



Global space workforce development: a model for partnership building and knowledge transfer to developing space-faring societies



Marlene M. MacLeish^a, Joseph O. Akinyede^b, Ronald J. White^c,
Nandu Goswami^d, William A. Thomson^e

^a Morehouse School of Medicine, Atlanta, GA, USA

^b Federal University of Technology, Akure, Nigeria

^c Montana Tech of the University of Montana, Butte, MT, USA

^d Institute of Physiology, Medical University Graz, Austria

^e Baylor College of Medicine, Houston, TX, USA

ARTICLE INFO

Article history:

Received 3 November 2014

Received in revised form

26 May 2015

Accepted 1 July 2015

Available online 10 July 2015

Keywords:

Global

Partnerships

Workforce development

Education

Africa

ABSTRACT

This paper reports findings of the International Academy of Astronautics (IAA) Study Group (SG), *International Cooperation for Space Life Sciences Knowledge Sharing and Development in Africa*, (2013). The SG, established in 2010, is comprised of space life sciences experts from across the globe. It charged with developing a cooperative global strategy to generate partnerships for space workforce development and life sciences knowledge sharing among space-faring and space-aspiring African nations. The study group's findings emphasize the need for cultural competencies and cooperation. In recent years, Africa's spending on space science has increased as national governments have defined their space aspirations and goals within the context of "space for humanity" and global workforce development. Some African countries have developed their own space agencies with well-defined policies and objectives. Space workforce development efforts among these countries focus on satellite technology and ground station operation, astronomy/space science and investment in related activities that advance their specific space exploration/utilization aspirations (e.g., communication services; satellite data collection and processing, with applications in areas such as food security, health and education, crime control, environmental and disaster management, and urban sprawl; radio telescope technology; and space science education outreach and awareness). The IAA study also examines the implications of increased international governmental/non-governmental educational partnerships for workforce development and proposes a roadmap for Africa's space-emerging countries seeking to establish global partnerships to develop indigenous space workforces. The study concludes that there are many platforms available to promote inter-regional cooperation on space workforce development, particularly in the areas of space science and technology. This paper calibrates the IAA study group's report with the IAA's report, *Future Human Spaceflight: the Need for International Cooperation* (2010), which outlines common global interests for human space exploration and supports the outcomes of three African IAA regional conferences on "Space for Africa."

© 2015 IAA. Published by Elsevier Ltd. All rights reserved.

E-mail addresses: mmacleish@msm.edu (M.M. MacLeish),
jakinyede@yahoo.com (J.O. Akinyede), rwhite@mtech.edu (R.J. White),
nandu.goswami@medunigraz.at (N. Goswami),
wthomson@bcm.edu (W.A. Thomson).

<http://dx.doi.org/10.1016/j.actaastro.2015.07.003>

0094-5765/© 2015 IAA. Published by Elsevier Ltd. All rights reserved.

1. Introduction

International cooperation is a central strategy identified by the International Academy of Astronautics' (IAA) to accomplish its vision, “space for humanity.” This vision is codified in the IAA's *Global Exploration Strategy*, which promotes partnership building, workforce development and knowledge transfer to developing space faring societies [1]. This paper reports findings of the IAA Study Group (SG), *International Cooperation for Space Life Sciences Knowledge Sharing and Development in Africa*, established to develop a cooperative global strategy to generate partnerships for space workforce development and life sciences knowledge sharing among space-faring and space-aspiring African nations. Figs. 1 and 2

1.1. Brief history of the study group

The IAA Study Group (SG), *International Cooperation for Space Life Sciences Knowledge Sharing and Development in Africa*, was established in 2010. The proposal to establish the SG originated from discussions held in November 2009, during the third IAA African Regional Conference, entitled *Joint Participation, Knowledge Development and Sharing*, hosted by the IAA and the Nigerian National Space Research and Development Agency (NASRDA) [2]. Discus-



Fig. 1. Establishing the Study Group: IAA's 2009 Third Regional Conference, *Space for Africa*, Abuja, Nigeria: Dr. Joseph Akinyede, of NASRDA; Dr. Elizabeth Ofili, Professor, Morehouse School of Medicine; Dr. Jean-Michel Contant, IAA Secretary General; Dr. Marlene MacLeish, Senior Education Fellow, National Space Biomedical Research Institute, Professor, Morehouse School of Medicine.



Fig. 2. Opening of the IAA Node Office, Abuja, Nigeria, Dr. S. Mohammed, NASRDA-DG; Dr. JM Contant, IAA Secretary General; Tomukum Chia, IAA Regional Secretary, Cameroon.

sants included representatives of IAA, NASRDA, Morehouse School of Medicine (MSM) and the National Space Biomedical Research Institute's (NSBRI) Educational Outreach Program. Subsequently, the proposal to establish a study group was submitted to the IAA Space Life Sciences Commission, accepted by the Academy's Scientific Activities Committee and endorsed by the Board of Trustees.

This endorsement facilitated a Memorandum of Understanding (MOU) among the IAA, NASRDA and MSM. The MOU supports the IAA's efforts to aid in the development of an IAA space life sciences research and educational outreach roadmap, with recommendations for NASRDA in particular and Africa in general.

The SG was charged to “develop a cooperative global strategy to generate partnerships for space workforce development and life sciences knowledge-sharing among space-faring and space-aspiring African nations.” The first face-to-face meeting of the SG was held in September 2010, during the Academy meetings in Prague, Czech Republic, with subsequent meetings convened during the IAA's global roster of *Humans in Space* symposia. The second meeting was held in April 2011, during the 18th IAA *Humans in Space Symposium* in Houston, Texas. Additional meetings and group discussions were led by members of the 16 space life sciences experts who comprised the SG team [Appendix 1]. The IAA charged the SG with assessing existing space-related activities among African nations and suggesting strategies to enable and promote space life sciences research and educational outreach in African countries seeking to expand their space science enterprise through increased international cooperation. The SG considered key questions codified in the Declaration of the IAA's 2010 Heads of Space Agencies Summit, which called for international cooperation and development of international governmental/non-governmental space life sciences research and education among space-faring African nations [3]. The draft SG report was submitted to the IAA Board of Trustees by the IAA Space Life Sciences Commission, followed by a formal review by a multidisciplinary group of international experts, and was accepted by the IAA Scientific Activities Committee. The IAA Board of Trustees formally endorsed the report though a vote, affirming this study as the “voice” of the IAA.

1.2. Goals and scope of the study group

The goals of this SG are to: (1) review existing space exploration activities in Africa; (2) recommend feasible IAA strategies for space life sciences knowledge development and sharing in Africa; and (3) suggest a roadmap showing how Africa's space-faring countries may develop international partnerships to produce indigenous space life sciences research and educational outreach programs in a rapidly globalizing space exploration world [4].

1.3. Guiding questions

The following eight questions guided the Study Group deliberations.

Which African countries are most interested in developing space life sciences disciplines?

Download English Version:

<https://daneshyari.com/en/article/1714283>

Download Persian Version:

<https://daneshyari.com/article/1714283>

[Daneshyari.com](https://daneshyari.com)