

Every meal eaten estimated to cost the planet 10 kilos of lost topsoil

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A composite image of the Western hemisphere of the Earth. Credit: NASA

Every meal you eat now costs the planet 10 kilos in lost topsoil.

That's the warning of "[Surviving the 21st Century](#)" author Julian Cribb to an international soil science conference in Queenstown, New Zealand on Dec 15, 2016.

"10 kilos of topsoil, 800 litres of [water](#), 1.3 litres of diesel, 0.3g of pesticide and 3.5 kilos of carbon dioxide – that's what it takes to deliver one meal, for just one person," Cribb says.

"When you multiply it by 7 to 10 billion people each eating around a thousand meals a year, you can see why food is fast becoming the challenge of our age."

"The human jawbone is now by far the most destructive implement on the planet. It's wrecking soil and water, clearing forests, emptying oceans of fish and destroying wildlife as never before – but few people realise it because of long industrial food-chains that hide the damage from them," he says.

In "Surviving the 21st Century" Cribb presents the scientific evidence for the ten greatest threats facing humanity – and what we can do about them. The book is published by world-leading science publisher Springer International.

Humanity needs to double food production by the 2060s – but the basic resources to do it are become scarce, heightening the risk of famines, wars and mass migration.

"The world currently loses 75 billion tonnes of soil a year – and the problem is getting worse. Scientists recently estimated we've lost a third of the world's soil in the last 40 years.

"World water shortages are also looming. A recent scientific report says 4 billion human beings now experience acute water scarcity at least one month a year. A UN study warns that world demand for water could exceed supply by 40% by the 2030s.

"Governments and consumers fail to grasp that scarcities of soil, water, oil, nutrients, technology, fish and finance are now acting in sync – and are being amplified by climate shocks. Together they pose a major threat to world food security – and to world peace," Cribb says.

"These are the drivers of dramatic change in what and how the world eats, where it comes from and how it is produced." he predicts in "Surviving the 21st Century"

"In coming decades, there will be a boom in local food production both in the cultivation of thousands of novel crops, in the recycling of water and nutrients in cities, in urban agriculture, in the exploitation of soil microbial activity and carbon farming, in the development of new, climate-proof production systems such as soilless aquaponics and biocultures, protected cropping, algae farming, 'agritecture' and in the design of novel foods and diets.

"Food production will have to move indoors because of global climate disruption – heatwaves, droughts, floods and fires. If key governments backslide on their climate commitments, global temperatures will hit 2.5 to 5 degrees C above the levels that traditional farming can tolerate.

"With water and fertiliser running low, food production will have to shift back into the cities, to use recycled water and nutrients. Megacities that do not plan for this may starve.

"All this sounds like a big threat – and it is. But only if we are unprepared for it. Reinventing food will in fact create vast new

industries, jobs and opportunities for communities around the world – and the smart ones will be leaders in this, The Age of Food.

"Furthermore, by transferring the bulk of food production to cities we can reverse the 6th Extinction by rewilding up to 24 million sq kms of the planet under the wise stewardship of farmers and indigenous peoples.

"Food is one of the most creative acts which humans perform. How well we do it will define the future of our civilization," Cribb says.

Provided by Springer

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