

# Accelerating Scientific, Academic and Technology Capability to Advance Risk Reduction and Resilience-Building 2019-2030 (STAG Working Group 4)

Annisa Triyanti, Irina Rafliana, Soichiro Yasukawa, Ailsa Holloway

## 1. Background

STAG Working Group 4 focused on the role that universities and higher education institutions play in collaboration with other science and technology actors and communities in advancing integrated scientific and academic capabilities in the disaster risk domain.

From 2018-2019, STAG Working Group 4 members:

- a) Conducted a **robust review** of relevant literature and **coarse tracer study** of DR-qualified graduates to determine career pathing for advancing DR-related science and practice. This analysis is reflected materially in the accepted GAR 2019 contribution paper *Beyond fragility: Advancing skilled human capital for disaster risk reduction and resilience in Africa*.<sup>1</sup>
- b) **Engaged purposefully with UNESCO and UNISDR** to co-facilitate a Regional Workshop for Asia Pacific Science & Technology Capacity Building for Youth and Young Scientists in DRR, 6-9 November, 2018. This workshop successfully catalysed the establishment of the national-based platform of young scientists and professionals on DRR, namely U-INSPIRE Indonesia and U-INSPIRE Pakistan, with on-going establishment process in more Asia-Pacific and African countries.
- c) **Formulated and submitted a draft proposal** to UNISDR to convene a dedicated session at the Global Platform 2019, inviting diverse stake-holders, including donors and potential funders (unsuccessful).
- d) **Developed, piloted and distributed a questionnaire** to S&T partnership members and other groups, and compiled results on the diversity of formal capacity DR-related building programmes offered, with a specific focus on Africa and Asia.

## 2. Preliminary survey results.

### 2.1 Overview

These survey results, from institutions primarily in Asia/Pacific and Africa, complement insights from similar studies conducted in Europe as well as Latin America and the Caribbean. Nielsen & Faber's 2017<sup>2</sup> review of 59 DRM masters degree programmes in western Europe and Scandinavian countries through the *Knowledge for Resilient Society (K-FORCE)* project indicated that most courses offered either focused on professionally-oriented disaster and emergency management or geo-technically-aligned natural hazard. The ANDROID Disaster

---

<sup>1</sup> Holloway, A. & Fortune, G. 2019 Beyond fragility: Advancing skilled human capital for disaster risk reduction and resilience in Africa. Contributing Paper, Global Assessment of Risk Report 2019, UNISDR (in press).

<sup>2</sup> Nielsen, L., Faber, M.H., 2017. Survey and Design of Master Level Programs in Disaster Risk Management. 1<sup>st</sup> International Symposium K-Force: Knowledge FOr Resilient SoCiEty. Higher Education Technical School of Professional Studies, Serbia and University of Novi Sad, Faculty of Technical Sciences, Department of Civil Engineering and Geodesy. Novi Sad, Serbia. 230-246.

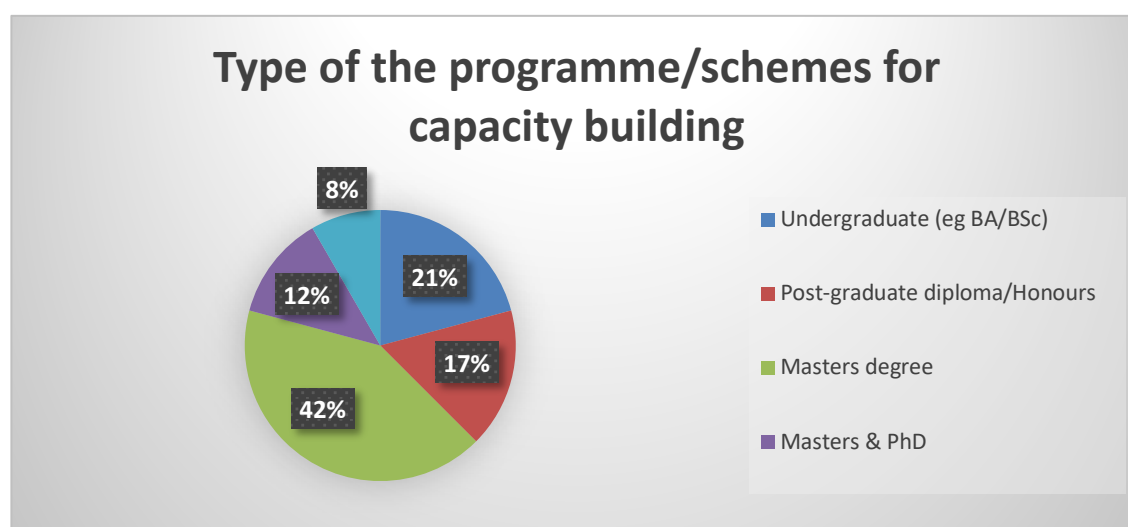
Resilience Network's survey of European universities in the *Disaster Resilience Education and Research Roadmap for Europe 2030* also profiled few disaster resilience-related academic programmes across Europe, with most emphasising engineering (Amaratunga et al., 2015; Perdikou et al., 2016).<sup>3,4</sup>

However, these findings from Europe contrast sharply with study results on *Advances and linkages of the scientific and academic community with Disaster Risk Reduction* in Latin America and the Caribbean (LAC), where Jiménez (2016) identified 94 DRR-related academic programmes, with 68 of the courses positioned at post-graduate level.<sup>5</sup> Her analysis suggests that academic engagement and DR-related scholarship represent active domains of study in LAC countries.

The **STAG Working Group 4 survey results** reflect information from 25 institutions, including 19 HEIs or research institutions and six other organisations. The findings apply to 24 specific DR-related academic programmes offered in Africa (18) and Asia/Pacific (6).

## 2.2 Key results

- 1) There are a **diversity of disaster risk-related (including DRS and DRM)** academic programmes offered across Africa and Asia. These involve both undergraduate and post-graduate programmes, including post-graduate diploma offerings.

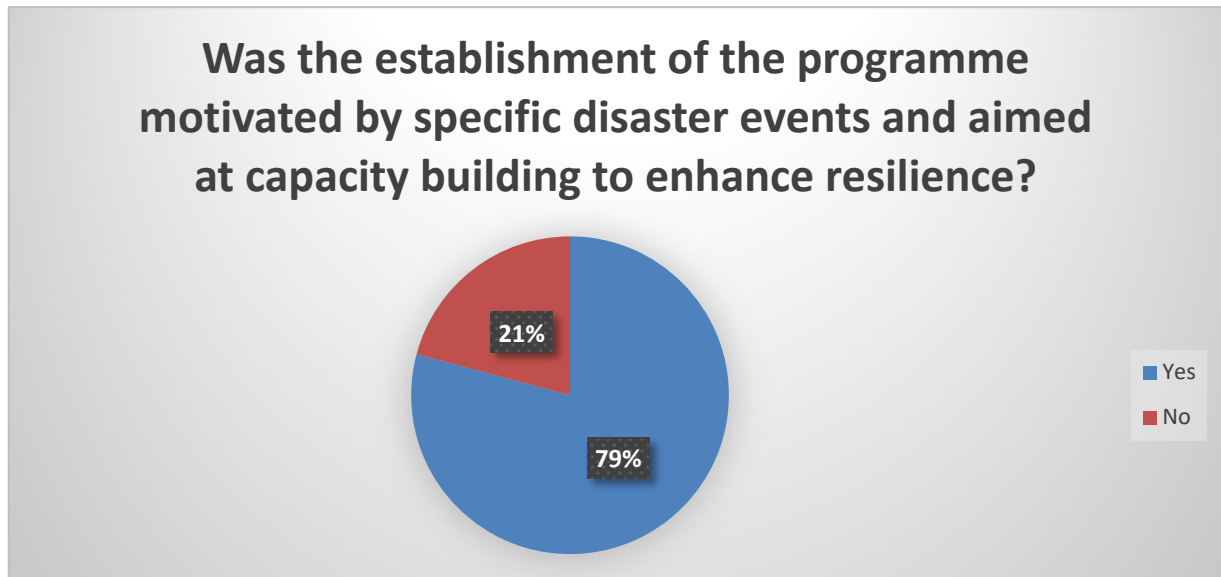


<sup>3</sup> Amaratunga, D., Faber, M., Haigh, R.P., Indirli, M., Kaklauskas, A., Lill, I., Perdikou, S., Rochas, C., Sparf, J., Perera, S., Thayaparan, M., Velazquez, J., 2015. ANDROID Report: Disaster resilience education and research roadmap for Europe 2030. Disaster Resilience Network. Tulsa, Oklahoma, USA.

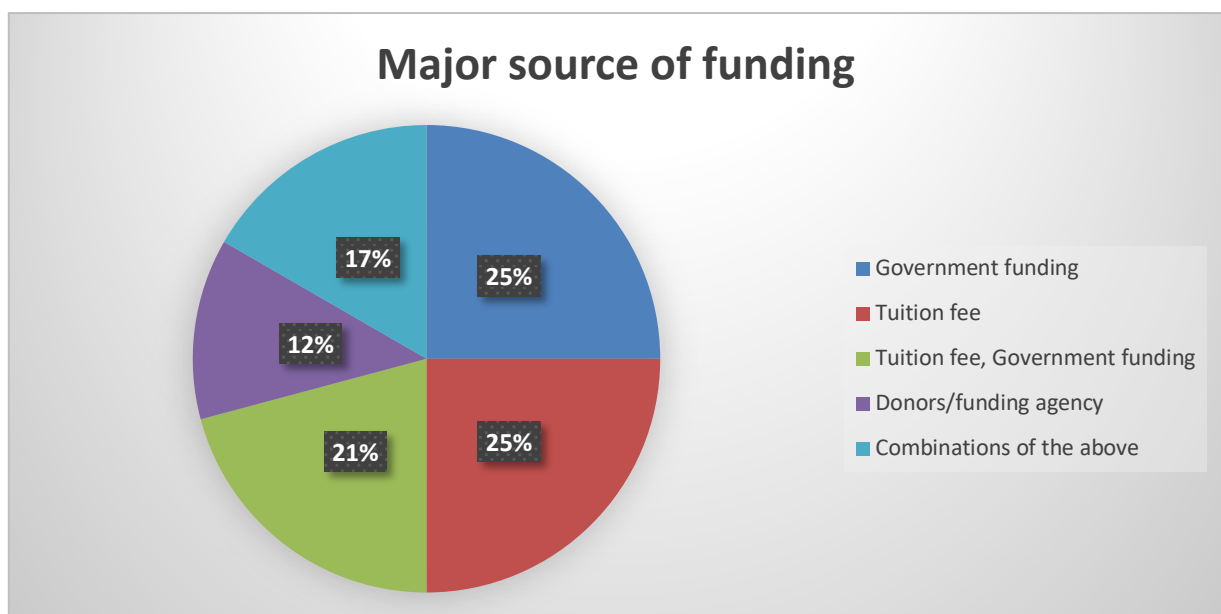
<sup>4</sup> Perdikou, S., Horak, J., Halounová, L., Palliyaguru, R., Lees, A., 2016. The capacity of European Higher Educational Institutions to address threats imposed by natural hazards. *Natural Hazards*. 81, 1447-1466. <https://doi.org/10.1007/s11069-015-2139-2>.

<sup>5</sup> Jiménez, V. 2016. *Identification of Existing Advances and Linkages of the Scientific and Academic Community Initiatives with Disaster Risk Reduction (DRR) in Latin America and the Caribbean (LAC)*. Regional Committee for Latin America and the Caribbean, International Council of Science (ICSU-ROLAC), Unpublished.

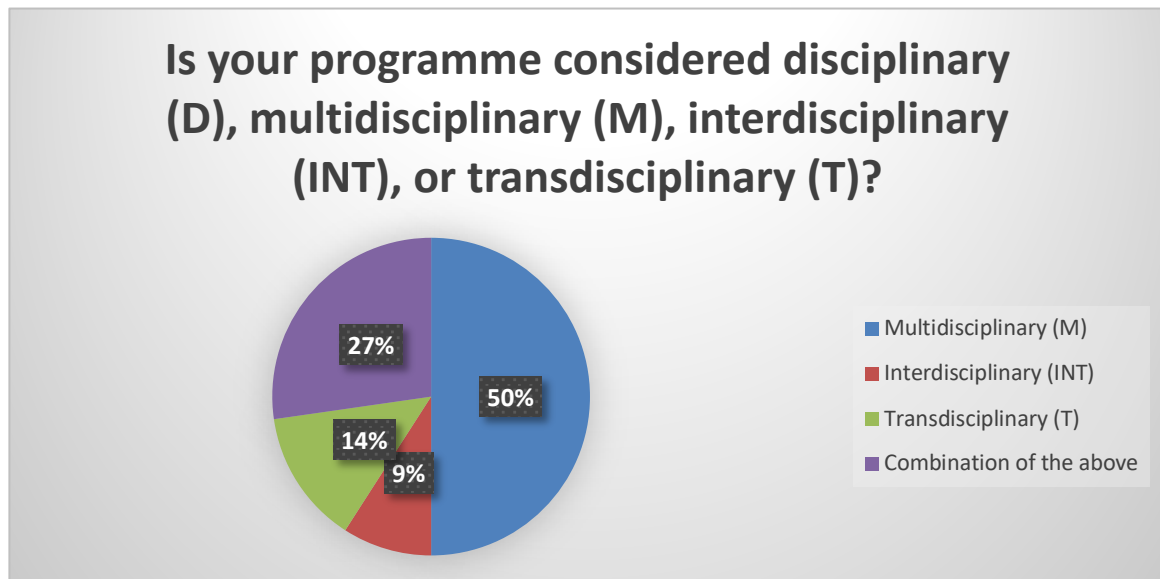
- 2) The introduction of a DR-related academic programme nearly always followed the realised occurrence of disaster events. 79% of all respondents could reference specific events or recurrent disasters as catalysing forces for the introduction of their programmes.



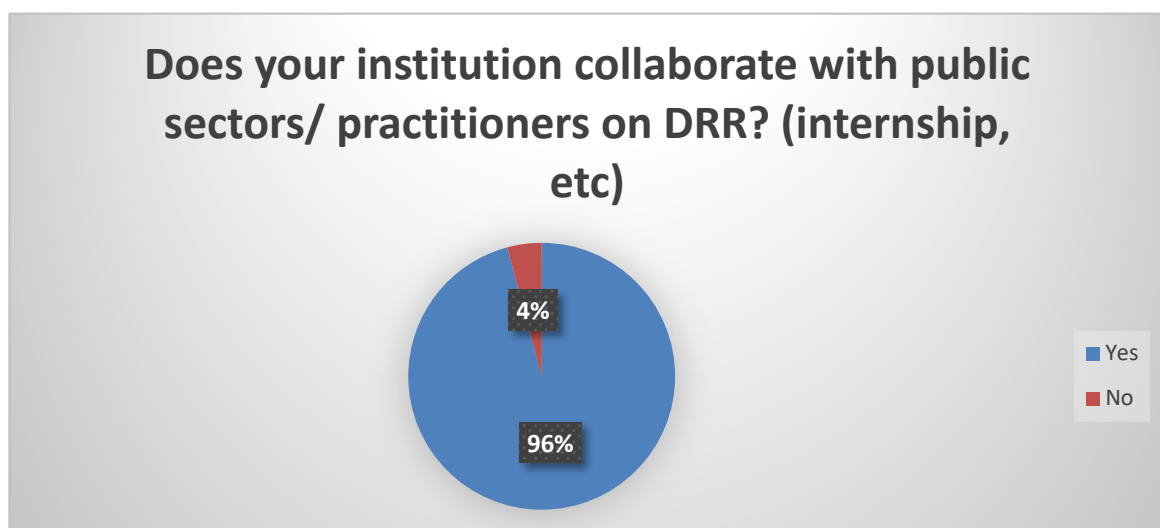
- 3) Costs for building skilled DR-human capital are primarily borne by developing country governments and from student fees. Donor support for university-based DR human capital building and skill-building only accounts for 12-29% of the resources reported.



- 4) Contrary to research findings from Europe, DR-related academic programmes in **Asia/Africa cross a diversity of fields and disciplines**. These include geography, community development, health, IT sciences, agriculture, soil science and disaster risk studies. **50% of the reported programmes were multi-disciplinary.**



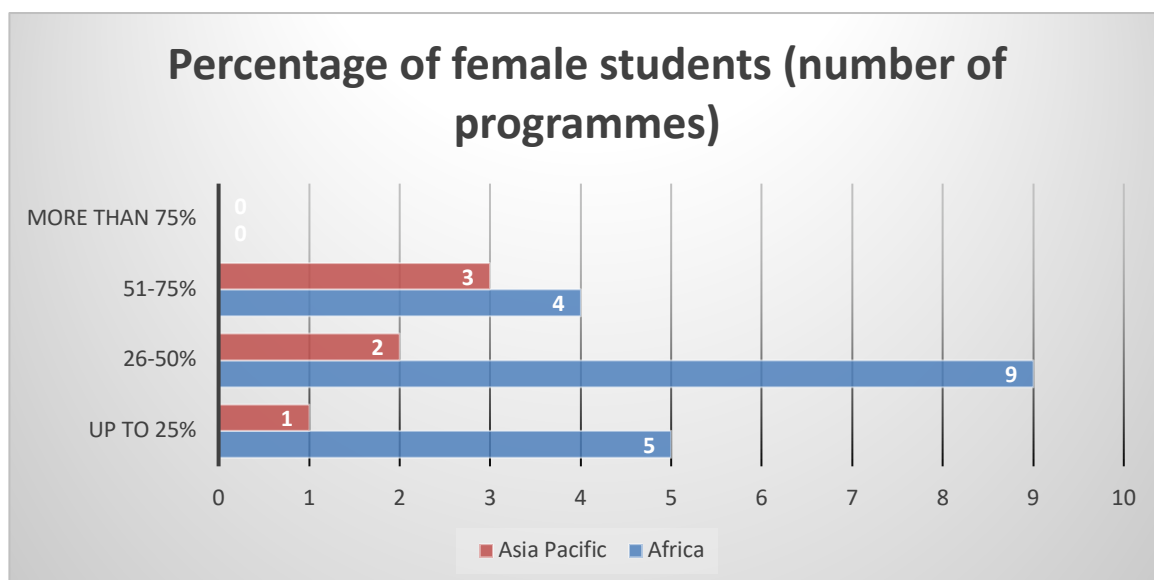
- 5) HEIs in Africa and Asia embed their DR research and **teaching in partnerships with local and other authorities**. **96% of the programmes described were linked to some form of public sector collaboration, including field-work, internships or commissioned research**. This has strong outcomes for co-developed teaching and learning programmes where there is a **'good fit' between graduating skill-sets and local need**.



- 6) African/Asian HEIs are committed to **active engagement with local communities and DRM practitioners**. 92% of respondents noted field-work in at-risk communities, practical assessments and close collaboration with local municipal councils.

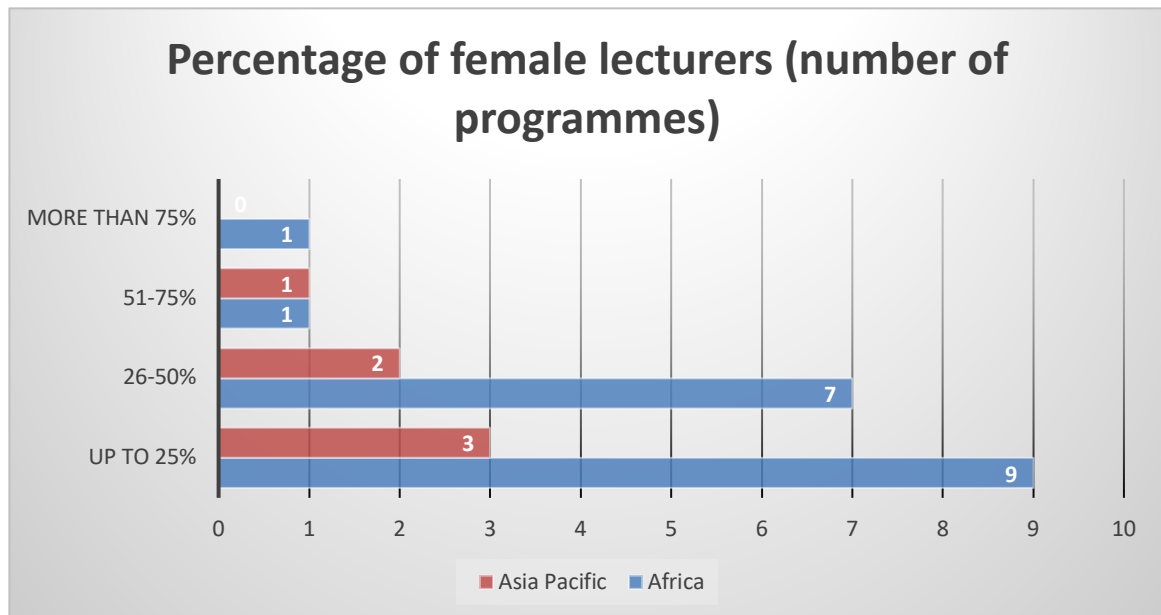


- 7) There is encouraging progress with female student enrolment in DR-related academic programmes. However, levels of female student enrolment differ markedly between Asia and Africa. Survey results indicate that while **women comprise 51-75% of all students in half the Asian programmes, this level of enrolment only applied to 22% of the programmes described from Africa**.

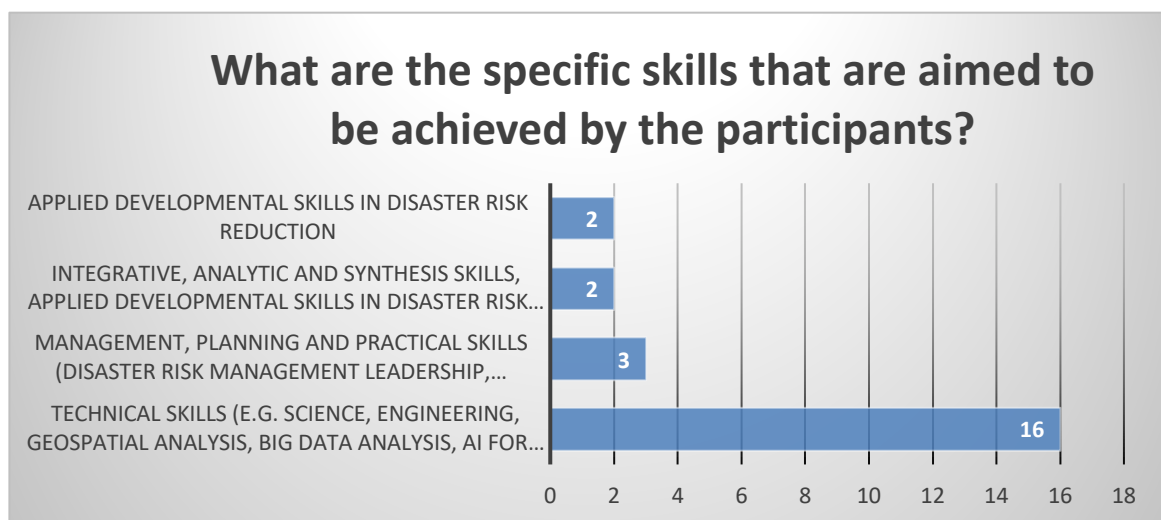


- 8) **There is a strong male gendered profile for DR-related teaching staff**. In half of both African and Asian DR-related programmes, **women constituted no more than 25% of the**

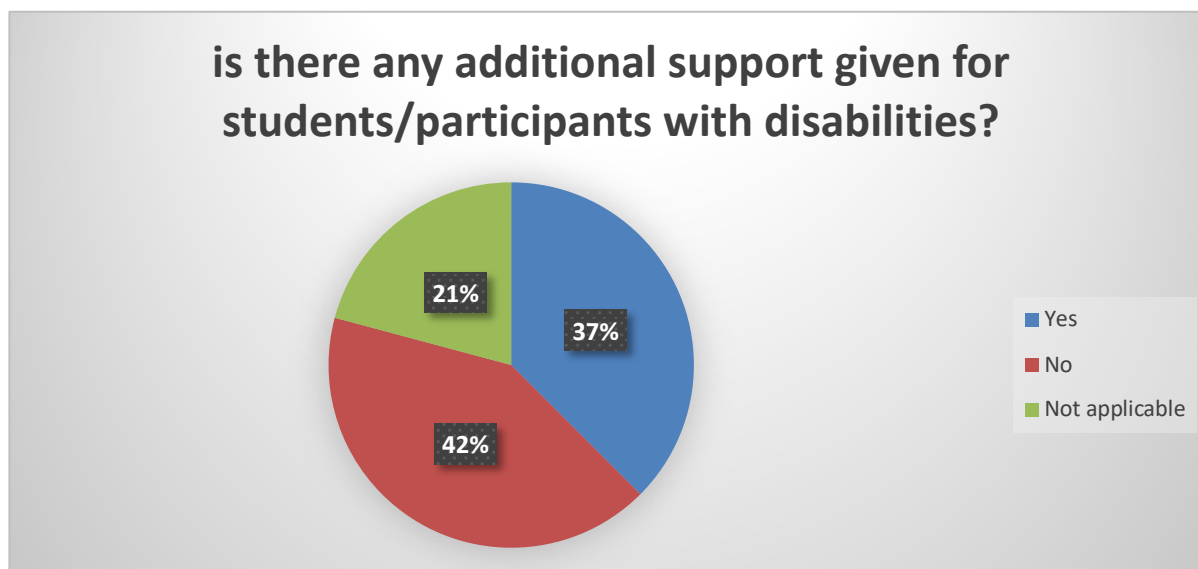
**academic staff.** In only three of the 24 academic programmes reported did women lecturers exceed 50% of teaching staff.



- 9) DR academics in Africa and Asia foresee the need for enhanced **integrative and analytic DR skill-sets** in the future. These include geospatial, Big Data and AI capabilities, as well as strong capacities to generate and integrate knowledge from a range of sources and disciplines.



- 10) **There is limited visibility of disabled student enrolment in DR-related academic programmes, and no systematic evidence of support** for students with disabilities, indigenous people or refugees.



### 3 Conclusion and points for discussion

UNISDR Working Group 4 survey results foreground the following:

- 1) Higher education institutions in Asia and Africa **constitute an under-utilised force for transforming disaster risk reduction skill-sets**, especially in the aftermath of major disaster events. Results indicate a strong HEI appetite for post-disaster programme innovation. This initiative should be actively reinforced by **incorporating higher education DR curriculum redevelopment in post-disaster recovery planning and funding**.
- 2) Even in highly disaster-prone developing countries, **governments and students are paying for their own skilled capacity building in DRR**, with minimal international

support. This explicitly **disadvantages talented students who lack financial means** to pay tuition, particularly women and other motivated, but marginal groups.

- 3) Despite evidence of wide-ranging integration of DR content into a diversity of academic programmes, there are **striking shortcomings in the engagement of the social sciences and humanities**. This **compromises both the depth and breadth of potential for interdisciplinary and transdisciplinary DR-related teaching and research** - with profound implications for practice (as evidenced by the West African Ebola outbreak, where 'epidemiology without anthropology' was sorely inadequate for understanding the social construction of risk in that context).
- 4) In both Asia and Africa, survey results indicate discouraging disaster risk **career pathways for women academics**. In a field where impacts are disproportionately borne by women and children, survey results indicate **little evidence that women scientists and academics are systematically, strategically and inclusively supported to advance professionally**. This has profound implications both for the scope of DR science, as well as policy and practice in both regions.