

# REVIEW OF THE INTERNATIONAL ASTRONOMICAL UNION (IAU)

## OFFICE OF ASTRONOMY FOR DEVELOPMENT (OAD)

### Management Response

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#### 1. General:

- a. We thank the Review Committee for the considerable time and effort that they have devoted to producing this helpful, thorough and constructive report.
- b. We are gratified by the positive comments of the reviewers about the accomplishments of the OAD, by the recommendations for its expansion and particularly by the advice that the OAD be continued after the term of the present IAU Strategic Plan has concluded in 2020.
- c. We are pleased that the activities of the OAD appear to have been well received by its stakeholders and that the OAD has been fulfilling its mandate satisfactorily.
- d. We welcome the many recommendations in the report and shall act on them. Comments on specific points follow.

#### 2. Astronomy for Development:

Section 3.1 of the report states as a conundrum that the OAD has been given both “astronomy for development” and the “development of astronomy” to deal with and poses the question: “which should be its priority?” This is certainly a fundamental issue, but we do not regard it as a conundrum. The IAU Strategic Plan is entitled “Astronomy for Development” and is a blueprint for *using astronomy as a tool for development*, not for the development of astronomy.

The integrated phased strategic approach outlined in Section 3.2.1 of the Strategic Plan notes that the approach (as reflected in the Task Force structures) includes primary, secondary and tertiary education, research and public outreach. The optimum mix of these various activities in a particular country or region depends on the local situation and state of development (considered in Section 2.3 of the Plan). Astronomical research can usually only contribute to building capacity (Task Force 1) after a country has developed to a sufficient level. However, even before it has reached this stage astronomy can contribute to building human capacity in stimulating pre-tertiary education (Task Force 2) and to promoting public awareness of science and technology (Task Force 3). These steps can be accomplished without the presence of a significant local astronomical research community. We anticipate that the use of astronomy for development will eventually lead to a natural development of astronomy, without any need to force that outcome.

#### 3. Staffing:

- a. We note and welcome the conclusion of the report (page 12) that "funding is manifestly inadequate" and that "It is key to the future that more funding be found for the OAD itself and for the projects".

- b. We agree with the recommendation (page 12) that a PhD level astronomer should augment the OAD staff as an additional link with the Task Forces.
- c. We welcome the recommendation that a part time fundraiser be appointed and suggest that the following factors be considered in prescribing the details of how the recommendation be implemented:
  - i. The prestige and support of both OAD parent organisations will be needed to maximise the success of any fund raising campaign. For example, in approaching international development organisations the assistance of the NRF and DST and close coordination with them will be important.
  - ii. Besides opportunities in North America and Europe there are several potentially attractive possibilities, within Africa and elsewhere, for fund raising, e.g. the African Development Agency.
  - iii. Independent of their location, the fundraiser will need to work closely with the OAD and should remain closely acquainted with the OAD organisation and projects.

It is therefore important that the appointment of the fundraiser be done in consultation with the OAD (Steering Committee and Director).

#### 4. Volunteers:

- a. We acknowledge the remarks about not taking full advantage of the valuable pool of volunteers. Plans are in place to maximize on the engagement of the many volunteers who have registered their skills and interest. The additional staff member recommended by the review panel would partly address this matter. To exploit this important resource fully and adopt a proactive approach to the activities of the task forces, we believe that dedicated coordinators for each of the three task forces are needed.

#### 5. Benefits to South Africa:

- a. There are more benefits to South Africa than was captured through the interviews (page 6). Because of their importance we summarise the benefits of the present OAD location to both partners in Appendix A.

#### 6. Relation to SKA:

- a. The OAD welcomes the prospect of working more closely with the SKA project due to its developmental potential. The OAD is well positioned to support large projects such as the SKA and AVN initiatives through its network across the continent. For example, in a recently awarded Newton Fund grant for AVN Human Capital Development, the OAD plays the role of expanding the reach of the project as well as coordinating an education/outreach component of the interventions. The OAD's growing database of best practice and, in the near future, evidence-based interventions, can contribute significantly to the challenge of developing the skills necessary to exploit the AVN and the SKA.

#### 7. OAD Steering Committee (SC):

- a. The Panel mentioned that they were unable to find a Terms of Reference (ToR) for the Steering Committee [Issue B (b)]. Although the ToR of the SC were not formally enshrined in a separate document, several clauses in the IAU-NRF agreement spell out in detail the responsibilities of the SC and were

taken by the SC as their terms of reference. These are given in Appendix B of this document. In addition, the SC devised and adopted an internal 2-page Rules of Procedure, as directed by Clause IX.4 of the agreement.

- b. Regarding Recommendation 4, we note that during the past 3 years the SC has acted in accordance with the ToR derived from the IAU-NRF agreement and has provided substantial critical and independent guidance to the OAD and its Director, much of which is recorded in writing, e.g. in the minutes of SC meetings.
- c. We welcome the endorsement of the proposal from the current OAD steering committee that SC appointments should be synchronised with the IAU GAs and that appointments should be staggered to maintain continuity [(Issue B (a))].
- d. We also agree that the SC should continue to be composed of members that have the experience and stature necessary to fulfill its remit (Recommendation 4 and Appendix B). We note that the SC has submitted documents to both partners urging that designated Chair/Vice Chair members be scientists of stature who have experience of leading large projects or sizeable institutes.

8. Focus on Africa:

- a. The report points out (Issue A2), that although the remit of the OAD is global, the IAU Strategic Plan emphasises sub-Saharan Africa as the region most in need of development and one that “to some degree deserves special attention”. In implementing the Plan, we believe that the OAD has been successful in preserving this balance and that criticism “that the work is too much centred in Africa” is not well justified. Although 3 of the 6 regional nodes are located in sub-Saharan Africa the allocated projects are distributed fairly uniformly throughout the world. For example, if we compare Africa with Asia, in the first call 7 projects were in Africa and 6 in Asia; in the second call 6 were in Africa and 7 in Asia. Preserving this geographical balance is a criterion that is taken into account by the Task Forces in recommending suites of projects and by the EDOC in approving the projects (it is worth noting that OAD staff themselves do not select the projects to be funded). Proposals for regional nodes must also be approved by the EDOC.
- b. Although the discussion during the interview with the OAD Director included the idea that projects implemented in a developing region (such as the African continent) can bring significant lessons for roll-out in other parts of the world, the OAD does not see this as a reason to focus on Africa and we believe that the appropriate geographic balance has been preserved in accordance with the strategic plan (see point 8.a. above).

## **APPENDIX A: Some benefits to the partners from the present location of the OAD**

Benefits to the IAU include the following:

- Direct access to Sub-Saharan Africa – the focus region of IAU Strategic Plan and the designated location for a large part of the global Square Kilometre Array (SKA).
- Harnessing astronomy for development and the goals of IAU Strategic Plan are major drivers for astronomy expenditure in South Africa.
- South Africa houses major optical and radio astronomical facilities and an expanding and vibrant internationally-oriented astronomical community.
- The OAD benefits from direct access to the expertise of South African astronomers and engineers for implementation of its activities, especially for activities on the African continent.
- Support from the South African authorities will be an important asset in future OAD fund raising campaigns.
- South Africa is an excellent testing ground for “Astronomy for Development” pilot projects.

Benefits to the Department of Science and Technology (DST) include the following:

- The location of the OAD highlights South Africa as a global leader in “astronomy for development” and “science for development”, important drivers of DST policy. The achievements and prestige of the OAD are associated with the DST.
- The OAD’s human capital development activities within Africa feed the “Grand Challenges” of DST’s Ten Year Innovation Plan.
- The several pilot projects conducted by the OAD in South Africa assist the achievement of the DST’s objectives for human capital development.
- The OAD facilitates interactions between African astronomers, which enhance South Africa’s policy of developing astronomy throughout Africa.
- OAD has brought South Africa several international collaborations through its global networks.
- The OAD has, both independently and in partnership with the SKA Project Office, supported the development of astronomy skills in SKA-Africa partner countries.
- The OAD serves as a global consolidation point for international astronomy education resources and best practice.

Benefits to the South African National Research Foundation (NRF) include the following:

- The OAD addresses the NRF strategic goal of “leading edge research, technology and innovation platforms” by gathering and implementing best practices and resources from around the world in the use of astronomy for stimulating university research and teaching.
- The OAD’s involvement in using inspirational astronomy for early childhood and school education addresses the mandate of SASTA and the DST “Youth into Science Strategy”.
- The OAD’s activities in South Africa addresses the NRF strategic goal of “Representative research and technical workforce in SA” by targeting some pilot projects at historically black universities.
- The OAD participates in science engagement - a key driver of NRF research.

**Appendix B: Extracts from IAU-NRF Agreement comprising the OAD Steering Committee Terms of Reference:**

A. From Section IX: Oversight

1. The IAU and NRF shall jointly establish a body, to be known as the OAD Steering Committee, which shall exercise general oversight of the activities of the OAD and DDE.
2. The OAD Steering Committee shall be formed upon this Agreement entering into force, and shall comprise 3 members nominated by the IAU and 3 members nominated by the NRF. The Chair of the OAD Steering Committee shall hold office for 2 years and shall alternate between a nominee of the IAU and a nominee of NRF.
3. Members of the OAD Steering Committee shall normally serve a maximum of 4 years unless appointed Chair, in which case the maximum term shall be 6 years.
4. The OAD Steering Committee shall define its own Rules of Procedure.

B. From Section X: Appointment of Director of Development and Education (DDE)

2. The selection of the DDE shall be done by the OAD Steering Committee and shall be subject to the ratification of the IAU Executive Committee and NRF.
3. The DDE shall be employed by the NRF at SAAO, which shall fix the remuneration, benefits, social charges, and terms and conditions of employment, subject to the approval of the OAD Steering Committee.

C. From Section XI: Recruitment of Staff

2. All staff shall be employed by the NRF at SAAO, which shall fix the remuneration, benefits, social charges, and terms and conditions of employment, subject to the approval of the OAD Steering Committee.

D. From Section XIII. Evaluation of Staff Performance and Remuneration

1. The OAD Steering Committee shall assess the performance of the DDE annually, setting objectives for the following year, and shall report in writing to the IAU Executive Committee and NRF. Within the limits of the budget, the OAD Steering Committee may set the remuneration of the DDE.
2. The DDE shall assess the performance of the OAD staff annually, setting objectives for the following year, and shall report in writing to the OAD Steering Committee. Within the limits of the budget, the DDE may set the remuneration of the staff.
3. Termination of contracts of employment shall follow the procedures and rules which apply to equivalent employees of the NRF, with due consideration of the international nature of the OAD and thus high impact of underperformance.

E. From Section XIV: Budget and Budget Control

2. The budget of the OAD shall be proposed to the OAD Steering Committee annually by the DDE in such detail as may be decided from time to time by the OAD Steering Committee.
3. Within each Financial Year the DDE shall have total control of the OAD finances, provided that expenditure does not exceed the overall budgeted

income and that any unusual or unexpected expenditure is reported promptly to the Steering Committee.

4. Any increase in expenditure in year shall have the source of funding agreed and shall be approved in advance by the OAD Steering Committee.

F. From Section XV: Programme and Financial Reporting

1. The DDE shall report annually in writing to the OAD Steering Committee on the programme completed, future plans, and financial status of the OAD.
2. The DDE shall present annually to the OAD Steering Committee for approval an income and expenditure budget for the following year.
3. The Steering Committee shall present a written report annually to the IAU and NRF on the programme completed, future plans, and financial status of the OAD, including the approved budget.
5. A publicly accessible annual report, approved by the OAD Steering Committee, shall be produced and distributed to funders and stakeholders.