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PanAfGeo: A Pan African programme for closer cooperation between African and European geological surveys

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A National Geological Survey is responsible for providing information on the country's underground resources and natural hazards. One of the major objectives of the Pan African training project PanAfGeo that is currently being launched will be to strengthen the competencies of African geologists in various fields of the geosciences, and notably for the governance of mineral resources. It will likewise enable a consolidation of cooperation between European and African geological surveys.

Objectives and origins of the PanAfGeo project

The development of emerging countries, economic and demographic growth on the African continent, the mounting desire to achieve sustainable development and management of resources on and under the ground, in addition to tensions concerning raw material supplies in developed economies, and notably those of the European Union (EU), have in latter years been confirming the strategic importance for nations to be able to rely on operational institutions devoted to the geosciences. These scientific institutions indeed have the task of acquiring and compiling data in a variety of domains (geological mapping, inventory of mineral resources, exploration and management of groundwater, natural risk assessment, etc.) which can be made available to other state agencies, governmental departments, private or public investors, industrial players, engineering consultants and local populations. These missions, generally assigned to a national geological survey, call for well-qualified personnel and cutting-edge technological and scientific means. African countries do not necessarily possess a full-fledged geological survey, but rather operational technical structures within the relevant departments (Mines, Energy, Agriculture...). Among the geoscientific themes, the extraction of mineral resources constitutes one of the principal pillars of the economic development of a goodly number of African nations, which latter also must contend with environmental, social and societal challenges of prime importance.

“The intent of European countries is to promote closer international cooperation with Africa”

In 2009, African heads of state and of governments adopted the Africa Mining Vision (AMV) (cf. Tribune A. Pedro and M. Kitaw, this issue) which lays the groundwork for equitable and optimal exploitation of mining resources aiming at sustainable growth and socio-economic development of African nations. This initiative intends to effect a paradigm shift, abandoning the present-day mode of development based on resource exploitation and adopting a model in which mineral resources would become a catalyser for a more diversified economy. One of the objectives of this approach is to procure a more complete geological knowledge of African underground resources and strengthen the technical and scientific competencies of the personnel of advisory institutions so as to improve governance in the mining sector and ensure more equitable sharing of wealth produced by the exploitation of mineral raw materials.

Concomitantly, one of the European Union's priorities is to develop a knowledge- and innovation-based economy in order to promote an economy more efficient in resource use, more eco-responsible and more competitive. The slogan of the *Europe 2020* initiative “A resource-efficient Europe” aptly translates the importance of access to raw materials for the EU. The progressive empowerment of emerging economies (Brazil, China, India, Turkey...) consuming increasing amounts of raw materials, comes forth as a factor of uncertainties and transformation in ongoing relationships between the EU and Africa. This likewise raises the issue of securing the raw material supply of the

old continent. In 2008, the EU published the raw materials initiative, aimed at reinforcing the dialogue with Africa and the actions to be engaged relative to access to raw materials and managing them in a sustainable manner. Africa is a continent whose mining potential ranks among the world's most important, but which is still under-explored. The intent of European countries is to promote reinforced international cooperation with Africa.

Moving towards a closer relationship between Africa and the EU, the 2014-2017 roadmap for the *EU-Africa common Strategy* was adopted in 2014. The fourth pillar of this document, entitled “Sustainable and inclusive development and growth and continental integration”, mentions the desire for reinforced cooperation between Africa and the EU as to the governance of mineral resources, but also improving knowledge and competencies within African geological surveys.

It was in this context that the European Commission, in 2013, via the Directorate-General for International Cooperation and Development (DG DEVCO) and the Directorate-General Enterprise and Industry (DG-ENTR) launched a feasibility study aiming at laying the groundwork for a Pan-African cooperation project between the Organisation of the Geological Surveys of Europe (EuroGeoSurveys - EGS) and the Organisation of African Geological Surveys (OAGS). This study, entitled “Geoscientific knowledge and skills in African geological surveys” was conducted jointly by ten European geological surveys and 23 African geological surveys under the auspices of EGS and OAGS. The definitive version was published in November 2014 prior to being officially approved by the European and African partners on February 8 and 9, 2015 in Cape Town, South Africa (photo 2). A follow-up to



PHOTO 1
Aeolian sandstones and ocher sands of the Batéké plateaus (Djambala region, Republic of Congo).

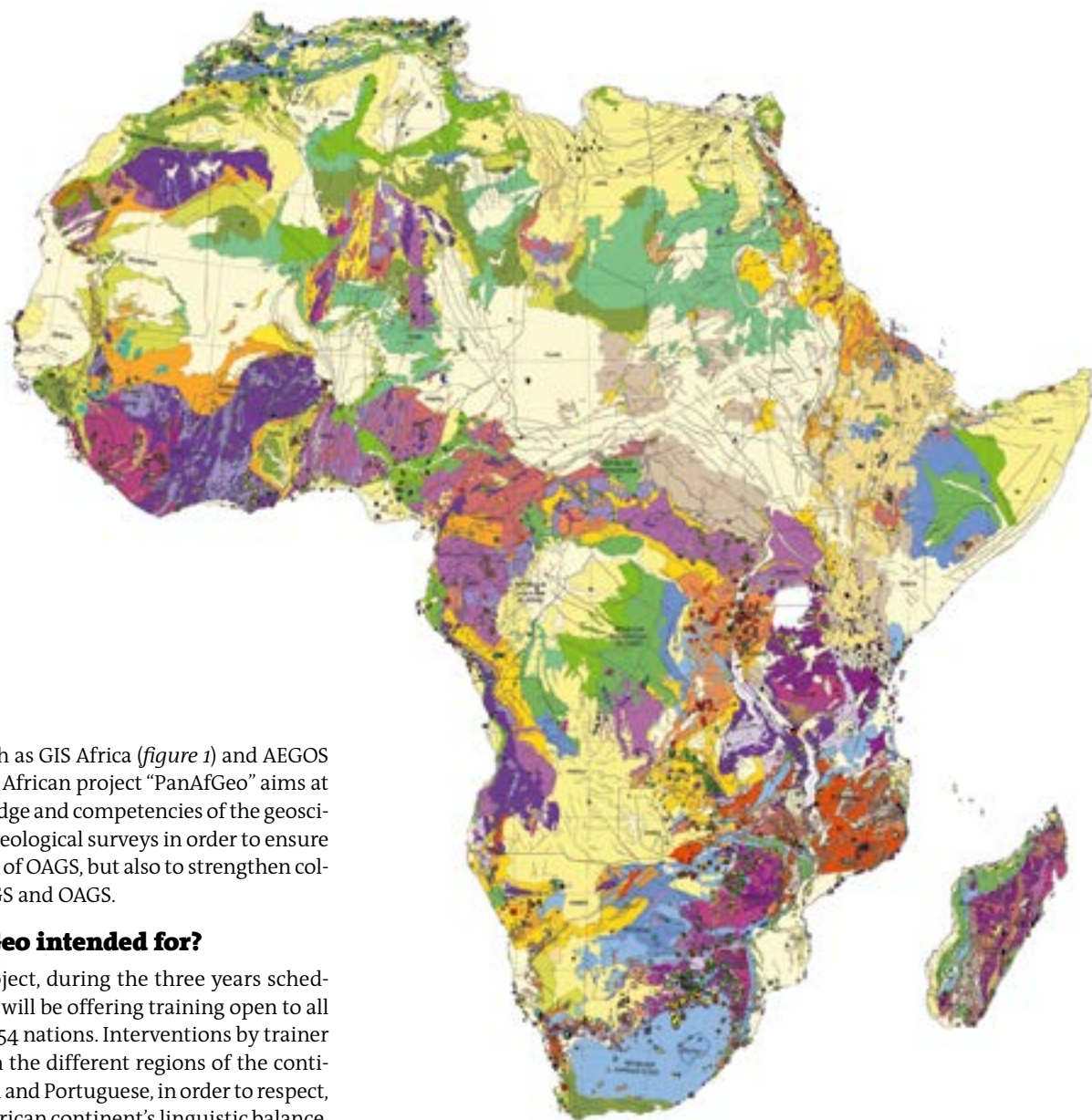
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PHOTO 2
Meeting of African and European geoscientists during the OAGS-EGS Workshop held in Cape Town, South Africa, February 8 - 9, 2015.

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FIGURE 1
Geological map
of Africa, 2004.
© BRGM, SIG AFRIQUE PROJECT



other key projects such as GIS Africa (*figure 1*) and AEGOS (*box: AEGOS*), this Pan African project “PanAfGeo” aims at improving the knowledge and competencies of the geoscientists in the African geological surveys in order to ensure the long-term survival of OAGS, but also to strengthen collaboration between EGS and OAGS.

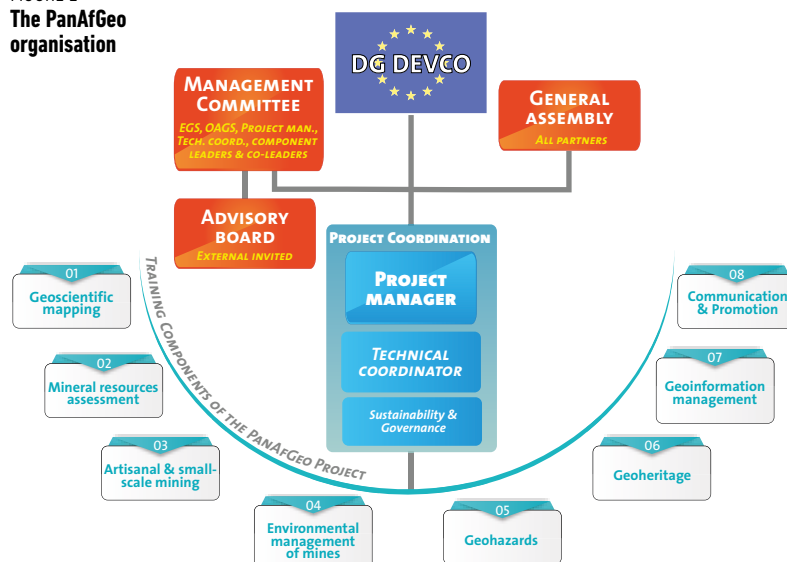
Whom is PanAfGeo intended for?

The PanGeoAf project, during the three years scheduled for its execution, will be offering training open to all African countries, i.e., 54 nations. Interventions by trainer experts will be held in the different regions of the continent in English, French and Portuguese, in order to respect, as best possible, the African continent’s linguistic balance. The trainees should primarily be affiliated to a national geological survey or to a governmental body (ministry, public agency, etc.).

The PanAfGeo organisation

The PanAfGeo project benefits from financing by the European Commission’s DG-DEVCO over a three-year period (2016-2018) and a budget of 10 M€, with a potential second phase (2019-2021) of an equivalent amount. This financial package is granted to a consortium of European geological surveys with its direction entrusted to the French Geological Survey, BRGM. The PanAfGeo project’s official launch will take place during the 35th International Geological Congress held in Cape Town, South Africa, in August-September 2016. The PanAfGeo project is structured around a coordinating team and European and African individuals in charge of the various components of training. The project as a whole will also be followed and supervised by a management committee and an advisory board.

FIGURE 2
The PanAfGeo
organisation



► AEGOS – AFRICAN-EUROPEAN GEORESOURCES OBSERVATION SYSTEM

Identifying and providing access to geology-related data and knowledge underpins public policy-making in the field of mineral resources development. A comprehensive geological and mineral information database provides governments with better decision-making options and the capacity to negotiate sustainable mineral development contracts with investors. Collectively, the European Geological Surveys have a unique archive of public Africa-related geoscientific data that needs to be shared and promoted in conjunction with their African partners in addition to their own information assets. Data and knowledge realise their full potential and value when made accessible, free or at an affordable cost used and disseminated.

Early in 2003-2005, the French cooperation SIGAfrigue project defined the founding concepts of the two-phase AEGOS project co-funded by the European Union 7th Framework Programme for Research and Technological Development. Under the leadership of BRGM, phase 1 (2008-2011) involved a consortium of twenty-three African and European national and regional geoscience organisations. It resulted in the design of a pan-African spatial data infrastructure (SDI) of public, interoperable georesources data as well as user-oriented

services on minerals, non-energy raw materials, groundwater and geothermal energy in Africa. This one-stop information system aims at providing metadata and references to the policy-makers, development agencies, the private sector, geoscientific communities and the civil society. The regional portal hosted by a pan-African organisation would facilitate controlled access to a network of national database nodes operated by the Geological Surveys as owners and custodians.

The involvement of skilled professionals being the second major component of the operational AEGOS infrastructure, the project elaborated common strategies for capacity building. Several target groups were identified and twenty eight dedicated training programmes were described over three curricula.



Since 2012, the development and actual implementation (phase 2) of AEGOS have been considered of priority importance, hence being namely identified in the “Action plan for implementing the Africa Mining Vision” prepared by the African Union Commission as well as in the Pan-African Programme issued by the European Commission as part of the Joint Africa-EU Strategy. Therefore, AEGOS phase 1 results are now appropriately included in the larger project proposal PanAfGeo as Component 7 dedicated to the Geoscientific information management. PanAfGeo will make use of the SDI architecture design and technical recommendations as well as part of the proposed multi-thematic training scheme. It will also implement data sharing principles agreed upon by the SDI stakeholders. _____

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Sandstone plateau in Dogon territory (Songo, Mali).

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BOX 2

► THE ORGANISATIONS OF THE AFRICAN AND EUROPEAN GEOLOGICAL SURVEYS



OAGS – Organisation of African Geological Surveys

The Organisation of African Geological Surveys (OAGS) was created in 2007 to encourage and support the programmes of excellence and of promotion of the geosciences in Africa, in order to advance socio-economic development and reduce poverty through the exploitation of different types of mineral resources, the sustainable use of soils, managing natural risks and environmental protection. OAGS is composed of members from the geological surveys of many African nations. The president and the two vice-presidents are renewed every three years.

The organisation's main objectives are to:

- publish thematic maps at continental and regional scales, as well as thematic technical documents, with a view to providing decision support to governments and to private organisations in Africa;
- enhance the capabilities of African geological surveys;
- share and disseminate knowledge and expertise in the geosciences;
- participate in the training of African geoscientific personnel;
- create and develop a coherent network among African geological surveys.

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EGS – EuroGeoSurveys

Founded in 1972, EuroGeoSurveys (EGS) is a non-profit organisation representing 37 European national geological surveys as well as certain regional geological surveys, thus bringing together several thousand experts. The members of EuroGeoSurveys are public institutions whose activities and areas of research come under the geosciences. A majority of these organisations have existed for a century and possess a good knowledge of Europe's subsurface. EuroGeoSurveys ensures an expertise that is independent, objective and practical at a European scale in a variety of domains:

- use and management of mineral resources, both marine and continental (energy, including geothermal, minerals, hydrocarbons, water...);
- identification of natural risks of geological origin, their monitoring and the mitigation of their impacts (earthquakes, volcanic eruptions, landslides, flooding, etc.);
- managing the environment and wastes, land use;
- sustainable development of urbanization;
- access to numerical geoscientific data;
- data harmonization and interoperability on a European scale.

The EuroGeoSurveys internet site affords access to data, information and geoscientific knowledge organized according to theme, on a national scale or that of the European continent. A detailed description of each of the organisation members is likewise available.

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