WASTE NOT, WANT NOT

The circular economy to food security

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Towards eradicating a major cause of food unavailability: on-farm losses

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ABSTRACT: We are part of a world where an estimated 925 million people are undernourished as a result of ongoing hunger. One in every three children suffers stunted growth, and nearly one in every two deaths in children under five is hunger-related. Such alarming statistics seem incongruous with the fact our world actually produces sufficient food to feed all 7 billion people. Our world’s agricultural research funding is mainly dedicated to increasing food production, yet we continually overlook the causal factors of insufficient food supply, emanating from ineffective post-harvest handling and preservation practices. If hunger (responsible for more deaths every year than war or disease, and the loss of more lives than AIDS, malaria and tuberculosis combined) is not attributable solely to inadequate production of food but rather to insufficient availability of food, why is more not being done to reduce the shameful levels of food loss occurring in developing countries? This presentation highlights how these significant food losses are a clear indication of a poorly functioning and inefficient food system. The area of highest concern (where the greatest percentage of crop losses are recorded) is pre-farm gate, where poor harvesting, drying, processing and storage of crops occurs. Recent large-scale practical implementation work with farmers has achieved very significant results in sustainably reducing food losses in sub-Saharan Africa. This has seen reductions in food losses of up to 98% for over 50,000 farming families.

Keywords: preserving farm produce, equipment, education, support

I am here to talk about a real-life practical example of what can be done about food loss, and to try and give you a factual illustration of what we have been working on over the last four years in sub-Saharan Africa. Unlike most of the people at this conference, I am not a doctor or professor of agriculture. I am a businessman, and in previously running a large organisation my job was not to deal with symptoms but to try to get to the causes of problems. And that is also how I approached the role I had with the United Nations. If possible I shall leave you with two take-home messages today: do not let people tell you what you cannot do; and do not let people tell you what is not possible. Certainly try and understand the huge difference we can each make as individuals.

Now, I shall try to tell you what we have been doing, working with a hundred thousand families – in six minutes!

We all see the quotes. The amount of food that is lost every year is shameful, and I can give you 50 examples of people talking about this ... but what has been
Costa – Case study: Towards eradicating a cause of food unavailability: on-farm losses

done about it? Hundreds of studies have been done, with detailed reports and massive white papers. In fact, there is a study by the World Bank that is a study on all the studies, there is that much focus on the research! However, if you try to find examples of implementing the proposed solutions, they are not available.

The principal reasons for these food losses are fundamentally logistical. (It is important to differentiate between food loss and food waste, which are completely different subjects even though they are often spoken of together.) Ninety-five per cent of all food loss stems from supply chain inefficiencies. Fact.

We see the statistics over and over again and, whether it is the number of people who are severely malnourished or starving, or whether it is the number of children or families that have stunted growth resulting from a lack of the required sustenance, it is lack of food that is our number one killer of people in the world. We know that the world is producing enough food supposedly to feed seven billion people, so if it is not a problem of capacity, what is the problem?

It seems to me that fundamentally the problem is apathy. I would argue that although there are a lot of big problems, the world’s greatest solvable problem (and that is the difference) is the issue of food losses.

This case study is focused predominantly on the sub-Saharan region, although in quantity the food losses are actually greater in Asia. The statistics can be numbing. We hear about 1.3 billion tonnes of food, but what does 1.3 billion tonnes look like? I do not know. I know what a silo holding one tonne of grain might look like, and I know what a one-tonne van looks like. Can you visualise 1300 million one-tonne vans? That gives you some context. Now try and imagine that amount of food every year. It is enough to fill the Sydney Harbour twice, and the Melbourne Cricket Ground from the grass to the top of the stadium 628 times, every single year. This is not a small problem; it is enough sustenance to feed three billion people ... and this is food that is never consumed, every year.

More statistics: in the last half-hour, the statistics will tell us that 50 people will have died of a hunger-related issue. What are we doing about it? What about the tragedies when a plane goes down and a couple of hundred lives are lost? It is a terrible terrible tragedy, and if you got up this morning and a hundred planes had gone down, do you think that would be front-page news? What about if you get up the next day, and the next day, and the next day, and another hundred planes were lost, each day, do you think we would get everyone’s attention at that point? Put deaths from hunger into that context and you become really tired of the talk and the studies to define the problem.

When I got to Africa, I was working at the other end; I was working with the displaced families, the suffering families, the emergencies. I was in one particular camp on the border of Somalia and Kenya where 300,000 people had nothing. During each day I was watching families move in their hundreds of thousands; seeing dead people lined up on the side of the road; families bringing in their child and asking: ‘Where can we bury the child?’ At night I was sitting in my tent saying, ‘What can we do about this? We’ve got to do more.’ During the day I was putting Band-Aids on the problem, and at night I was trying to think how to get
to the cause: Why were these people displaced? How do we shake the apathy and the acceptance that this happens? It is a tragedy, and it is happening. How do we get past the reporting and work on giving them the support they need to overcome the situation? I keep coming back to this point, because we tend to get blasé about it; 1.3 billion tonnes is such a big number, such a lot of food.

There is a huge link between food loss and poverty. When we talk about a farmer losing 30% or 40% of his crop, that represents 100% of his income. He has no surplus. He can sell nothing. He has not enough to feed his family, so there is no surplus to sell, and no income, no way of buying medicine, clothing, education. The bottom line is that food loss underpins many of the fundamental poverty issues. When we talk about making poverty history, this goes to the heart of that.

In her Sir John Crawford address, Professor Fresco shared with us the problems that the world’s best minds are turning their heads to: such as, how can we produce more food on the same amount of land? Now I challenge you, is that the right question? Andrew Campbell in Session 1 mentioned the FAO statement that we need to increase food production by 70%. Is that the right goal? Our world has a finite natural resource base. We cannot just keep producing more and more, even if we know how.

I came across a detailed study by the World Bank which said that somewhere around the middle of this century, when there are over nine billion people, we shall require an additional 900 million hectares to feed those people. I contacted the author and said: ‘900 million hectares sounds like a lot of land! How much land have we actually got if we disregard the environment and deforestation and impacts on the land?’ And he estimated about a hundred million hectares. Nine hundred million needed; a hundred million available. It seems to me there is a fundamental error – which I have identified in all my studies – that we have investment error. Of all the money invested in agricultural development, 95% of it has gone into pre-harvest.

How do we make the farmers more productive? You can give them better seeds, better fertilisers, better irrigation, herbicides, pesticides, and the kinds of post-harvest benefits that Professor Gulati presented (this Proceedings), but the more you put into pre-harvest – say they increase productivity by 50% – the net losses also go up by 50%. That does not resolve the problem.

Clearly, the number one priority must be preserving what has been grown. If we can preserve the crops that are already being grown, the world will be already hundreds of millions of tonnes ahead in food every year. You achieve that without any extra land, any extra water, any extra labour materials, resources, and with no biofuel issues. These are the things to look at.

The gains from reducing food loss are not just for consumers. The benefits for farming families and their communities in sub-Saharan Africa, are massive. I work with governments and political leaders discussing what it means to become an export nation as opposed to an import nation, and the benefits are massive in that context also. There may be costs in reducing the food losses, but
they are a miniscule percentage of 1% of what it costs to make farmers more productive.

**Solutions**

Three basic things are needed. The farmers need education: they need to know that they can handle the crops better. The farmers need equipment: we should not give them training and then give them no tools to use. And they need support. What if you go and help a farmer be much more productive and produce more crops ... and then he does not have a market? What has he gained? Nothing.

To tackle this I set up an action-research trial, with 800 farms in East Africa, and 800 farms in West Africa. There were fundamentally three steps: training, equipment, support. After a hundred days we had reduced food losses for those 1600 farms by 98%. In addition to reducing their losses by 98%, every one of those farmers who had previously had nothing to sell now had something to sell.

As you can imagine, instead of selling in January, they were able to be selling in April and March. They were getting large amounts of money that they had not been getting before. That was a small trial, and for every single crop, whether pulses or other seeds, after a hundred days we had similar results. The major crop in Africa is maize. After the maize harvest, in two weeks all the crop is gone if managed in traditional ways, so the farmers’ reaction to these results was unbelievable. To them it was magic, something they could not have imagined.

We increased to 17,000 farmers. I called in the Massachusetts Institute of Technology University from Boston because the results needed credibility that they did not have if I was the only one reporting them. They sent a team of their brightest and best, and those six people thoroughly examined and confirmed this project with 17,000 people and 98% reduction in losses for those 17,000.

We had to teach the farmers how to build silos because there was no silo industry there. We had to teach them how to test that the silos were hermetically sealed, and then we had to encourage them to change from their traditional storage methods to this new way of storing the grain. I have videos of the farmers’ reactions to see this way of saving their crops. We expanded to 50,000 families, and then to 80,000 families. We had massive support from donors, with hundreds of millions of dollars in donor funding. The donors were saying: ‘You are getting to the heart of the problem’.

The challenge now is to get it to scale.

In summary, globally we are losing 1.3 billion tonnes of food annually. The value of inputs we are sending to Africa exceeds $50 billion. There are 1.2 billion people starving in the same region where there is 1.2 billion tonnes of food losses. Yet proven simple solutions exist. Our global responsibility is to take those solutions up to scale.

Remember the two take-home messages I gave you at the start of this presentation. So many people within the UN told me that I was not allowed to do this. So many people told me: ‘You cannot do this’. Yet I *could* do it, because I was a volunteer.
Simon Costa is the former CEO and Group Managing Director of one of Australia’s largest private organizations and the largest horticulture and supply-chain company in the Southern Hemisphere. With over 13,000 employees and 65 business operations, Simon made the decision in 2011 to resign from all corporate responsibilities and focus his time and attention fully on improving the lives of others. A 6-month voluntary position with the UN became a 4-year mission and, in December 2015, Simon and his team were awarded the prestigious United Nations Global Innovation Challenge Award, for the initiative with the greatest ‘disruptive potential’ for far-reaching societal change (creating a tangible impact towards eradicating global hunger and saving millions of lives every year).