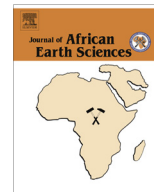




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Geoscience outreach in Africa, 2007–2013

Eduardo F.J. De Mulder^{a,*}, Wolfgang Eder^b, Aberra Mogessie^c, Enas A.E. Ahmed^d, Pauline Y.D. Da Costa^e, Ibouaraïma Yabi^f, Eliud Mathu^g, Sospeter Muhongo^h, Sierd A.P.L. Cloetinghⁱ^a Earth Science Matters Foundation, Wageningen, The Netherlands^b Department of Earth Sciences, University of Munich, Germany^c Institute of Earth Sciences, University of Graz, Austria^d Department of Earth Sciences, Mansoura University, Egypt^e Geology Department, Lomé University, Togo^f Department of Geography, Abomey-Calavi University, Benin^g Department of Geology, South Eastern Kenya University, Kitui, Kenya^h Ministry of Energy & Mineral Resources, Dar es Salaam, United Republic of Tanzaniaⁱ Tectonics Group, Dept. of Earth Sciences, Fac. of Geosciences, Utrecht University, The Netherlands

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ABSTRACT

Geoscience outreach is an important communication tool for geoscientists to approach politicians, decision makers, and the general public. This tool is used to inform them about the added values of the geosciences for the national economy and to cope with environmental challenges. Moreover, geoscience outreach aims to excite (in particular young) people to be interested in the Earth sciences. There is a growing gap between demand for and supply of geo-experts. Main target of the International Year of Planet Earth (IYPE 2007–2009) was to help close this gap by informing students to follow a professional career in the geosciences. The successful IYPE outreach programme was predominantly implemented at a grass root level through the 80 national and regional IYPE Committees, 14 of which in Africa. Reports are given on the geoscience outreach activities conducted under the IYPE, in these African nations during the period 2007–2009. Upon closure of the IYPE, the Earth Science Matters Foundation was established to continue implementing the outreach objectives of the IYPE. Reports from five African nations show that geoscience outreach activities have continued after 2009. Main challenges reported are lack of funding, lack of priority, and lack of qualified personnel. Finally, some possible recommendations to cope with such challenges are suggested.

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1. Introduction

For decades geoscientists have attempted to raise interest for their profession to a wider public. The International Geophysical Year (1957–1958) has been one of the few successful examples that inspired the public resulting in a significant increase in students enrolling in the geosciences in the following years. Also today, there is no lack of appealing issues in the Earth sciences that would attract public attention and imagination. Quite spectacular progress in understanding the anatomy of the Earth and how Earth processes work has been made since. Nevertheless, youngsters refrained considering the Earth sciences as their favourite target for a professional career in the 1980s and 1990s. Reduced job

opportunities due to dropping commodity prices and growing public concern about the environment demonizing any human activity potentially impacting the geosphere proved to be the main reasons for this drawback (Woodfork and De Mulder, 2011).

When prices of Earth materials rose again in the beginning of this century demands for geoscientists to find more resources jumped as well. Needs for geo-expertise grew further through demands from the public sector related to implementation and reinforcement of environmental legislation worldwide. That went hand-in-hand with ongoing ageing of the geo-experts populations in the extraction industry and universities resulting in a significant loss of geo-expertise due to retirement in the next five years. Combination of these trends demonstrates a growing gap between demands for and supply of geo-expertise.

This upcoming gap was identified as a threat by the International Union of Geological Sciences (IUGS) around 2000. By then, the IUGS took a bold initiative to attempt reverting the declining enrollment of students in geological faculties at universities. A German initiative in 2002 ('Das Geo-Jahr') to promote the geosciences

* Corresponding author. Tel.: +31 622234231; fax: +31 235262709.

E-mail addresses: director@earthsciencematters.org (E.F.J. De Mulder), w.eder-geo@iaag.geo.uni-muenchen.de (W. Eder), mogessie@uni-graz.at (A. Mogessie), enas_ahamed@yahoo.com (E.A.E. Ahmed), dzycosta@gmail.com (P.Y.D. Da Costa), yafid2@yahoo.fr (I. Yabi), emathu@seuco.ac.ke (E. Mathu), s.muhongo@bol.co.tz (S. Muhongo), sierd.cloetingh@uu.nl (S.A.P.L. Cloetingh).

at a national level demonstrated that geoscience outreach is an effective way to inspire the general public, in particular youngsters. That resulted in a spike of the number of students enrolling in Earth sciences departments at different universities through the years. This significance of geoscience outreach proved to be valid at an international level as well through the UN proclaimed International Year of Planet Earth (IYPE: 2007–2009). The IYPE showed that, if supported by a UN proclamation, geoscience outreach could open doors to politicians at the highest levels spurring them to give public statements in support of the geosciences.

Geoscience outreach is a growing issue in Africa and has potential for further increase as African nations need more home-raised geo-experts to identify and better manage their natural resources in times of increasing international demand. This paper first describes the main issues in the IYPE, followed by geoscience outreach contributions by 14 African nations in the framework of the International Year. Next, current geoscience outreach activities are described for five African nations, the challenges encountered and the options to resolve such challenges that may emerge. Finally, some attention is given to a geoscience outreach follow-up initiative of the IYPE, the Earth Science Matters Foundation.

2. The International Year of Planet Earth (IYPE)

In an attempt to address the growing gap between demands for geoscientific expertise by industry and the public sector and the low supply of geoscience professionals, the IUGS took an initiative to develop an International Year of Planet Earth (IYPE). UNESCO soon embarked on this initiative. The IYPE, subtitled *Earth Science for Society*, aimed to capture people's imagination with exciting knowledge about our planet, and to secure that knowledge used more effectively to make the Earth a safer, healthier and wealthier place for next generations (De Mulder et al., 2006).

Soon, 25 Associate Partners and 11 Founding Partners followed IUGS and UNESCO in this endeavour. To collect maximum public and political support, the United Nations system was approached. The Tanzanian delegation successfully launched the initiative at UNESCO's Executive Board in April 2005, followed by UNESCO's General Conference in October of that year. In December 2005, the UN General Assembly adopted a Resolution proclaiming 2008 to be the *International Year of Planet Earth* (UN General Assembly, 2005).

The IYPE was registered as a not-for-profit Corporation in the USA and a Secretariat was established in Norway. As a single year would not be sufficient to address its ambitions IYPE's life time was extended to a period from 2007 to mid 2010. Upon UN proclamation support for the IYPE developed rapidly. By the end of the IYPE

Triennium, 36 International Partners provided financial and other support and National and Regional Committees for national implementation were established in 80 nations and regions (Fig. 1).

The main activities of the IYPE were coordinated through Science and Outreach Programmes. The Science Programme comprised 10 broad themes: health, climate, groundwater, ocean, soils, deep Earth, megacities, resources, hazards and life. Theme brochures were produced (www.yearofplanetearth.org). The Outreach Programme was mainly implemented at national levels. At international level a global launch event was held at UNESCO headquarters in Paris, in February 2008, followed by an African launch in Arusha, Tanzania and a closing ceremony in November 2009, in Lisbon, Portugal (UNESCO, 2009). Many thousands of IYPE activities, often with an educational component, were registered around the globe.

The significant worldwide attention given to the IYPE through its National and Regional Committees belong to IYPE's most prominent legacy items. These Committees brought together national, sometimes competing, entities into a single ambition. An evaluation in 2009 showed that this ambition was accomplished to a significant extent. The creation of a Young Earth Science Initiative (YES), a platform for geo-professionals under 35 years (www.networkyes.org) was another main legacy of the IYPE. At a political level numerous public statements were given by leading politicians pleading for implementation of the aims and ambitions of the International Year of Planet Earth. National launch events provided good opportunities for politicians and other VIPs to speak in support of the IYPE, often coupled with cultural performances. The ambition to bring together digital geo-data at a global level and to convert these into one single computer language (OneGeology) has been another major IYPE offspring (www.onegeology.org).

Many more legacy items developed during the IYPE Triennium including cross-country geological hiking tours (www.viageoalpina.org), simple but elegant geo-education methods (www.earthlearningidea.com), a series of scientific books on each of the ten IYPE themes, by Springer Verlag and an UNESCO initiative to monitor the state of Earth sciences education in Africa. A Final Report of the IYPE operation (Woodfork and De Mulder, 2011) may be obtained through www.yearofplanetearth.org. Student entries in the Earth sciences grew significantly in at least 11 countries since 2007 (see e.g. paragraph for Ethiopia, below). This increase may be attributed partly to rising job opportunities mainly in the extraction industry and partly to the impact of the national and international geoscience outreach and awareness of IYPE campaigns (pers. Comm. Gezahegn Yirgu).

The International Year of Planet Earth has been particularly successful in its outreach and education programmes (De Mulder and Eder, 2011). UN proclamation has been crucial for the success of the IYPE, in particular for national implementation of the aims and ambitions through the 80 National and Regional Committees. These have also been the drivers for igniting follow-on initiatives upon termination of the IYPE, in 2010.

3. Contribution by African National Committees to the International Year of Planet Earth 2007–2009

3.1. Angola

The IYPE Committee in Angola was created in February 2009, spearheaded by the Minister of the Environment and included representatives of 6 other ministries, UNESCO and other relevant networks. In November 2009, the National Committee was officially presented to the media. The National Committee produced an Environment Kit based on six selected IYPE themes identified as most relevant for Angola: Earth & Health, Climate, Natural

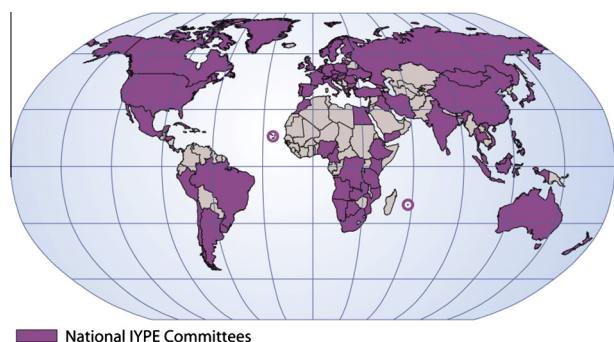


Fig. 1. 79 National Committees for IYPE established (in dark purple) worldwide. One Regional Committee for IYPE was established for East and Southeast Asia. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

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