syria, Ethiopia, Chad, Congo DRC, Sudan, Guatemala, Pakistan and a dozen other countries.

Kenya is particularly worrying because while it has always known droughts, it has seldom been short of food. "The situation here is not good," says Koki Kaylo, Concern's nutritionist in northern Kenya, on the frontline of the growing crisis. "Acute malnutrition rates among children under five are over 20% in some areas – well above the 15% emergency threshold. We have seen 300 cases of severely malnourished children like Barwaco and Mohamed in just a few months. Normally you might expect to see only 200 in a year. The situation will certainly get far worse by February [when the next crops can be expected].

"People are eating nothing but maize porridge now. That's just carbohydrates and leads to oedema, water retention, swollen legs. It's the beginning of starvation. Here you mainly see the wasting of muscles. This is very common already." Malnutrition, she says, is still poorly understood, but is known to lead to stunting of growth, brain impairment, frailty, attention deficit disorder and worse. Even with 29 outpatient therapeutic programme centres and 32 supplementary feeding programmes, she admits it's only a pinprick in the sea of need. Nearly half of all communities in northern Kenya now officially depend on food aid, either from the UN or from the government, which has appealed for $230m to feed 3.8 million people who they expect to be seriously affected by hunger in the next six months.

**But the world has made progress in at least one** respect. "We are not killing people [with hunger] as we did 20 years ago," says Yves Horent, the European community's head of humanitarian aid in Nairobi. "Things have improved enormously. We don't have many deaths from hunger nowadays. We're become very good at keeping people alive technically with foods like Plumpy'nut. We have techniques to save people. We can keep mortality rates low. It's incredibly efficient. We can save children, no problem. Just 20 years ago this would not have been possible. The cost of a life saved is now very cheap – €20-€40 will save a life. We can give vouchers, so people can access food easily. Fifteen years ago that would have been unheard of. We can deal with 20 million people. Now where there is free access or there are no blocks [to humanitarian groups] to working in a country, we can move thousands of tonnes of food. We won't see people dying in thousands again, like in Ethiopia in 1984. People tried their best then, but the science was not as good as now. In the mid-1980s, we had very few professional aid workers and only a few nutritionists," he says.

But while the humanitarian groups have become incredibly good at saving people, the worry is that no one is addressing the causes of growing hunger. "Part of the problem is that we have become expert in a very artificial way now. We can take a child who is almost dead and revive her. But we cannot stop it happening again and again. We cannot prevent the problem," he says.

The reality of emergency aid today, he says, is that the millions of hungry people who are kept on a drip-feed of food aid from governments and the UN are out of sight. More than 100 million people now depend on UN food aid just to survive, not just to get them over a disaster or a temporary emergency, but to stay alive for years at a time. More than 5 million people in Ethiopia, similar numbers in Southeast Asia and sub-Saharan Africa, 1 million in Kenya and more in Burma, Somalia, Yemen, Chad and India are kept permanently just above the starvation levels. There may be no full-scale humanitarian emergencies any more, but people are left in a perpetual state of chronic hunger.

Now there are ominous signs that rich countries are withdrawing even this safety net. Following the recession, countries have pledged less than half the money needed to feed the hungry. Even as hunger is increasing, the World Food Programme is nearly $3bn short and is having to close offices, cut operations and slash rations to millions of people who have no way of earning money to buy food. The previous UN minimum daily supply of 2,100 calories has been cut to 1,050 – about three tins of baked beans; the absolute bare minimum for a healthy diet.

The economic crisis all over the world has pushed incomes down and increased unemployment, says Sheeran. "The food crisis is not over in the developing world. In fact, the situation is more alarming in many countries than it was even a year ago. There's nothing more basic than food. If people don't have it, one of three things happen: they revolt, they migrate or they die."

Actually UN food supplies never get to everyone in need, and whole communities that are cut off from roads, not favoured by politicians or that are just hard to access get left out of emergency feeding programmes. In Mathare slum in Nairobi – the second largest in the country, with nearly 800,000 people living in desperate poverty in a maze of tin shacks – the chances of food being distributed to the neediest by the government is practically nil. Help is left to charities, churches and individuals.

Magdaline Gitahe of the Redeemed Gospel Church helped distribute food from Concern Worldwide and other charities to 2,000 people in Mathare in the first week of September. The numbers who are hungry are far greater than the UN or others know, she says. "They have little idea of the size of the problem. There is far more hunger than there was just a year ago. Maize used to cost 40 shillings [34 pence] a pack last year; now it costs 200 [£1.70]. Sugar was 50 [42p]; now it's 115 [98p].

"Bread milk, flour, salt – everything has gone up. People are cutting back on food every way they can. We take porridge without sugar, tea is no longer a priority, and instead of buying a big bag of sugar we buy little ones. Water has become very expensive. Last year the government gave out some food. This year we have had nothing. More and more hungry people are coming to us for the first time. Children are dropping out of school because they have empty stomachs. We cannot keep up," says Gitahe.

Alice Wanjiru received a bag of maize and some sugar from Gitahe. Alice has eight people to feed, including a disabled daughter who begs in Nairobi city centre, and her dead sister's three children. She earns no more than £1.25 a day washing clothes and collecting plastic for recycling. "We don't have food in the morning, just a cup of tea. We cannot afford to cook at lunch. So we eat in the evening but often we go to sleep without food," she says.

"People here in Mathare are mostly unemployed and uneducated," says Gitahe. "They do casual jobs. The women wash clothes, the men work on construction sites. Some hawk, and sell paraffin or water. The situation is very bad. To spread out the benefits, we only give food to one person in each family. Many people are still dying of hunger. I have seen people fall down because they are so weak."

Mary Magure, a single mother with five children who lives in one room in the slum, says she speaks for thousands in her situation. "It's almost impossible to survive now. I buy food in the street so we don't have to buy paraffin or charcoal. I don't have lunch, just the occasional meal in the evening. The best meal I could possibly cook now is maize flour. I can't possibly afford rice – perhaps a packet of maize and some greens. When there's no food and no money, the family just has to understand," she says.

She fears, but she does not know, that her children may be prostituting themselves to eat, and she starts crying. "When you are hungry, you start to imagine things. People become desperate. Everyone here needs food. Right now life is a very big challenge." OFM

*To donate to Concern Worldwide, go to* [*www. concern.net/en*](http://www.concern.net/en) *or call 0800 410 510*

**PLUMPY'NUT A French scientist trying to fight malnutrition discovered the answer in an unlikely place: his own breakfast table.**

**By Rebecca Seal**

Dr André Briend spent years trying to come up with a food that could be fed to seriously malnourished children which didn't need reconstituting with water. Most therapeutic foods used during famines were expensive powdered milks that relied on clean water – something that tends to be in short supply in places where people are at risk of starvation. Small children fed these products once they returned to their villages from feeding stations could develop water-borne diseases like dysentery – just as likely to kill them as their lack of food.

Paediatric nutritionist Briend was desperate to change this situation but had no breakthrough until, one morning in 1999, he noticed a pot of Nutella sitting on his kitchen table. The chocolate and nut spread was the inspiration he'd been searching for, and he began experimenting with puréed chocolate bars and sweets, mixed with the kind of vitamins and minerals malnourished children need urgently. Plumpy'nut was the result: a foil pouch the size of an adult fist, filled with peanut butter, sugar and a mixture of other vital nutrients. Each pack contains 500 calories, and with two servings a day, a severely underweight toddler can put on up to 2lb a week. At about £12.50 for 56 packs over four weeks – the most required to get a child back to health, followed by just one pack a day to keep them going – it's cheaper than milk. No water is required, the packs keep for up to two years (unlike their milky predecessors, which spoilt in the heat). For small children whose tummies have shrunk, the paste can deliver a lot of easy-to-digest mono-unsaturated fats and protein in a small portion. Even better, because parents can take away a week's supply, most people don't need to stay in a feeding centre.

Plumpy'nut is now made by a company called Nutriset in France, but because that's relatively expensive, they also provide the required "slurry" of nutrients to local partners in places like Niger. Concern Worldwide has developed the idea still further, by working with hundreds of farmers in Malawi, and in future also in Ethiopia and Zambia, to make ready-to-use-therapeutic foods (RUTF) using ingredients like sesame seeds or chickpeas, which further cuts down transport and import costs. The resulting products are usually given names which translate as the local words for medicine. The UN is aiming for 80,000 tons of RUTF to be produced in Africa in the next five years.

• This article was amended on Monday 26 October 2009 because we inadvertently said that Plumpy'nut was made under licence to Unesco but we meant Unicef.

Source: <http://www.guardian.co.uk/lifeandstyle/2009/oct/11/food-climate-change-famine-plumpy-nut>