

Book reviews

Jeffrey D. Sachs, *The End of Poverty – Economic Possibilities for Our Time*, Penguin Press, New York, 2005, ISBN: 1-59420-045-9 (Hardbound, 396 pp. US\$27.95)

Jeffrey Sachs is an economist so you may wonder whether this book contains information relevant for soil scientists. Well, it does! And let me tell you about this book, the author and why this book should be read by soil scientists fascinated by big questions, global issues and readable books.

The book title refers John Maynard Keynes' from 1930 "Economic possibilities for our grandchildren". But Sachs has less patience, not for the grandchildren but in our time; that is, by 2025. And these he considers the economic possibilities for our time: to meet the Millennium Development Goals (MDGs) by 2015; to end extreme poverty by 2025; and to ensure that poor countries have stepped on the ladder of development by 2025. Sachs is the head of the MDG Project of the UN. The eight MDGs were unanimously agreed to in 2002 by all 191 UN member states. These goals are important targets for cutting poverty in half by the year 2015, compared with a baseline of 1990. Sachs is convinced: they are bold but achievable.

The book is in three parts: introductory chapters on poverty, case studies of countries in which Sachs was involved, and synthesis pointing the way ahead to end poverty. Only one-sixth of the global population has a high-income status through consistent economic growth; another two-third has middle-income status with moderate rates of economic growth; and one sixth of all people are stuck in extreme poverty with very low rates of economic growth. Sachs gives an overview of where the poverty occurs (mostly in Africa) and linking it to various factors, for example, crop yields are related to growth of Gross Domestic Product (GDP) per capita. What comes first: economic growth or high yields? But obviously high yields mean high inputs and that can only be done when money is earned and the economy is right. Successes include China where 64% of the population lived on an income below one dollar per day in 1981 but the number was reduced to 17% by

2001. By the year 2050, it is reasonable to suppose that China will reach around half of the Western Europe income average – that is how quickly it can go. For India, he shows how it changed from an impoverished country 25 years ago to high-tech information service country in the world economy in the 1990s. That is why poor countries should not despair, it can be done.

In the second section, Sachs describes his experiences as advisor to various national governments including Bolivia, Poland, Russia, China, India and Africa, mainly Kenya. He describes his approach in which he views countries with huge economic problems, like super inflation, as patients. In fact, he sees countries as individuals in trouble who need the help of their families, friends, counsellors and public programs. He has developed a clinical approach to cure the problem and his clinical economics are roughly as follows: countries are poor because they are in debt, are politically unstable and have unfavourable environmental and socio-economic conditions. As a result, there is no economic development and they cannot get the first foothold on the ladder. With some help (debt cancellation and financial injections) they get the first foothold and the development may continue. Without that kick-start, development may not start at all. The end of extreme poverty is the beginning of economic progress. It is not quite as simple as that and Sachs shows in various examples that happenings and measures in one place cannot be viewed independently of what happens elsewhere on the globe. Just as in ecology, it seems that the holistic view has arrived in economics.

In the latter chapters, examples are given of how poverty can be ended including the already infamous Millennium villages like Sauri in Western Kenya. Sachs demonstrates that five interventions are needed to lift the village out of poverty: (1) agricultural inputs (inorganic fertiliser in Sauri costs twice the world market price and hardly any farmer uses it), (2) investment in health, (3) investment in education, (4) power, transport and communication, and (5) safe drinking water and sanitation. Total costs would be about \$70 per person per year and Kenya would require an annual investment in the order of \$1500 million per year to provide all poor

villagers with a similar package. Current donor support for Kenya is \$100 million. Upscaling from villages to entire countries or continents seems to be easier in economics than in soil science where the problem is largely unsolved.

Sachs singles out myths and questions common reasoning in the development circuits. For example, he disposes of the idea that the rich have got richer because the poor have got poorer – it would only be plausible if gross world production had remained roughly constant but gross world production raised nearly fifty fold in the past two centuries. Sachs also reminds us that until the mid-1700s the world was very poor by any of today's standards; in many regions in Western Europe and North America poverty was fairly common until the Second World War. Those that climbed out of poverty thus have a moral responsibility to help those that are still in it.

He also questions why some countries are poor (cultural, geography, governance etc.) and in the book there are various critical notes on donor behaviour. Not only critical – also quantitative. Aid per person in sub-Saharan Africa fell from \$32 in 1980 to \$22 in 2001, and Africa was poorer at the start of the 21st century than during the late 1960s when the IMF and World Bank first arrived in Africa. Often aid packages have not been delivered, or as he notes: an endless stream of misleading announcements that come from rich countries vis-à-vis poor countries. Rich countries should give grants rather than loans – just as was done under the Marshall Plan.

In various sections, Sachs refers to soil management and particular soil fertility and nutrient management. For example, he refers to the poor inherent soil conditions in African countries: "...soils have been long depleted of nutrients as the result of repeated harvests without the benefit of chemical or organic nutrient inputs." He also suggests how these adverse conditions could be improved: nitrogen-fixing trees, agroforestry and inorganic fertilizers. As a means to let household income grow, he mentions that technology can play a role: "...an agricultural extension officer teaches the farm household how to manage the soil nutrients in a new and improved manner by planting special nitrogen-fixing trees that replenish the vital nitrogen nutrients of the soil..". He also mentions that new agroforestry techniques can triple food crops in the N-depleted soils of Africa. As we know, N-fixing trees are beneficial but cannot do the full job of soil fertility restoration, apart from problems with adaptation of planting trees by farmers. Inorganic fertilisers remain indispensable, as Sachs notes, and he favours fertiliser subsidies like the farmers in Western Europe receive.

Sachs, like Jared Diamond, is fascinated by the influence of environmental conditions on a nation's wealth. Some countries are landlocked, very mountainous and have poor inherent conditions that hinder economic development. Nonetheless, he states that "...it is time to banish the bogeyman of geographical determinism". That is somewhat contradictory to his view elsewhere in the book (page 208 "...geography have conspired with economics to give Africa a particularly weak hand...the combination of Africa's adverse geography and its extreme poverty cause creates the worst poverty trap in the world"; or on page 312: "...slower growth [in Africa] is best explained by geographical and ecological factors"). Areas where soils are inherently poor are areas where people are poor. But poor soils and people have always existed, also in Western Europe and the USA. Hundreds of years of inorganic and organic inputs and other soil improvements (liming, drainage, etc.) have made many poor soils highly productive and the people rich. So the inherently poor soils can be made rich but it needs inputs, and the will to make those inputs. It is unfortunate that there are influential people in rich countries who think that inorganic fertilisers are pesticides, and that organic agriculture can feed the world. It can't and it is pleasing to read that Sachs has no chemophobia – in fact he suggests that the use of DDT where appropriate, can help to reduce the burden of malaria in Africa (page 262).

All in all, it is a bit unusual to read about soils and economic development in economic works. It shows that Sachs has an open eye for an important cause of low agricultural productivity in many poor countries. He provides no spatial or quantitative link between poor soil conditions and poverty (do we have the data?) but his point is well-made. It can only be hoped that his plea for the provision of free or cheap anti-malarial measures and Aids medicines go hand-in-hand with necessary investments in soil nutrient capitals – an idea that has fruitlessly floated around in Africa for more than 10 years.

At last something about the author. There are some biographic elements and we find out a little about the man Jeffrey Sachs, which increases the readability of the book. We learn how he changed his views over time, how perseverance and persistence pay and how he observes the smoking habits and full ash-trays of a Polish finance minister. Sachs was a professor at Harvard before becoming the head of the MDG projects. He is the keynote speaker of the 18th World Congress of Soil Science in Philadelphia (USA) in July 2006. Sachs has his critics. With this book he aims to convince them

of the possibilities to end poverty. I cannot help thinking of various gloom and doom books (Club of Rome, Paul Ehrlich, Lester Brown, etc.) that have predicted Malthusian catastrophes which have proved wrong, so far. The state of world and its progress is a difficult thing to predict but without hope and high aims to influence and change its future course we might as well do nothing and simply enjoy. Time will tell; let's influence time. Sachs gives important leads and follows Thomas Malthus' code of belief: *Evil exists not to create despair but activity.*

Alfred E. Hartemink
ISRIC – World Soil Information,
 PO Box 353, 6700 AJ Wageningen, The Netherlands
 E-mail address: alfred.hartemink@wur.nl

doi:10.1016/j.geoderma.2005.12.001

R.E. White, Principles and Practice of Soil Science: The Soil as a Natural Resource, 4th ed., 2006, ISBN: 0632 06455, 363 pp., \$79.95

This book is a bit like me, it started out as a fairly slim volume back in 1979 and has filled out a bit, in the book's case from 198 pages to 363.

It now contains a lot more topics and much more illustrative material with good didactic boxes and reinforcing problem sets. The book is comprehensive and comprises three major parts, namely, the soil habitat, processes in the soil environment and soil management. All have been updated with textual material, diagrams and references. I think the biggest changes are to the soil management section which is now much more substantial.

If I were to be churlish, I think the new edition lacks a chapter on soil ecology and soil in ecosystems both of which are becoming increasingly important topics. For our current undergraduates, members of Generation Y¹, the illustrations are a bit too bland and unfortunately, some of the colour plates didn't quite work. I think the text by Soltner (2005) is a good example of the appropriate level of visual explanation (and decoration) required.

I guess White's biggest competitor is the big and brassy Americocentric text by Brady and Weil from 2002. It has almost 1000 pages and like so many American books is better produced and illustrated, than those from most other countries. However, I still believe

White's book has the edge on other introductory general soil science texts because it is up to date, comprehensive, isn't too long, has a wide geographic appeal, and most of all, is based on solid, well understood and well-explained science.

Notwithstanding the quality of White's text, I believe the days of the printed textbook, as opposed to reference and research texts, are about over. In my experience, students of Generation Y rarely buy textbooks. If it's not online, they're not interested. Therefore, I think the 'textbooks' of the future will have to be different. Basically, they need to be more customised 'flexitexts'. Teachers will be able to go to the Web, look at a list of contents for material in a discipline area from a given publisher or publishers, choose the sections they want, perhaps including some of their own material, and sort them in some way, to create their own bespoke textbook for a particular course. Students should then be able to purchase and interact with this specially-created text on the Web. Using this model—the single author textbook might become a thing of the past. Different authors will write sections for potential inclusion—like the recent soil science encyclopaediae (Hillel, 2004; Lal, 2006) but much more didactic. The jazziest pieces with the clearest animated explanations will be chosen. Clearly books such as White or Brady and Weil provide the backbone for such an innovation. Traditional publishers seem to be moving slowly on this, but new players like Atomic Dog (see www.atomicdogpublishing.com) might expedite the matter. Or perhaps this is all wrong, we'll all just google

References

- Brady, N.C., Weil, R.R., 2002. *The Nature and Properties of Soils*, 13th ed. Prentice Hall, Upper Saddle River, NJ. 960 pp.
- Hillel, D., 2004. *Encyclopedia of Soils in the Environment*. Elsevier, Amsterdam.
- Lal, R., 2006. *Encyclopedia of Soil Science*, 2nd ed. Marcel Dekker, New York.
- Soltner, D., 2005. *Les Bases de la Production Végétale. Tome 1. Le Sol et son Amélioration*, 24th ed. 466 pp. Collection Sciences et Techniques Agricoles, Bressure (www.soltner.fr).

Alex McBratney
Faculty of Agriculture, Food and Natural Resources,
The University of Sydney, NSW 2006, Australia
 E-mail address: Alex.McBratney@usyd.edu.au

doi:10.1016/j.geoderma.2006.03.016

¹ Loosely defined as those born between 1978 and 1995.