



Food and Agriculture Organization
of the United Nations

Status of the World's Soil Resources

Main Report

Authors and
affiliations

© FAO / Giuseppe Bizzari



2015
International
Year of Soils

Disclaimer and copyright

Recommended citation:

FAO and ITPS. 2015.
Status of the World's Soil Resources (SWSR) – Main Report.
Food and Agriculture Organization of the United Nations
and Intergovernmental Technical Panel on Soils, Rome, Italy

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

ISBN 978-92-5-109004-6

© FAO, 2015

FAO encourages the use, reproduction and dissemination of material in this information product. Except where otherwise indicated, material may be copied, downloaded and printed for private study, research and teaching purposes, or for use in non-commercial products or services, provided that appropriate acknowledgement of FAO as the source and copyright holder is given and that FAO's endorsement of users' views, products or services is not implied in any way.

All requests for translation and adaptation rights, and for resale and other commercial use rights should be made via www.fao.org/contact-us/licence-request or addressed to copyright@fao.org.

FAO information products are available on the FAO website www.fao.org/publications and can be purchased through publications-sales@fao.org.

Authors and affiliations

Adams, Mary Beth	USDA Forest Service, West Virginia, USA.
Adhya Tapan, Kumar	KIIT School of Biotechnology, Odisha, India.
Agus, Fahmuddin	Indonesian Soil Research Institute, Indonesia.
Al Shankithi, Abdullah	ICBA, United Arab Emirates.
Alavi Panah, Sayed Kazem	University of Teheran, Iran.
Alegre, Julio	National Agrarian University La Molina, Peru.
Aleman, Garcia	Ministry of Agriculture, Cuba.
Alfaro, Marta	INIA, Remehue, Chile.
Alyabina, Irina	Lomonosov Moscow State University, Russian Federation
Anderson, Chris	Massey University, New Zealand.
Anjos, Lucia	Federal Rural University of Rio de Janeiro, Brazil.
Arao, Tomohito	National Institute for Agro-Environmental Science (NIAES), Japan
Arrouays, Dominique	National Institute for Agricultural Research, France.
Asakawa, Susumu	Nagoya University, Japan.
Aulakh, Milkha Singh	Punjab Agricultural University, India.
Ayuke, Frederick	University of Nairobi, Kenya.
Badraoui, Mohamed	National Agronomic Research Institute, Morocco.
Bai, Zhaohai	China Agriculture University, China.
Baldock, Jeff	CSIRO, Australia.
Balks, Megan	University of Waikato, New Zealand.
Balyuk, Svyatoslav	National Institute of Soil Science, Ukraine
Bardgett, Richard	Manchester University, UK.
Basiliko, Nathan	Laurentian University, Canada
Bationo, André	AGRA Kenya. (Burkina Faso).
Batkishig, Ochirbat	Academy of Sciences, Mongolia
Bedard-Haughn, Angela	University of Saskatchewan, Canada.
Bielders, Charles	Catholic University Louvain, Belgium (USA)
Black, Helaina	The James Hutton Institute, UK
Bock, Michael	Agriculture and AgriFood Canada, Canada
Bockheim, James	Wisconsin University, USA.
Bondeau, Alberte	Mediterranean Institute of Biodiversity and Ecology (IMBE), France
Brinkman, Robert	Soil Science Society The Netherlands.
Bristow, Keith	CSIRO, Australia.

Broll, Gabrielle	Osnabrück University, Germany.
Bruulsmas, Tom	Paul Fixen, IPNI. Guelph Ontario, Canada.
Bunning, Sally	FAO, United Nations. (UK)
Bustamante, Mercedes	University of Brasilia, Brazil.
Camps Arbestain, Marta	Massey University, New Zealand.
Caon, Lucrezia	FAO, United Nations (Italy).
Carating, Rodel	Bureau of Soils and Water Management, Philippines
Cerkowniak, Darrel	Agriculture and AgriFood Canada, Canada
Charzynski, Przemyslaw	Nicolaus Copernicus University, Poland.
Chude, Victor	Ministry of Agriculture, Nigeria.
Clark, Joanna	Reading University, England, UK.
Clothier, Brent	Food Ind. Science Centre, New Zealand.
Coelho, Maurício Rizzato	EMBRAPA, Brazil
Colditz, Roland René	Comision Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO)
Collins, Alison	NLRC, New Zealand.
Comerma, Juan	Soil Science Society Venezuela, Venezuela.
Compton, Jana	EPA, USA
Condron, Leo	Lincoln University, New Zealand.
Corso, Maria Laura	Min. Environment, Argentina.
Cotrufo, Francesca	Colorado State University, USA (Italy)
Critchley, William	VU Amsterdam, The Netherlands (UK)
Cruse, Richard	Iowa state University, USA.
da Silva, Manuela	Joint Research Centre, Italy (Sweden/Brazil)
Dabney, Seth	USDA, USA.
Daniels, Lee	Virginia Tech , USA.
de Souza Dias, Moacir	Universidade Federal de Lavras, Brazil.
Dick, Warren	Ohio State University, USA
Dos Santos Baptista, Isaurinda	INIDA, Cape Verde.
Drury, Craig	Agriculture and AgriFood Canada, Canada
El Mustafa El Sheikh, Ahmed Elsidig	University of Khartoum, Sudan.
Elder-Ratutokarua, Maria	Secretariat of the Pacific Community
Elliott, Jane	Saskatchewan University, Canada.
Espinosa Victoria, David	Colegio de Postgraduados in Mexico
Fendorf, Scott	Stanford University, USA.
Ferreira, Gustavo	INIA, Uruguay
Flanagan, Dennis	Purdue University, USA.
Fraser, Tandra	GSBI, Colorado State University, USA (Can)
Gafurova, Laziza	National University, Tashkent, Uzbekistan.

Gaistardo, Carlos Cruz	INEGI, Mexico
Gardi, Ciro	University of Parma, Italy
Gerasimova, Maria	Moscow State University, Russian Federation.
Govers, Gerard	Catholic University Leuven, Belgium.
Grayson, Sue	University of British Columbia, Canada.
Griffiths, Robert	Centre for Ecology & Hydrology, UK
Grundy, Mike	CSIRO, Australia
Hakki Emrah, Erdogan	Ministry Food, Agriculture and Livestock, Turkey
Hamrouni, Heidi	Ministry of Agriculture, Tunisia
Hanly, James	Massey University, New Zealand.
Harper, Richard	Murdoch University, Perth, Australia
Harrison, Rob	University of Washington
Havlicek, Elena	Université de Neufchatel.(CH)
Hempel, Jon	NRCS, Lincoln, USA.
Henriquez, Carlos Roberto	University of Costa Rica, Costa Rica.
Hewitt, Allan	Landcare Research, New Zealand.
Hiederer, Roland	Joint Research Center - EU (Germany)
Hong, Suk Young	National Academy of Agricultural Science, RDA, South Korea
House, Jo	University of Bristol, England, UK.
Huising, Jeroen	TSBF-CIAT, Kenya (The Netherlands)
Ibáñez, Juan José	Spanish National Research Council
Indraratne, Srimathie	University of Peradeniya, Sri Lanka.
Jain, Atul	Department of Atmospheric Sciences, University of Illinois, USA
Jefwa, Joyce	TSBF-CIAT, Kenya.
Jung, Kangho	National Academy of Agricultural Science, RDA, South Korea
Kadono, Atsunobu	Tottori University of Environmental Studies, Japan
Kawahigashi, Masayuki	Tokyo Metropolitan University, Japan
Kelliher, Frank	AgResearch, New Zealand.
Kihara, Job	CIAT, Kenya.
Konyushkova, Maria	Moscow State University, Moscow, Russia
Krasilnikov, Pavel	Moscow State University, Russian Federation.
Kuikman, Peter	Wageningen University, The Netherlands.
Kuziev, Ramazan	National Institute Soil Science, Uzbekistan.
Lai, Shawntine	MWH Americas Inc. Taiwan branch.
Lal, Rattan	Ohio State University, USA
Lamers, John	Bonn University, Germany.
Lee, Dar-Yuan	National Taiwan University, Taiwan
Lee, Seung Heon	Korea Rural Community Corp., Korea
Lehmann, Johannes	Cornell University, USA (Germany)

Leys, John	NSW Office of Environment and Heritage, Australia
Lobb, David	University of Manitoba, Canada
Ma, Lin	Institute of Genetic and Developmental Biology, CAS, China
Macias, Felipe	Universidade de Santiago de Compostela, Spain.
Maina, Fredah	Agricultural Research Institute, Kenya.
Mamo, Tekalign	Ministry of Agriculture, Ethiopia.
Mantel, Stephan	World Soil Information (ISRIC), the Netherlands
McDowell, Richard	AgResearch, New Zealand.
McKenzie, Neil	CSIRO, Australia
Medvedev, Vitaliy	Ukrainan Agricultural Academy
Mendonça-Santos, de Lourdes Maria	EMBRAPA, Brazil.
Miyazaki, Tsuyushi	University of Tokyo, Japan.
Montanarella, Luca	Joint Research Center - EU (Italy)
Moore, John	Colorado State University, USA
Morrison, John	University of Wollongong, Australia
Mubarak, Abdelrahman Abdalla	University of Khartoum, Sudan.
Mung'atu, Joseph	Jomo Kenyatta University, Kenya.
Muniz, Olegario	Soil Institute, Cuba.
Nachtergaele, Freddy	FAO, United Nations (Belgium)
Nanzyo, Masami	Tohoku University, Japan.
Ndiaye, Déthié	CSE, Senegal
Neall, Vince	Massey University, New Zealand.
Norbu, Chencho	Ministry of Agriculture and Forests, Buthan
Noroozi, Ali Akbar	SCWM Institute, Iran.
Obst, Carl	University of Melbourne, Australia
Ogle, Stephen	Colorado State University, USA.
Ogunkunle, Ayoade	University of Ibadan, Nigeria.
Okoth, Peter	TSBF-CIAT, Kenya.
Omutu, Christian	University of Nairobi, Kenya.
Or, Dani	ETH, Switzerland.
Owens, Phil	Purdue University, USA.
Pan, Genxing	Nanjing Agricultural University, China.
Panagos, Panos	Joint Research Center - EU (Greece)
Parikh, Sanjai	University of California-Davis, USA.
Pasos Mabel, Susan (†)	University Buenos Aires, Argentina.
Paterson, Garry	ISCW, Republic of South Africa.
Paustian, Keith	Colorado State University, USA.
Pennock, Dan	University of Saskatchewan, Canada.
Pietragalla, Vanina	Min. Environment, Argentina.

Pla Sentis, Ildefonso	Universitat de Lleida, Spain (Venezuela)
Polizzotto, Matthew	North Carolina State, USA.
Pugh, Thomas	Karlsruhe Institute of Technology, Institute of Meteorology and Climate Research/Atmospheric Environmental Research (IMK-IFU), Germany
Qureshi, Asad	International Centre for Biosaline Agriculture, UAE.
Reddy, Obi	National Bureau of Soil Survey & Land Use Planning, India.
Reid, D. Keith	Ontario Ministry of Agriculture, Canada
Reinsch, Thomas	World Soil Resources, USDA, USA.
Richter, Dan	Duke University, USA.
Rivera-Ferre, Marta	Universita de Vic, Spain.
Robinson, David	Centre for Ecology & Hydrology, UK.
Rodriguez Lado, Luis	Universidade de Santiago de Compostela, Spain.
Roskruge, Rick	Massey University, New Zealand.
Rumpel, Cornelia	INRA, France.
Rys, Gerald	Ministry Primary Industries, New Zealand
Schipper, Louis	The University of Waikato, New Zealand
Schoknecht, Noel	Department of Agriculture and Food, Western Australia
Seneviratne, Sonia	ETH, Switzerland.
Shahid, Shabbir	International Centre for Biosaline Agriculture, UAE.
Sheffield, Justin	Princeton University, USA (UK)
Sheppard, Steve	ECOMatters Inc., Canada
Sidhu, Gurjant	National Bureau of Soil Survey & Land Use Planning, India.
Sigbert, Huber	Umweltbundesamt GmbH, Austria
Smith, Pete	Aberdeen University, Scotland, UK.
Smith, Scott	Agriculture and AgriFood Canada, Canada
Sobocká, Jaroslava	Soil Science and Conservation Institute, Slovakia.
Sönmez, Bülent	Ministry of food agriculture and livestock, Turkey.
Spicer, Anne	Lincoln University, New Zealand
Sposito, Garrison	Berkeley University, USA
Stolt, Mark	University of Rhode Island, USA.
Suarez, Don	USDA Salinity Laboratory, Riverside, USA
Taboada, Miguel	INTA, Argentina.
Takata, Yusuke	National Institute for Agro-Environmental Science (NIAES), Japan
Tarnocai, Charles	Agriculture and Agri.Food, Canada.
Tassinari, Diego	Universidade Federal de Lavras, Brazil.
Tien, Tran Minh	Soils and Fertilizers Research Institute, Vietnam.
Toth, Tibor	RISSAC, Hungary.
Trumbore, Susan	Max Planck Institute, Germany (USA)
Tuller, Markus	University of Arizona, USA.

Urquiaga Caballero, Segundo	Embrapa Agrobiologica, Brazil.
Urquiza Rodrigues, Nery	Ministry of Agriculture, Cuba.
Van Liedekerke, Marc	Joint Research Center, EU. (BEL)
Van Oost, Kristof	Catholic University Louvain, Belgium.
Vargas, Rodrigo	CISECE, Mexico.
Vargas, Ronald	FAO, United Nations (Bolivia)
Vela, Sebastian	La Molina University, Peru.
Vijarnsorn, Pisoot	Chaipattana Foundation, Thailand.
Vitaliy, Medvedev	National Institute of Soil Science Ukraine.
Vrscaj, Boris	Agricultural Institute of Slovenia.
Wall, Diana	Colorado State University, USA
Waswa, Boaz	CIAT, Kenya.
Watanabe, Kazuhiko	Hyogo Agricultural Institute, Japan.
Watmough, Shaun	Trent University, Canada.
Webb, Mike	CSIRO, Australia
Weerahewa, Jeevika	University of Peradeniya, Sri Lanka.
West, Paul	University of Minesota, USA.
Wiese, Liesl	ARC - ISCW, Republic of South Africa.
Wilding, Larry	Texas A&M University, USA.
Xu, Renkou	Institute of Soil Science, CAS, China
Yagi, Kazuyuki	National Institute for Agro-Environmental Science (NIAES), Japan
Yan, Xiaoyuan	Institute of Soil Science, CAS, China
Yemefack, Martin	IRAT/IITA, Cameroon
Yokoyama, Kazunari	National Agriculture and Food Research Organization (NARO), Japan
Zhang, Fusuo	China Agriculture University, China.
Zhang, Gan Lin	Institute of Soil Science, China.
Zhou, Dongmei	Institute of Soil Science, CAS, China.
Zobeck, Ted	USDA, USA.

