



AfricaSoils.net

**Summary of AfSIS Launch Media Coverage  
Nairobi, Kenya, January 13, 2009**

Coverage as of Wednesday, January 14, 2009

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- **UN IRIN:** AFRICA: Soil scientists join efforts to boost food security
- **Vancouver Sun (Canada):** Social unrest feared as African food production drops; Poor farming practices

**Blogs:**

- **Poverty News Blog:** Investing in Africa's soil health
- **Science Magazine: Blog:** Dirt Diagrams Developed

**Foreign-language articles:**

- **Trouw (Netherlands):** Digitale techniek maakt bodem Afrika vruchtbaar
- **De Volkskrant:** Satelliet toont Afrikaanse boer bodems
- **Deutsche Presse Agentur (Germany):** Bodenqualität in 42 afrikanischen Ländern erstmals digital
- **IFG Online:** Alleanza di miliardari per la mappa antifame dell'Africa
- **Sciences et Avenir:** Cartographie haute résolution pour une Afrique plus fertile
- **Le Monde (France):** RESSOURCES LANCEMENT D'UN PROJET DE CARTOGRAPHIE NUMÉRIQUE À L'ÉCHELLE DU CONTINENT
- **Le Nouvel Observateur:** Cartographie haute résolution pour une Afrique plus fertile
- **Le Journal Development Durable:** Afrique : Une cartographie numérisée pour l'agriculture
- **MK News (Korea):**

**Online pick-up:**

- [Africafiles.org](http://Africafiles.org)
- [African Executive Online](http://African Executive Online)
- [AllAfrica.com](http://AllAfrica.com)
- [Digital Journal](http://Digital Journal)
- [EcoEarth.info](http://EcoEarth.info)
- [El Economista Online](http://El Economista Online) (Spain)
- [Environmental News Network](http://Environmental News Network)
- [Food, Agriculture and Natural Resources Policy Analysis Network](http://Food, Agriculture and Natural Resources Policy Analysis Network)
- [News24](http://News24) (South Africa)

- [Planet Ark](#)
- [RedOrbit](#)
- [Scientific American Online](#)
- [USA Today Online](#)
- [Yahoo! News](#)

### **New digital map for Africa's depleted soils**

Naftali Mwaura and Henry Neondo

[Africa Science News Service](#)

1.13.2009

The International Center for Tropical Agriculture (CIAT) announced today an ambitious new effort to produce the first-ever, detailed digital soil map for all 42 countries of the region.

This project combines the latest soil science and technology with remote satellite imagery and on-the-ground efforts to analyze thousands of soil samples from remote areas across the continent to help provide solutions for poor farmers, who suffer from chronically low-yielding crops largely because of degraded soils.

Efforts to improve African soils, which are among the most depleted on earth, have been hampered by a lack of up-to-date, comprehensive knowledge about current soil conditions.

About 500 million hectares of sub-Saharan Africa's agricultural land are moderately or severely degraded and the problem is rapidly getting worse because of increasing pressure on the land--a result of growing populations and food demand, combined with extremely low use of inorganic fertilizers and of organic sources of plant nutrients.

According to Dr Wilson Songa, Kenya's Agricultural Secretary, information on soil is critical to identify the types and amounts of mineral and organic nutrient sources needed to increase crop yields.

The need for action is hard to ignore; according to FAO, one in three people - or 236 million (2007) - in Sub-Saharan Africa are chronically hungry. Poor soil

Dr Nteranya Sanginga, the director of CIAT's Nairobi-based Tropical Soil Biology and Fertility (TSBF) Institute said the African Soil Information Service, or AfSIS, will respond to that need by making up-to-date assessments of soil properties.

"Researchers will probe the landscape of sub-Saharan Africa, using a variety of highly accurate digital soil mapping techniques to create detailed soil maps, which will be available on the Internet".

He said data provided by AfSIS at the regional, national and local levels will help farmers and agricultural experts identify the best options for sustainably improving crop production through better soil management.

Currently, said Dr Sanginga, Africa loses USD40 billion due to land degradation annually, use of fertilizer on average is about 8 kg per hectares which is low compared to China's 200 kg per hectares.

Sanginga added that matters are made worse by low fertilizer use efficiency which in Africa is only 20%.

The new service is a build up on the Africa's Head of State Fertiliser Summit of 2006 in Abuja, Nigeria where Heads of governments agreed that fertilizer be made an essential commodity and recognized that fertilizer alone was not adequate to address Africa's low crop productivity.

"Soil management in sub-Saharan Africa must be improved dramatically if we are to reduce poverty, feed growing populations and cope with the impact of climate change on agriculture," said Dr. Sanginga. "Achieving this requires accurate, up-to-date information on the state of Africa's soils."

"This project will benefit farm families in Africa by showing how they can reverse the trend of declining soil fertility, a major reason for slow growth in the region's agricultural productivity during recent decades," said Dr. Namanga Ngongi, President of AGRA.

Work on AfSIS is supported through a four-year grant of US\$18 million from the Bill & Melinda Gates Foundation and the Alliance for a Green Revolution in Africa (AGRA).

The new digital soil map will ultimately be developed as part of a global soil mapping initiative, called GlobalSoilMap.net.

AfSIS will use innovative remote sensing technology via satellite to create detailed images of large areas indicating nutrients, moisture and organic matter in the soil. It will also use infrared spectroscopy to analyze the chemical and physical properties and organic matter of soil samples.

Commonly used in the medical industry, this latter technique is now being used in agriculture, to perform quick assessments of the soil's capacity to retain water and absorb nutrients.

All soil information will be collected and made available via the Internet in a user-friendly manner. AfSIS experts will offer training to agricultural extension agents and others on how to interpret and translate information provided by the soil map for practical application.

Agricultural policy makers will find the information helpful for developing recommendations about the types, blends and amounts of fertilizers and other soil supplements that are most appropriate for improving harvests in particular regions.

The project will pinpoint areas where soils are at risk and provide detailed information on interventions that have proved effective for deterring soil degradation.

The data will also provide insights on the environmental and human factors (such as weather patterns and population growth) associated with soil degradation and with the improvement of soil health.

Partners in the effort include the Earth Institute at Columbia University, the World Soil Information (ISRIC) at Wageningen University in The Netherlands and the Nairobi-based World Agroforestry Center. AfricanSoils.net will initiate collaboration with national agricultural research programs across Africa, including the establishment of regional soil health laboratories in Tanzania, Kenya, Mali, Nigeria, and Malawi.

## **New soil map for African farmers**

James Morgan

[BBC News](#)

1.13.2009

The first detailed digital soil map of sub-Saharan Africa is to be created.

The £12m project will offer farmers in 42 countries a "soil health diagnosis" and advice on improving crop yields.

Scientists from the International Center for Tropical Agriculture (CIAT) will take soil samples from across the continent and analyse nutrient levels.

These will be combined with satellite data to build a high-resolution map, to be disseminated freely to poor farmers by local extension workers.

The interactive online map, known as the African Soil Information Service (AfSIS), will be accompanied by advice on how to tackle soil deficient in nutrients.

It is the first stage of project to build a global digital map - called GlobalSoilMap.net - covering 80% of the world's soils.

The initial four-year programme is being funded by a grant from the Bill & Melinda Gates Foundation and the Alliance for a Green Revolution in Africa (Agra).

### Catching up

"From the farmer in the field, right up to to the secretary general of the UN, we need precision soil information," said Pedro Sanchez, of Columbia University's Earth Institute, a partner in the project.

"But we do not have this in sufficient detail.

"For example, in the whole of Malawi there is only one fertiliser recommendation for maize - but there are many different soil types.

"We have to get into the 21st century.

"While other disciplines, such as climate science, have created detailed digital maps, we are still catching up."

African soils are among the poorest in the world, and many farmers suffer from chronically low-yielding crops.

More than 50% of land in Africa is unsuitable for any kind of cultivated agriculture except nomadic grazing.

Of the remaining agricultural land, a large proportion is either moderately or severely degraded.

Soil quality is under pressure from growing populations and food demand. This is exacerbated by the extremely low input of nutrients.

On average, African farmers are able to apply only 10% of the nutrients that farmers in the rest of the world return to the soil.

Agra is leading a drive to help them harness higher yielding practices, by widening access to improved seed varieties, irrigation and fertilisers.

These include organic inputs - such as manure, grain legumes and agroforestry.

But efforts so far have been hampered by a lack of up-to-date, comprehensive knowledge about current soil conditions.

#### Health check

AfSIS aims to pinpoint areas where soils are at risk, and identify the types of mineral and organic nutrient sources needed to increase crop yields.

Soils are considered "healthy" when they are able to produce crops, store carbon from the atmosphere and regulate water flows.

They will begin by making ground observations at 60 so-called "sentinel" sites (areas of 100 square kilometres) proposed for 21 African countries.

These will be combined with satellite imagery and "legacy" data found in archives and other repositories worldwide.

The resulting high resolution maps will display soil capacities and constraints such as aluminium toxicity, a common debilitating feature of tropical acid soils.

From this core data, scientists will then be able to predict soil data at locations across Africa where no direct observations have been made, using computer models to extrapolate.

The soil information will be made available via the internet in a "user-friendly manner" on a website - [Africasoils.net](http://Africasoils.net).

#### Sleeping soils

The aim is to build an interactive online tool, which will give extension workers and policymakers the information they need to determine how best to restore their "sleeping soils".

Meanwhile, an "aggressive" program of dissemination will ensure that AfSIS is readily available to African farmer associations and extension services, said a spokesman.

The plan is to continually monitor and update the map, with an ongoing soil surveillance service.

"If we are to reduce poverty, feed growing populations and cope with the impact of climate change on agriculture, we require accurate, up-to-date information on the state of Africa's soils," said Nteranya Sanginga, director of CIAT's Tropical Soil Biology and Fertility Institute.

"With accurate soil maps, we find farmers can increase their yields by around 60%, and sometimes double.

"But currently, our best African soil map has a resolution of 10km, squared.

"With this new project, we can improve that resolution to a level of one hectare (100 metres, squared)."

Scientists are expected to begin posting their data online by the end of the year, with the first full map completed in four years time.

Thereafter, AfSIS experts will offer training to people "on the ground" - including agricultural extension agents - on how to interpret and translate the soil map information for use in the field.

The project is being led by the Tropical Soil Biology and Fertility (TSBF) Institute, at CIAT, which is one of 15 centres supported by the Consultative Group on International Agricultural Research (CGIAR).

They will collaborate with national agricultural research programs across Africa, including the establishment of regional soil health laboratories in Tanzania, Kenya, Mali, Nigeria, and Malawi.

Other partners include the World Soil Information (ISRIC) at Wageningen University in The Netherlands and the Nairobi-based World Agroforestry Centre.

### **Food production chaos looms in Africa as soil quality worsens**

Jeremy van Loon

[Bloomberg](#)

1.13.2009

Jan. 13 (Bloomberg) -- African farmers and climate change are combining to damage soil at a rate that may plunge the continent, home to about 1 billion people, into chaos as food production declines.

"The situation is very severe and soil fertility is declining rapidly," Jeroen Huising, a scientist who studies soils at the International Center for Tropical Agriculture, or CIAT, said today in an interview. "Many countries like Kenya already don't have enough food to feed their population and soil degradation is worsening an already critical situation."

Africa, where half the agricultural soil has lost nutrients necessary to grow plants, is hampered by a lack of information about soil conditions, Huising said. About 236 million people in sub-Saharan Africa, or one in three there, are chronically hungry, according to the United Nations Food and Agriculture Organization.

A soil project funded by the Bill & Melinda Gates Foundation and the Alliance for a Green Revolution in Africa will use mapping techniques and geographical information systems to help farmers and government officials choose the best options to improve agricultural land and slow the degradation of farmland, Cali, Colombia-based CIAT said in an e-mailed statement.

"Soil management in sub-Saharan Africa must be improved dramatically if we are to reduce poverty, feed growing populations and cope with the impact of climate change on agriculture," said CIAT's Nteranya Sanginga. The project, the African Soil Information Service, will help address climate change as well, Huising said.

Global warming is melting polar caps, raising sea levels in some parts of the world and inundating coastal farmland while in other regions climate changes have reduced rainfall, making soil more alkaline and spreading drought.

## **Water Woes**

Pressure on freshwater resources, which make up 1 percent of the world's total water supply, is increasing as the global population is expected to rise to 9.3 billion people by 2050 from 6.7 billion now, according to UN estimates. As aquifers and rivers dry up in Africa and the Middle East, soils are also being destroyed by higher salt levels.

Last year, prices for staple foods reached records as production of biofuels, manufactured largely with corn, soared. The World Bank warned that civil disturbances may be triggered by rising food prices in more than 30 countries.

African food aid convoys have been attacked and supplies meant for local populations have been taken by rebels.

Civil unrest in Somalia has led to kidnapping of foreign aid workers. Masked gunmen killed a World Food Programme employee in Somalia, Executive Director Josette Sheeran said on Jan. 6.

Last year, at least 40 humanitarian or human rights workers were killed in Somalia, according to the human rights organization Amnesty International. Somalia is in its 18th year of civil war.

## **Soil maps to help farmers boost yields**

Steve Mbogo

[Business Daily](#)

1.14.2009

Kenyan farmers will be able to get free information on the nutritional condition of farm soils, enabling them to decide the amount and type of fertiliser to use.

The information will be provided free of charge after the completion of digital soil mapping in the country, and in 41 other African states, is completed in the next four years.

Most farmers, especially small-holders, use fertilisers without information on the nutritional needs of the soils. The result has been poor use of fertilisers and failure to get maximum yields.

When such small-scale farmers want to know the nutritional condition of the soils, they are required to collect samples and take them for testing at agricultural laboratories close to them. This is not only expensive but the awareness of the process is also lacking.

“The main problem facing our farmers on fertiliser use is lack of information on how to use the products. This initiative will help farmers improve fertiliser use,” said Wilson Songa, the permanent secretary in the Ministry of Agriculture.

The initiative involves production of the first-ever, detailed digital soil map for all 42 countries in sub-Saharan Africa. The exercise will be co-ordinated from Nairobi by the International Centre for Tropical Agriculture (CIAT).

The maps will begin to be used in the next four years and will be supplemented by weather maps to help agricultural extension officers to give better advice to farmers. The information will also be available to the extension officers through mobile phones, the Internet and the media, among others.

The project combines the latest soil science and technology with remote satellite imagery and on-the-ground efforts to analyse thousands of soil samples from remote areas across the continent.

African farmers have been producing low-yielding crops largely because of degraded soils.

According to CIAT, efforts to improve continent's soils, which are among the most depleted on earth, have been hampered by lack of up-to-date, comprehensive knowledge about soil conditions.

Production of the map will involve use of scanning equipment to produce wavelengths in the soil which will then be analysed for nutritional content.

It will use remote sensing technology via satellite to create detailed images of large areas indicating nutrients, moisture and organic matter in the soil.

The project is known as the African Soil Information Service (AfSIS) and data provided at the regional, national and local levels will help farmers and agricultural experts to identify the best ways for improving crop production through better soil management.

Work on the AfSIS is supported through a four-year grant from the Bill & Melinda Gates Foundation and the Alliance for a Green Revolution in Africa (AGRA). CIAT's Nairobi-based Tropical Soil Biology and Fertility (TSBF) Institute will lead the effort.

### **Ground breaking soil project kicks off**

Evelyn Njoroge

[Capital FM](#)

1.13.2009

NAIROBI, Kenya, Jan 13 - A project that combines the latest soil science and technology with remote satellite imagery and on-the-ground efforts to analyse thousands of soil samples from remote areas across Africa has been unveiled.

The project which is an ambitious new effort to produce the first-ever, detailed digital soil map for all 42 countries of the region and which is being undertaken by the International Center for Tropical Agriculture (CIAT) seeks to help provide solutions for poor farmers, who suffer from chronically low-yielding crops largely because of degraded soils.

“Soil management in sub-Saharan Africa must be improved dramatically if we are to reduce poverty, feed growing populations and cope with the impact of climate change on agriculture. Achieving this requires accurate, up-to-date information on the state of Africa's soils,” said CIAT

official Dr Nteranya Sanginga.

Efforts to improve African soils, which are among the most depleted on earth, have been hampered by a lack of up-to-date, comprehensive knowledge about current soil conditions.

This information is critical to identify the types and amounts of mineral and organic nutrient sources needed to increase crop yields. The need for action is hard to ignore. According to Food and Agriculture Organisation, one in three people - or 236 million as at 2007 – in Sub-Saharan Africa are chronically hungry.

The African Soil Information Service (AfSIS) will respond to that need by making up-to-date assessments of soil properties. Researchers will probe the landscape of sub-Saharan Africa, using a variety of highly accurate digital soil mapping techniques to create detailed soil maps, which will be available on the Internet.

Data provided by AfSIS at the regional, national and local levels will help farmers and agricultural experts identify the best options for sustainably improving crop production through better soil management.

CIAT's Nairobi-based Tropical Soil Biology and Fertility (TSBF) Institute will lead the effort. The new digital soil map will ultimately be developed as part of a global soil mapping initiative, called GlobalSoilMap.net.

"This project will benefit farm families in Africa by showing how they can reverse the trend of declining soil fertility, a major reason for slow growth in the region's agricultural productivity during recent decades," said Dr. Namanga Ngong'i Alliance for a Green Revolution in Africa. President.

AfSIS will use innovative remote sensing technology via satellite to create detailed images of large areas indicating nutrients, moisture and organic matter in the soil. It will also use infrared spectroscopy to analyze the chemical and physical properties and organic matter of soil samples. Commonly used in the medical industry, this latter technique is now being used in agriculture, to perform quick assessments of the soil's capacity to retain water and absorb nutrients.

All soil information will be collected and made available via the Internet in a user-friendly manner. AfSIS experts will offer training to agricultural extension agents and others on how to interpret and translate information provided by the soil map for practical application.

Agricultural policy makers will find the information helpful for developing recommendations about the types, blends and amounts of fertilizers and other soil supplements that are most appropriate for improving harvests in particular regions. The project will pinpoint areas where soils are at risk and provide detailed information on interventions that have proved effective for deterring soil degradation.

The data will also provide insights on the environmental and human factors (such as weather patterns and population growth) associated with soil degradation and with the improvement of soil health.

## **Digital soil map for Africa launched**

Natasha Gilbert

[Nature](#)

1.13.2009

Map will help farmers to improve crop production.

Soil scientists are developing the first ever digital soil map of Africa, covering 42 countries south of the Sahara. The map will provide up-to-date information on the health and properties of the soil, helping farmers and policymakers to improve degraded soils and increase crop production.

The map will be made from satellite measurements of soil nutrients, moisture and organic matter. These data will be combined with samples taken over the next four years at 60 randomly chosen sites across sub-Saharan Africa, where researchers on the ground will measure the soil's chemical and physical properties and its organic content.

Using this information, scientists can predict soil properties at places they have not sampled, checking their models by comparing predicted soil properties against actual measurements. The map will also incorporate existing soil maps and information on geology and climate.

A farmer in Malawi, for instance, could use the map — which will be freely available online — to find out how much fertilizer, and of what type, his or her land needs. The project is also looking into sending information to mobile phones, which are very common in Africa.

The map will divide the continent into squares that measure 90 metres x 90 metres — giving 100-times greater resolution than the best current maps of African soils, say scientists.

### **Valuable update**

"This is a quantum leap," says Alfred Hartemink, a soil scientist at ISRIC — World Soil Information, an independent foundation in Wageningen in the Netherlands, and one of the scientists leading the project. "With these maps we can now produce quick, cheap and accurate information."

Poor knowledge of soil conditions has hampered efforts to improve African soils, which are some of the most depleted on Earth, Hartemink says. Existing soil maps are incomplete and date from the 1960 and 1970s, he says.

"This project will benefit farming families in Africa by showing how they can reverse declining soil fertility, a major reason for slow growth in the region's agricultural productivity during recent decades," says Namanga Ngongi, president of the Alliance for a Green Revolution in Africa based in Nairobi, Kenya, a partnership to promote sustainable agriculture in Africa.

The mapping project, called the African Soil Information Service, is launched today at the Tropical Soil Biology and Fertility Institute in Nairobi, which is leading the initiative. The institute is part of the International Centre for Tropical Agriculture, a non-profit research body funded by international organizations and private foundations.

The African initiative is the first phase of a bigger project to develop a global soil map, called GlobalSoilMap.net, which will be launched in New York next month.

## **Scientists launch initiative to map sub-Saharan soils**

[Pan-African News Agency](#)

1.13.2009

Nairobi, Kenya - The International Centre for Tropical Agriculture (CIAT) Tuesday launched an ambitious new effort to produce the first-ever, detailed digital soil map for all the 42 countries in the sub-Saharan Africa region.

CIAT said in a statement here that the project would combine the latest soil science and technology with remote satellite imagery and on-the-ground efforts to analyse soil samples from remote areas across the continent to help provide solutions for poor farmers, who suffer from chronically low-yielding crops because of degraded soils.

“Efforts to improve African soils, which are among the most depleted on earth, have been hampered by a lack of up-to-date, comprehensive knowledge about current soil conditions.

This information is critical in identifying the types and amounts of mineral and organic nutrient sources needed to increase crop yields,” the statement said.

According to the Food and Agriculture Organisation, one in three people or 236 million in Sub-Saharan Africa are chronically hungry.

The African Soil Information Service (AfSIS) will respond to that need by making up-to-date assessments of soil properties, it said.

Researchers will probe the landscape of sub-Saharan Africa, using a variety of highly accurate digital soil mapping techniques to create detailed soil maps that will be made available on the Internet.

The statement said, “Data provided by AfSIS at the regional, national and local levels will help farmers and agricultural experts identify the best options for sustainably improving crop production through better soil management.”

Work on AfSIS is supported through a four-year grant of US\$ 18 million from the Bill & Melinda Gates Foundation and the Alliance for a Green Revolution in Africa.

In his speech during the launch, CIAT director, Dr. Nteranya Sanginga, said the initiative was critical to Africa’s food security.

“Achieving this requires accurate, up-to-date information on the state of Africa’s soils. Soil management in sub-Saharan Africa must be improved dramatically if we are to reduce poverty, feed growing populations and cope with the impact of climate change on agriculture,” he said.

AfSIS will use innovative remote sensing technology via satellite to create detailed images of large areas indicating nutrients, moisture and organic matter in the soil.

It will also use infrared spectroscopy to analyse the chemical and physical properties and organic matter of soil samples.

Sanginga said the latter technique was commonly used in the medical industry, but is currently being used in agriculture to perform quick assessments of the soil's capacity to retain water and absorb nutrients.

Agricultural policy makers will find the information helpful for developing recommendations about the types, blends and amounts of fertilisers and other soil supplements that are most appropriate for improving harvests in particular regions.

The project will pinpoint areas where soils are at risk and provide detailed information on interventions that have proved effective for deterring soil degradation.

The data will also provide insights on the environmental and human factors such as weather patterns and population growth associated with soil degradation and with the improvement of soil health.

### **Agronomists to map Africa's soils to increase crops**

Alistair Thomson

[Reuters](#)

1.13.2009

NAIROBI (Reuters) - International agronomists plan to map different soil types across Africa to improve agricultural methods, increase harvests and help farmers earn a better living from their land, scientists said Tuesday.

The four-year project will combine on-the-ground soil sampling and remote satellite imagery to produce a detailed digital map of sub-Saharan Africa, the Center for Tropical Agriculture (CIAT) said.

"Soil management in sub-Saharan Africa must be improved dramatically if we are to reduce poverty, feed growing populations and cope with the impact of climate change on agriculture," CIAT's Nteranya Sanginga said in a statement ahead of the project's launch in Nairobi.

"Achieving this requires accurate, up-to-date information on the state of Africa's soils," Sanginga said.

The new African Soil Information Service (AfSIS) will assess the mineral and organic nutrients in soils in different areas, providing a base for farmers or agricultural experts advising them to assess how best to use fertilizers or rotate crops.

African soils are among the most depleted on earth, contributing to slow agricultural growth in recent decades, with African farmers able to use on average just 10 percent of the fertilizer used by their counterparts worldwide, CIAT said.

"Soil degradation represents a major obstacle to arresting hunger in sub-Saharan Africa, because it impedes much-needed increases in agricultural productivity," CIAT said in a paper detailing the program.

The program will eventually become part of a worldwide scheme called GlobalSoilMap.net, it said.

## **Africa's soils to be digitally mapped**

Berber Rouwé

[SciDev.Net](#)

1.13.2009

The African Soil Information Service, launched in Nairobi, Kenya, will produce a digital map of 42 African countries revealing soil type and its component nutrients.

This information will guide farmers and policymakers on efforts to improve the fertility of Africa's soils, some of which are the most depleted in the world. The project will be coordinated by the International Center for Tropical Agriculture.

The coverage and detail of existing soil maps are poor, particularly in large, scarcely populated countries in Africa, says Alfred Hartemink, soil scientist at ISRIC – World Soil Information, part of Wageningen University in the Netherlands.

"The maps that do exist are 10–30 years old. That poses a problem, because the soil properties of interest — like pH, carbon or phosphorus content — change over time."

The project, funded with a US\$18 million grant from the Bill & Melinda Gates Foundation and the Alliance for a Green Revolution in Africa, will gather existing local soil maps and combine them with new measurements to produce the digital map, which will be freely accessible on the web in a user-friendly format.

The new measurements will include those derived from remote sensing, which involves analysing the features of satellite images — such as colour and radiation — to infer the characteristics of the soil. These calculations are then calibrated against actual soil samples from the particular region.

The African map is the first stage of an initiative, GlobalSoilMap.net, to map all the globe's soils to help informed decisions not only about agriculture, but also to monitor the effects of climate change, environmental pollution and deforestation.

Hartemink says the plan is to have 70 per cent of the world mapped within five years, with a full map completed within 10–15 years.

"The first step, the collection of existing soil and map data and the calibration of our satellite images, will be hard. After that, updating the maps will be easy," he says.

The project will be coordinated by Hartemink and his colleagues from ISRIC – World Soil Information in the Netherlands, who will ensure the same techniques and standards are used by the coordinating centre in each continent.

Over 50 soil scientists will be involved in the mapping effort.

## **Why Global Warming Portends a Food Crisis**

Bryan Walsh

[Time](#)

1.13.2009

It can be difficult in the middle of winter — especially if you live in the frigid Northeastern United States, like I do — to remain convinced that global warming will be such a bad thing. Beyond the fact that people prefer the warmth to the cold, there's a reason the world's population is clustered in the tropics and sub-tropics: warmer climates usually mean longer and richer growing seasons. So it's easy to imagine that on a warmer globe, the damage inflicted by more frequent and severe heat waves might be balanced by the agricultural benefits of warmer temperatures.

A comforting thought, except for one thing: it's not true. A study published in the Jan. 9 issue of *Science* shows that far from compensating for the other damages associated with climate change (heavier and more frequent storms, increasing desertification, sea level rise), hotter temperatures will seriously diminish the world's ability to feed itself. David Battisti, an atmospheric scientist at the University of Washington, and Rosamond Naylor, director of the Program for Food Security and the Environment at Stanford University, analyzed data from 23 different climate models and found a more than 90% chance that by the end of the century, average growing season temperatures would be hotter than the most extreme levels recorded in the past. (See the top 10 green stories of 2008.)

That means that barring a swift and sudden reduction in greenhouse gas emissions, by the end of the century an average July day will almost certainly be hotter than the hottest heat waves we experience now. And the extreme heat will wilt our crops. Battisti and Naylor looked at the effect that major heat waves had on agriculture in the past — like the ruthless heat in Western Europe during the summer of 2003 — and found that crop yields had suffered deeply. In Italy maize yields fell by 36% in 2003, compared with the previous year, and in France they fell by 30%. Similar impacts were seen during a major heat wave in 1972, which decimated farmers in the former Soviet Union, helping to push grain prices to worryingly high levels. If those trends hold in the future, the researchers estimate that half the world's population could face a climate-induced food crisis by 2100. "I'm very concerned," says Naylor. "How are we going to feed a world of eight or nine billion, with the effects of climate change?"

It's true that as temperatures warm, there is likely to be a temporary, beneficial effect on agriculture. (Like people, plants generally prefer the warmth to the cold, and they may flourish with rising levels of CO<sub>2</sub>.) But as research from Wolfram Schlenker at Columbia University shows, as average temperatures continue to warm, those benefits dwindle and then eventually reverse, and crop yields begin to decline. "It simply becomes too hot for the growing plants," says Naylor. "The heat damages the crops' ability to produce enough yield."

What's more, Battisti and Naylor are looking only at the impact of higher temperatures in their study — not at the possible impact of changing precipitation patterns. Yet many climatologists believe that global warming will make dry areas drier and further damage farming, which is especially dire news for sub-Saharan Africa, a region that already struggles with heat waves, droughts and famines, even as population continues to grow. "Climate change is going to be a major concern for Africa," says Nteranya Sanginga, the director of the Tropical Soil Biology and Fertility Institute of the International Center for Tropical Agriculture, in Nairobi. "We could lose whole growing seasons."

With these frightening predictions in mind, we need to try to heat-proof our agriculture. That can be accomplished by using crops that have proven resistant to extreme heat — like sorghum or millet — to breed hybrid crop varieties that are more capable of withstanding higher temperatures. We'll need to drop any squeamishness about consuming genetically modified

crops — unless we can tap the power of genetics, we'll never feed ourselves in a warmer world. But we'll need to act quickly — it can take years to breed more heat-resistant species, and investment in agricultural research has shriveled in recent years.

We also need to focus on improving the agricultural productivity of those parts of the world that have been left behind by the Green Revolution — such as Africa, where average crop yields per acre remain well below those in Asia or the West. One simple way is to increase the amount of fertilizer available to African farmers. Sanginga notes that about 440 lbs. (200 kg) of nitrogen fertilizer is generally needed to grow five tons (5,000 kg) of maize, but the average African farmer can afford only 8 lbs. of fertilizer. We can also work on safeguarding the degraded soils of Africa, where almost 55% of the land is unsuitable for any kind of cultivated agriculture. Help is on the way: the African Soil Information Service is launching a real-time, digital map of sub-Saharan Africa's soils, which should allow farmers and policymakers to make better use of the continent's agricultural resources. "Farmers need to know when to invest, and when to hold back," says Sanginga, who is involved with the mapping project.

There's a limit, however, to our ability to adapt to climate change — we still need to reduce carbon emissions, sharply and soon. If we fail, a warmer future won't just be uncomfortable, it will be downright frightening. "We need to wake up and take care of this," says Naylor. "We won't have enough food to feed the world today, let alone tomorrow."

### **AFRICA: Soil scientists join efforts to boost food security**

[UN IRIN](#)

1.13.2009

A digital soil-health surveillance system, launched on 13 January in Nairobi, will enable soil scientists to map areas at risk of soil degradation and facilitate appropriate interventions that could help to curb food insecurity across the continent.

Undertaken by the International Centre for Tropical Agriculture (CIAT), the "first ever" detailed digital map for 42 countries combines the latest soil science and technology with remote satellite imagery and on-the-ground efforts to develop an online map.

According to CIAT, this digital map of the continent's depleted soils will offer insights crucial for boosting food production. It will help provide solutions for poor farmers who suffer from chronically low-yielding crops due to degraded soils.

Wycliffe Oparanya, Kenya's Minister of State for Planning, National Development and Vision 2030, who launched the African Soil Information Service (AfSIS) at the World Agroforestry Center (ICRAF) in Nairobi, said the soil map would provide scientists and policy-makers with more detailed and accurate information on soil fertility in Sub-Saharan Africa.

"There has been an effort to develop high-yielding varieties of crops but the fact that soil fertility has remained low across many countries in Africa, [means] we have not been able to harness the benefits of the improved crops to capacity," he said. "Therefore, investing in soil health is a key concern that we must all address ourselves ... to achieve food security for our people."

He said the food crisis facing many countries had become a global phenomenon that posed a new threat to the stability of the social framework and to the prosperity of all nations, "especially the small nations".

Oparanya said: "Throughout the world, more and more people are unable to find food. There are increased cases of food riots, which in turn lead to political instability. This means that all nations must increase and sustain the production of staple food crops such as wheat, rice, maize, millet and potatoes, among others."

CIAT is establishing the African Soil Information Service through a four-year US\$18 million grant from the Bill & Melinda Gates Foundation and the Alliance for a Green Revolution in Africa (AGRA). The digital map ultimately will be developed as part of a global soil mapping initiative, known as GlobalSoilMap.net

Other partners in the effort include the Earth Institute at Columbia University, the World Soil Information at Wageningen University in the Netherlands and the Nairobi-based World Agroforestry Centre.

### **Productivity boost**

"Helping small farmers increase their yields and incomes is one of the most important things that the world can do to alleviate hunger and poverty," Rajiv Shah, director of agricultural development at the Bill & Melinda Gates Foundation, said. "Access to better information about their soil will empower African farmers to use methods tailored to their conditions so they can boost their productivity and build better lives."

AGRA president Namanga Ngongi said: "This project will benefit farm families in Africa by showing how they can reverse the trend of declining soil fertility, a major reason for slow growth in the region's agricultural productivity during recent decades."

Pedro Sanchez, the director of tropical agriculture and rural environment programme and director of the Millennium Villages Project at Columbia University, said as Africa's food crisis deepened, people were beginning to see the importance of soil health surveillance.

"The digital soil map has brought soil science to the 21st century," he said. "At the push of a button, you have answers on soil erosion, where to farm and what crops to grow on what type of soils."

### **Social unrest feared as African food production drops; Poor farming practices and climate change damage soil, threaten crops, agency says**

*Vancouver Sun* (Canada)

1.14.2009

(Reprinted from Bloomberg article by Jeremy van Loon)

### **Blogs**

#### **Investing in Africa's soil health**

[Poverty News Blog](#)

1.13.2009

A new "soil map" has been launched to help stabilize food security in Africa. A digital map that shows the health of Africa's soil started in Nairobi today.

Scientists hope the map can show where soil needs more nutrients to help small farmers. If the map can show that a certain area in Africa is missing something, aid organizations will effectively be able to help that area's farmers.

This is important because anything that can boost the yields of farmers can provide more food. Especially the small farmers in the undeveloped world that are just trying to feed their family. The importance of this type of project was magnified with the food crisis of last summer and the riots staged around the world because of the hunger it caused.

IRIN News service was at the launch of the project. A link to the soil map's website is right here.

Undertaken by the International Centre for Tropical Agriculture (CIAT), the "first ever" detailed digital map for 42 countries combines the latest soil science and technology with remote satellite imagery and on-the-ground efforts to develop an online map.

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### **Dirt Diagrams Developed**

Dan Charles

[Science Magazine Insider](#)

1.13.2009

Agricultural experts in Africa say the continent faces a crisis of depleted soil and they're hoping that a detailed, high-tech map of soil quality will help them solve the problem. This morning at an event in Nairobi, Kenya, the International Center for Tropical Agriculture announced that it will lead the \$18 million effort. Most of the money will come from the Bill and Melinda Gates Foundation.

That price tag sounds almost too good to be true for a map of soil conditions on every hectare of land in sub-Saharan Africa. But Don Doering, project coordinator at the Gates Foundation, says new technology makes it possible. Researchers will first analyze samples of soil from 60 "sentinel sites" across the continent. Each such site—represented by red dots on the map to the left—covers 100 square kilometers. Then, with the help of computer models, scientists will extrapolate to the rest of the continent, predicting soil conditions based on such factors as elevation, how much the land is sloping, and whether it's covered with vegetation.

### **Foreign-language articles**

#### **Digitale techniek maakt bodem Afrika vruchtbaar**

[Trouw](#) (Netherlands)

1.14.2009

Van onze redactie economie

SECTION: VOORPAGINA; Blz. 1

Boeren in Afrika krijgen er een nieuw instrument bij om de vruchtbaarheid van hun grond in het oog te houden. Het Ciat (het Internationaal centrum voor tropische landbouw) gaat van alle 42 Afrikaanse landen digitale kaarten verschaffen die de gesteldheid van de grond weergeven.

Met de extra informatie moeten Afrikaanse boeren geholpen worden de oogsten te vergroten en zo meer bij te dragen aan de voedselzekerheid op het continent. Het Ciat concludeert dat eerdere pogingen de landbouwgronden in Afrika te verrijken zijn mislukt door onvoldoende kennis en informatie. De Afrikaanse landbouwgronden worden door het Ciat als de meest uitgeputte gronden ter wereld beschouwd. In Afrika, ten zuiden de Sahara, lijden volgens de VN-landbouworganisatie FAO 236 miljoen mensen aan honger.

De data voor de kaarten worden geleverd door onderzoekers met de nieuwste technieken voor het bepalen van de vruchtbaarheid van de bodem. De boeren krijgen zo inzicht welke mineralen ontbreken en welke typen kunstmest het best gebruikt kunnen worden om de grond te verrijken.

#### **Satelliet toont Afrikaanse boer bodems**

David Davidson

De Volkskrant

1.13.2009

AMSTERDAM - Landbouwgronden in Afrika onder de Sahara worden vanaf dit jaar digitaal in kaart gebracht. Het International Center for Tropical Agriculture (CIAT), maakt hiervoor gebruik van satellietbeelden en analyses van duizenden grondmonsters.

Volgens het CIAT lijden veel mensen in Afrika honger doordat 55 procent van de gronden

beneden de Sahara niets, of blijvend te kleine oogsten opleveren .

De kaart moet boeren informatie geven over de samenstelling van hun grond en de manier waarop ze deze vruchtbaarder kunnen maken. De database zal gegevens bevatten en aanbevelingen doen over onder meer wateropname, vruchtbaarheid en de aanwezigheid van giftige stoffen.

De gegevens moeten toegankelijk worden via internet. Op den duur kan de informatie ook opgevraagd worden via mobiele telefoons en zullen radio en televisie over de aanbevelingen berichten. Dit omdat internet nog niet overal zijn intrede heeft gedaan.

De kaart moet uiteindelijk informatie over de samenstelling van landbouwgrond geven op regionaal, nationaal en lokaal niveau, zodat individuele boeren er hun voordeel mee kunnen doen.

Peter Okoth van CIAT verwacht dat de kaart dit jaar al te raadplegen is in het veld. Het systeem zal over twee tot drie jaar volledig operationeel zijn.

Alle landen beneden de Sahara worden in de database opgenomen, al zal het niet mogelijk zijn om overal grondmonsters te onderzoeken. Onder meer de Democratische Republiek Congo, Congo en Somalië worden hiervoor nog te gevaarlijk geacht.

### **Bodenqualität in 42 afrikanischen Ländern erstmals digital**

Deutsche Presse Agentur (Germany)

1.14.2009

Nairobi (dpa) - Erstmals soll in den Ländern südlich der Sahara die Bodenqualität länderübergreifend digital erfasst und die dabei gesammelten Daten Wissenschaftlern und Fachministerien zugänglich gemacht werden. Das Internationale Zentrum für Tropische Landwirtschaft (CIAT) startete am Dienstag in der kenianischen Hauptstadt Nairobi zusammen mit der Allianz für eine Grüne Revolution in Afrika (AGRA) und anderen forschungseinrichtungen das in einer ersten Phase auf fünf Jahre angelegte Projekt.

«Wenn wir Armut vermindern, eine schnell wachsende Bevölkerung ernähren und mit den Auswirkungen des Klimawandels fertig werden wollen, muss sich das Bodenmanagement dramatisch ändern», sagte CIAT-Direktor Nteranya Sanginga. Afrikanische Bauern verbrauchten im Durchschnitt im Jahr lediglich acht Kilogramm Düngemittel pro Hektar Land - in China seien es 100 Kilogramm. Obendrein werde nur 20 Prozent der Düngemittel effektiv eingesetzt. Ein besseres Wissen über die jeweilige Bodenqualität könne hier schon helfen, bessere Ernten zu erzielen.

Wir werden die Erkenntnisse über Ackererde ins 21. Jahrhundert bringen», betonte Pedro Sanchez vom Earth Institute der Columbia Universität New York. Eine der Hauptursachen am langsamen Fortschritt der sogenannten grünen Revolution in Afrika sei die schlechte Qualität der Erde in den meisten Ländern, die ohne Einsatz von Düngemittel nur schlechte Ernten bringe. Hinzu komme angesichts der schlechten Infrastruktur in den ländlichen Gebieten Afrikas Mangel an Daten und Informationen. «In gewisser Weise wissen wir mehr über die Erde auf dem Mars als über die Erde hier.»

Neben bereits vorhandenen Daten und örtlichen Bodenuntersuchungen sollen Satellitenaufnahmen helfen, umfassende Angaben über Bodenqualität, Erosionsschäden und Bewässerungsmöglichkeiten machen zu können.

In Afrika südlich der Sahara gelten etwa 500 Millionen Hektar Ackerland als mittel bis schwer beeinträchtigt - häufig durch Erosion, Dürre und ständige Verschlechterung der Bodenqualität, weil keine Nährstoffe in d

### **Alleanza di miliardari per la mappa antifame dell'Africa**

Giulia Bonezzi

[IFG Online](#)

1.13.2009

I milioni guadagnati cavalcando il mondo dei computer o muovendosi – con fiuto quasi sempre infallibile – sugli scivolosi mercati finanziari impegnati per sfamare l'Africa. In modo intelligente, con una mappatura digitale, e molto capillare, delle aree sterminate che si estendono sotto il Sahara, sfruttate per centinaia di anni (e mai a beneficio delle popolazioni locali), per scovare "la terra buona", quella che può essere coltivata. Il progetto, affidato al Ciat (Centro internazionale per l'agricoltura tropicale), è finanziato con 18 milioni di dollari in quattro anni dalla Agra (Alliance for a Green Revolution in Africa) dell'ex segretario delle Nazioni unite Kofi Annan e dalla Bill & Melinda Gates Foundation, che sostiene progetti sociali col denaro dell'inventore di Microsoft e del miliardario e guru della finanza Usa Warren Buffett.

Il Ciat, organizzazione no profit che combatte la fame e la povertà, oltre a occuparsi della difesa delle risorse naturali del continente nero, costruirà la prima mappa digitale del suolo dei 42 Paesi dell'Africa sub-sahariana, utilizzando le più recenti tecnologie della scienza del suolo e combinando la mappatura satellitare con la raccolta e l'analisi fisica di migliaia di campioni di terra, provenienti dalle zone più remote del continente. Lo scopo del servizio, battezzato AfSis (African Soil Information Service) è elaborare soluzioni per i contadini africani, i cui magri raccolti sono dovuti in gran parte al degrado dei terreni.

Per anni i tentativi di risanare la terra africana, tra le più esaurite del pianeta, si sono incagliati sulla mancanza di una conoscenza esaustiva e aggiornata delle condizioni del suolo. Informazioni di importanza capitale per identificare il tipo e la quantità di fonti di sostanze nutritive minerali ed organiche necessarie a incrementare il prodotto delle coltivazioni. Un imperativo, quest'ultimo, «difficile da ignorare», scrivono in una nota i responsabili del progetto citando i numeri della Fao: nel 2007, nell'Africa sub-sahariana, soffrivano la «fame cronica» 236 milioni di persone: una su tre.

Le mappe dettagliate delle proprietà del suolo, ottenute con l'impiego di sofisticate tecnologie digitali, saranno rese pubbliche su internet. I dati dell'AfSis, a livello nazionale, regionale e locale, serviranno ai contadini e agli agronomi a individuare le soluzioni migliori per lo sviluppo sostenibile delle coltivazioni attraverso una migliore gestione del terreno.

A coordinare il progetto AfSis – al quale collaboreranno scienziati dell'Istituto della terra della Columbia University, dell'università olandese di Wageningen e del Worrrld Agroforestry Center di Nairobi - sarà il Tropical Soil Biology and Fertility Institute (Tsbfi), braccio del Ciat con base nella capitale del Kenya, come parte di un progetto più ampio di mappatura globale chiamato GlobalSoilMap.net. Il Ciat è a sua volta uno dei 15 centri di ricerca fondati dal Cgiar, il Gruppo consultivo sulla ricerca internazionale per l'agricoltura, formato da 58 Paesi, fondazioni private e

organizzazioni internazionali. «La gestione del suolo nell'Africa sub-sahariana deve essere massicciamente migliorata per ridurre la povertà, nutrire una popolazione in costante aumento e superare l'impatto dei cambiamenti climatici sull'agricoltura» osserva Nteranya Sanginga del Ciat. «Questo progetto aiuterà le famiglie degli agricoltori africani», aggiunge Namanga Ngongi di Agra, l'Alleanza per una rivoluzione verde in africa, partnership presieduta da Kofi Annan.

L'AfSis impiegherà tecnologie all'avanguardia di rilevazione in remoto via satellite per creare immagini dettagliate di ampie aree, indicando le sostanze nutritive, l'umidità e i componenti organici del suolo. Attraverso la spettroscopia a infrarossi, analizzerà le proprietà chimiche e fisiche di campioni di terreno. Utilizzata di norma nell'industria farmaceutica, questa tecnica viene oggi presa in prestito dall'agricoltura per elaborare rapidamente valutazioni della capacità del suolo di trattenere l'acqua e di assorbire le sostanze nutrienti.

Tutte le informazioni raccolte saranno organizzate e rese disponibili via internet, con un'interfaccia user-friendly, su AfricanSoils.net. I tecnici dell'AfSis insegneranno ad operatori e altri soggetti a interpretare e tradurre le mappe per l'applicazione pratica. I dati saranno utili anche ai governi, per elaborare le politiche agricole, individuare le aree sulle quali intervenire per bloccare il degrado dei terreni e, anche, valutare l'impatto di fattori ambientali e umani (il clima, la crescita demografica) sull'evoluzione del suolo. «L'accesso a un'informazione migliore sul suolo – chiosa Rajiv Shah, direttore del programma di sviluppo dell'agricoltura alla Fondazione di Bill Gates – darà potere ai contadini africani, consentendo loro di ritagliare gli interventi su condizioni specifiche per migliorare la produttività e la qualità della loro vita».

### **Cartographie haute résolution pour une Afrique plus fertile**

[Sciences et Avenir](#)

NOUVELOBS.COM

1.13.2009

(Article reprinted from main section of *Le Nouvel Observateur*)

### **RESSOURCES LANCEMENT D'UN PROJET DE CARTOGRAPHIE NUMÉRIQUE À L'ÉCHELLE DU CONTINENT;**

Pour aider son agriculture, l'Afrique va dresser un état des lieux de ses sols

Jean-Philippe Rémy

*Le Monde* (France)

1.14.2009

RUBRIQUE: PLANETE; Pg. 4

L'agriculture africaine a besoin d'une " révolution verte ". Le nombre croissant d'Africains menacés de disette et une vague d'émeutes de la faim, en 2008, consécutives à l'envolée du prix des denrées de première nécessité, largement importées faute d'être produites localement, l'ont rappelé avec force. Pour opérer cette révolution et parvenir à nourrir sa population (estimée à près de 2 milliards d'habitants en 2050), le continent doit, en particulier, mieux connaître l'état de ses sols. Mardi 13 janvier, le Centre international d'agriculture tropicale (CIAT) a annoncé, à Nairobi, le lancement d'un projet, le Service d'information des sols africains (ASIS), qui promet de dresser, d'ici quatre ans, une carte numérique complète à l'échelle continentale.

Même si l'étude méthodique de la nature des sols pour l'agriculture n'est pas une discipline nouvelle (elle est apparue il y a trois siècles en Russie), le projet ASIS devra agréger de manière inédite des données déjà existantes avec celles que fourniront les équipes sur le terrain. Dans soixante " sites sentinelles " répartis dans les zones arables du continent (moins de la moitié de sa superficie totale), un procédé d'analyse particulier, la spectroscopie par infrarouge - dont l'un des codécouvreurs est nigérien -, sera utilisé. Ses résultats, combinés avec des images prises par satellite, donneront une carte où devront figurer la nature des sols et leur niveau de dégradation.

Ce relevé servira de base aux gouvernements et aux organisations non gouvernementales pour orienter de grandes campagnes ou fournir aux agriculteurs des conseils, transmis par exemple par téléphones portables. ASIS se propose donc de dresser un état des lieux de la santé des champs africains. Un sol est considéré comme sain lorsqu'il parvient à la fois à héberger un écosystème, produire des récoltes, stocker le carbone de l'atmosphère et retenir les eaux de pluie. Parmi les facteurs qui mettent cette santé à mal : la surexploitation.

En Afrique, le manque d'engrais, trop rares et trop chers, contraint les paysans à exploiter leurs terres au-delà de leur capacité de régénération, lessivant les substances nutritives des sols. En moyenne, les agriculteurs africains n'utilisent que 8 kg d'engrais par hectare et par an, " contre 200 en Chine ", se désole le Dr Nteranya Sanginga, directeur de l'Institut de biologie et de fertilité des sols tropicaux au CIAT. Au total, 500 millions d'hectares de terres agricoles africaines sont dégradés. Le manque à gagner, pour l'ensemble du continent, est évalué à 30 milliards d'euros par an.

Au Kenya, où l'agriculture représente 64 % des exportations, le gouvernement a annoncé, lundi 12 janvier, l'établissement d'un état d'urgence national, estimant que dix millions de Kényans sont menacés de disette. Parallèlement, le pays, tout comme la Tanzanie et le Mali, s'apprête à suivre l'exemple du Malawi, où une politique de subventions massives à l'achat d'engrais a permis de sortir d'une situation de déficit alimentaire grave en moins de deux ans.

Mais les politiques d'épandages massifs d'engrais mises en place en Asie à partir des années 1960, qui ont permis à ce continent de passer de la dépendance alimentaire au statut d'exportateur, ont eu un effet dévastateur sur l'environnement. Quarante ans plus tard, un dosage plus subtil de différents types d'engrais, d'origine organique ou issus de la pétrochimie, apparaît comme une nécessité. Pour ajuster ces cocktails aux différentes régions, force est de connaître l'état exact des sols.

" A beaucoup d'égards, on connaît mieux le sol de Mars que celui de la Terre, assure Pedro Sanchez, responsable du département d'agriculture tropicale de l'Institut de la Terre de l'université de Columbia (New York), dirigé par l'économiste Jeffrey Sachs. L'idée de lancer cette carte générale des sols d'Afrique est venue de manière progressive. Jeffrey Sachs me demandait un jour : quelle est l'étendue de l'érosion pluviale au Nigeria ? On ne savait pas. Ensuite, il s'interrogeait : quelles quantités d'engrais seraient nécessaires pour l'ensemble de l'Afrique ? Combien cela coûterait-il ? "

La carte de l'ASIS devra apporter des réponses à toutes ces questions, vitales pour l'Afrique, et constituer un instrument de mesure capital dans la recherche de l'autosuffisance alimentaire par le continent.

**Cartographie haute résolution pour une Afrique plus fertile**

## [Le Nouvel Observateur](#)

1.13.2009

Pour nourrir des populations de plus en plus nombreuses en Afrique, il faut commencer par lutter contre la dégradation des sols, affirme une organisation internationale. Un important projet de cartographie de la qualité des sols africains est lancé.

Au sud-ouest du Kenya, les sols perdent chaque année 100 kilos d'azote à l'hectare, selon le CIAT.

Au sud-ouest du Kenya, les sols perdent chaque année 100 kilos d'azote à l'hectare, selon le CIAT. (ICRAF, T. Terhoeven-Urselmans)

Mis à mal par les aléas climatiques, soumis à une pression démographique de plus en plus forte, insuffisamment enrichis, les sols du continent africain sont de moins en moins capables de répondre aux besoins alimentaires de la population. Pour remédier à cette situation, plusieurs organisations internationales lance un projet de cartographie des sols des 42 pays africains, le Service d'information sur les sols d'Afrique (AfSIS).

Des cartes hautes résolutions, contenant des informations très précises sur la composition en nutriments, le taux d'humidité ou la toxicité des sols, seront accessibles sur un site internet et diffusées le plus largement possible. Le Centre international d'agriculture tropicale (CIAT)\*, qui pilote le projet depuis Nairobi, au Kenya, projette de cartographier 18 millions de km<sup>2</sup> en quatre ans.

«La sécheresse diminue la capacité des sols à absorber l'eau et les appauvrit en matière organique» explique Nteranya Sanginga, directeur du projet au CIAT. «Lorsque l'eau arrive, elle érode les sols, lessivant en premier la composante argileuse qui est la partie vivante du sol, celle qui contient les éléments nutritifs et qui retient le plus le carbone». Résultat, il ne sert plus à rien de déverser des engrais chimiques sur ces sols. «Rien ne les retient, poursuit le Dr Sanginga, il faut désormais apporter une solution qui intègre les engrais organiques et chimiques». Pour réduire les coûts liés aux achats d'engrais, le CIAT a recours à des compléments organiques issus de l'élevage ou de la biomasse (arbres, plantes fourragères...).

L'AfSIS a pour but d'apporter les réponses les plus adaptées en fonction de la situation locale. Les cartes fourniront en effet un degré élevé de détail au niveau régional. Pour y parvenir, le CIAT et ses partenaires\*\* combinent les images satellites avec un échantillonnage de terrain. Dans les 120 zones sentinelles établies sur tout le continent des équipes de chercheurs analyseront des échantillons du sol grâce à la spectroscopie infrarouge. «Cette technique nous permet d'aller plus vite et d'obtenir des analyses plus complètes» explique Nteranya Sanginga. Elle permet notamment d'évaluer la capacité d'un sol à retenir l'eau et à absorber les nutriments. Deux conditions essentielles pour que 500 millions d'hectares de terres arables dégradées redeviennent fertiles.

### **Sciences-et-Avenir.com**

Cécile Dumas

1.13.2009

\*Le CIAT fait partie du Groupe consultatif pour la recherche agricole (CGIAR), financé par 58 pays et par diverses organisations pour lutter contre la pauvreté et la faim, et préserver les ressources des pays en voie de développement.

\*\*Alliance pour une révolution verte en Afrique (AGRA), Earth Institute (Université de Columbia, New York, USA), ISRIC (Université de Wageningen, PB), Centre agroforestier mondial (Nairobi). La fondation Bill et Melinda Gates apporte une subvention de 18 millions de dollars (13,5 millions d'euros).

## **Afrique : Une cartographie numérisée pour l'agriculture**

[Le Journal Développement Durable](#)

1.13.2009

Les experts du Centre international d'agriculture tropicale (CIAT) réalise la première cartographie numérisée de l'ensemble des sols africains. Objectif : aider les paysans du continent à identifier les meilleures solutions pour cultiver leurs sols.

Grâce à la combinaison des dernières découvertes scientifiques, liées à l'étude des sols, les spécialistes du Centre international d'agriculture tropicale (CIAT) veulent venir en aide aux agriculteurs africains, « y compris dans les zones les plus reculées ». Aidés par l'imagerie satellite, les experts vont identifier les meilleures solutions pour cultiver leurs sols, « souvent épuisés ». « Les terres africaines sont parmi les plus pauvres du monde », commente le Dr Peter Okoth, project information manager au Tropical soil biology and fertility Institute (CIAT-TSBF). En effet, près de 55% d'entre elles sont inaptes à l'agriculture, à l'exception de l'élevage nomadique, et près des trois quarts des zones arables sont dégradées. Les estimations scientifiques font état d'une perte de 4 milliards de dollars chaque année pour le continent en éléments nutritifs.

Dans le cadre de cette initiative qui sera lancée le 13 janvier à Nairobi (Kenya), l'African Soil Information Service, AfSIS, fournira aux agriculteurs les informations en ligne sur l'état des sols.

Le Centre international d'agriculture tropicale (CIAT) est une organisation internationale sans but lucratif chargée de conduire des recherches dans les domaines social et environnemental pour lutter contre la faim et la pauvreté et préserver les ressources naturelles des pays en voie de développement.

## **[MK News \(Korea\)](#)**

1.14.2009

[아프리카 `디지털 토양 지도' 나온다]

사하라사막 이남 아프리카대륙의 토양을 세밀히 분석, 어떤 농작물을 심고 어떤 비료를 써야할지를 농민들에게 알려주는 디지털 토양 지도가 작성될 예정이어서 아프리카 식량위기 해소에 큰 도움이 될 것으로 기대된다. 농업 관련 비정부기구(NGO)인 국제열대농업센터(CIAT)가 주도하는 이 작업은 향후 4년 간에 걸쳐 토양 샘플과 위성사진을 분석하는 방식으로 진행된다.

CIAT는 13일 케냐 수도 나이로비에서 `아프리카토양정보서비스'(AfSIS)로 명명된 토양 지도 프로젝트를 발표하면서 "식량 증산을 통해 빈곤 문제를 해결하고 기후변화가 농업에 미치는 영향에 대처하기 위해서는 사하라사막 이남 아프리카의 토양 관리를 시급히 개선해야 한다"고 강조했다고 로이터통신이 전했다. 아프리카는 토양이 척박한데다 비료 사용도 전세계 소비량의 10%에 그치고 있는 실정이다. 이는 농업

생산성 저하로 이어지면서 아프리카 대부분의 지역이 극심한 식량 부족에 처하게 된 요인으로 작용하고 있다.

CIAT는 아프리카대륙 외에도 장기적으로는 지구 전체의 토양을 포괄하는 '글로벌토양지도'(GlobalSoilMap.net)를 작성할 계획이다.