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Research—implementation organisations and their role for sustainable development

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Abstract

Over the past decade, considerable progress has been made by higher education institutions (HEIs) to align with sustainable development goals. Specifically, aspects of sustainable development have been integrated into the existing mandates of HEIs – education, research and operations. The main objective of the current study was to assess a sub-group of African HEIs that have an explicit mandate for implementation science and pursue development assistance-type services and to describe their added value to advance sustainable development. We conducted a qualitative situational assessment, including 22 institutions from 13 countries. Interviews and surveys were done with 42 participants composed of director-level representatives and staff members engaged both in research and implementation. The data were subjected to qualitative content analysis. The main strengths of the participating organisations vis-à-vis implementation projects and wider sustainable development were the quality of implementation, local relevance of the research and uptake of research evidence into policy and practice. A major weakness was the challenge of operating such a bi-sectoral model, while maintaining high-level performance in both areas. Yet, the examined research–implementation institutions draw from and combine the competences of research, education and implementation and have a distinctive role to play in the attainment of sustainable development, especially when operating by an optimised support system and within strong research ecosystems. Based on our study, we provide a definition of research–implementation organisations that may serve institutions to enhance their standing, their operations and their significance for sustainable development.

KEYWORDS

Africa, development assistance, higher education institutions, research–implementation organisation, sustainable development, transdisciplinary

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1 | INTRODUCTION

The fate of higher education institutions (HEIs) and sustainable development is connected. Indeed, academia and science are increasingly called upon to solve the anthropogenic environmental crises that has intensified and accelerated over the past few decades (Corcoran & Wals, 2004; Orr, 1994). Of note, a new positioning of HEIs started to take place with the formal recognition of the central role of education in promoting environmental protection and conservation, half a century ago at the United Nations Conference on the Human Environment in Stockholm (UN, 1972). A series of declarations, charters and initiatives on education and sustainable development followed, such as the Brundtland Report in 1987 (Brundtland et al., 1987) and the UN Decade of Education for Sustainable Development (DESD) from 2005 to 2014 (UNESCO, 2014). These activities shaped and reinforced the strategic alignment of HEIs with the sustainable development movement (Berchin et al., 2021; Lozano et al., 2015). The current international development framework—the Agenda 2030 for Sustainable Development—includes higher education in Sustainable Development Goal (SDG) 4 on quality education and acknowledges the role of academia in SDG 17 that is global partnerships for sustainable development (Owens, 2017; UNGA, 2015).

HEI actors increasingly include the concepts of sustainability in their operations and mandates (Chankseliani & McCowan, 2021; Hancock & Nuttman, 2014; Paletta & Bonoli, 2019). Conceptually, they mostly do so by integrating sustainability in their core functions: education, research, operations and outreach (Lozano et al., 2015; Velazquez et al., 2006; von Hauff & Nguyen, 2014; Wu & Shen, 2016). Most of the efforts of HEIs have focused on education for sustainable development (ESD) and operations (Lozano et al., 2015; Wu & Shen, 2016), followed by research and the concept of transdisciplinary, reporting and outreach and engagement and partnership (Berchin et al., 2021; Lozano et al., 2015; Witjes et al., 2022).

A few HEIs have gone beyond incorporating sustainable development concepts into their existing framework and have adapted their missions and organisational structures around strengthening engagement with society and addressing societal challenges. They have done so by establishing dedicated institutes, centres of excellence, think tanks or networks for inter- and transdisciplinary research (Cuesta-Claros et al., 2022; OECD, 2020a; Ward et al., 2019). Yet, institutions that specialise in transdisciplinary research and related approaches, often have a competitive disadvantage *vis-à-vis* traditional research institutions when it comes to research funding (OECD, 2020a). Moreover, integrating a wide range of cultures, disciplines and sectors may increase transaction costs (Brown et al., 2015). Thus far, the high demands for transdisciplinary researchers does not follow suit with career prospects (OECD, 2020a; Witjes et al., 2022).

Against this backdrop, a recent mapping and characterisation of a sub-group of Swiss HEIs was conducted in order to identify and describe organisations that pursue a dedicated mandate for project implementation and development assistance-type services besides research and education (Saric et al., 2021). Similar to transdisciplinary research settings, the representatives of the participating institutions

suggested that there was a lack of career options and positions for individuals that deviate from the mono-disciplinary career path. However, the interviewees perceived that such a “hybrid” model can benefit implementation projects by enhancing the quality of products, help to continuously optimise programmes and foster context-specific, cost-effective and methodologically sound interventions. It was hypothesised that such institutions would contribute to more impactful activities for sustainable development.

1.1 | Research—development interface in Africa

In Africa, where much of the research in collaboration with high-income countries has taken a position of international development (OECD, 2020a) and where a “consultancy culture” was described at HEIs (DFID, 2014), the perception and the positioning of institutions that do both—research and implementation—may differ from a Swiss context.

The science and research sphere in Africa has witnessed the introduction of high-profile pan-African or regional research-excellence promoting schemes over the past 20–30 years that ultimately aim at enhancing the national and continental social and economic development (Tijssen & Kraemer-Mbula, 2018). Among them are the Africa Centres of Excellence Project (Association of African Universities, 2021), the DELTAS Africa initiative (Kasprovicz et al., 2020), the African Institute for Mathematical Sciences (AIMS) Next Einstein Initiative (Secretariat, 2022) and the Heredity and Health in Africa (H3Africa) Initiative (de Vries et al., 2015; Tijssen & Kraemer-Mbula, 2018). Recently, Horizon Europe, earmarked € 350 million for research and innovation collaboration with African partners in 2021 and 2022 in its “Africa initiative” instrument (The Guild of European Research-Intensive Universities, 2021).

Additionally, gross domestic expenditure on research and development (R&D) in Africa has increased by approximately 20% between 2014 and 2018, alongside a 50% increase in volume of scientific publications between 2015 and 2019 (UNESCO, 2021). While making more funding available, African governments are increasingly reaching out to research and academic bodies for consultation—a trend that started well ahead of the COVID-19 pandemic. During the pandemic, several African countries successfully turned their capacity to innovate and their previous experience with national and regional infectious disease outbreaks and responses into immediate action.

However, challenges remain for African research attaining its full potential in driving social and economic development, coupled with a digital and green transition. Africa only produces approximately 2% of the global research output and contributes a tiny 0.7% of the global research community (UNESCO, 2021). This is rooted in poor research and administrative infrastructure and support systems and the lack of a critical mass of well-trained researchers and supervisors (Kasprovicz et al., 2020). Moreover, while trends for domestic funding are moving into the right direction, many countries in sub-Saharan Africa still fall short of their commitment to fund 1% of their gross domestic product on R&D (World Bank, 2020). Meanwhile, in the global arena, research funding schemes are still greatly favouring principal investigators from high-income

countries, including for research areas that revolve around and/or take place in Africa, such as climate change mitigation in Africa and infectious diseases of poverty (Erondu et al., 2021; Overland et al., 2021).

Besides classical research funding, sub-Saharan Africa is the number one recipient of official development assistance (OECD, 2020b), which also constitutes a major funding source of research organisations that are active in implementation and implementation research. Given a relatively large proportion of potential research–implementation institutions that tap into both types of funding sources (OECD, 2020a), there is strong regional capacity to converge research-based innovation and evidence with application and practice for short- and medium-term development gains.

The overarching goal of this article was to identify and describe African institutions that have both a strong research mandate and a mandate to conduct third-party project implementation or development assistance-type services, thereafter called research–implementation institutions. The specific aims were (1) to describe the structure and positioning of such institutions and researchers with double-competency in research and implementation (researcher–implementers, hereinafter) alongside other sustainable development actors; (2) to assess the strengths, weaknesses, opportunities and threats (SWOT) of this model, primarily with regard to implementation projects and sustainable development and secondarily with a view to the respective institutions and the individual researcher–implementers; and (3) to determine suitable funding support structures for such organisations.

1.2 | Structure of the article

The article is structured as follows. First, we present the theoretical foundations behind the objective of this article that has emerged from the literature on the role of HEIs in sustainable development—specifically their growing involvement with the concept of transdisciplinarity. It also draws from the SWOT framework. Second, the “Methods” section explains the process of identifying the study institutions, the study design, the data acquisition and analysis and, finally, introduces the participating institutions. The article then moves on to the “Results” to describe the structure and governance of the participating institutions, present the SWOTs and the funding situation as perceived by the research–implementation institutions representatives. The “Discussion” section compares the current findings with those from the previous Swiss study with regard to the structure of the participating institutions and career opportunities of researcher–implementers. Moreover, potentially unfavourable practices at African research–implementation institutions are discussed that might negatively impact research quality.

2 | THEORETICAL FRAMEWORK

To our knowledge, within the literature on the role of HEIs in sustainable development, there are no studies, apart from our previous work (Saric et al., 2021), that describe research–implementation institutions

(i.e., organisations that operate a bi-sectoral approach for sustainable development, anchored in academia and research and at the same time being part of the development assistance sector). Hence, the design of the study was based on a literature assessment, primarily on the concept of transdisciplinarity and the resulting transdisciplinary research area that shares some of the anticipated benefits of research–implementation institutions as well as challenges. Our methodology drew from the SWOT analysis to assess the research–implementation institutional model.

2.1 | The concept of transdisciplinarity

The concept of “transdisciplinarity” was first presented at an OECD international conference pertaining to interdisciplinary research and education in the early 1970s, trying to provide an approach for more integrative research able to address complexity and work across silos (OECD, 2020a). In the meantime, transdisciplinary systems thinking has given rise to a quantity of related methodological approaches. Besides transdisciplinary research, they include action-research, operational and place-based research and related systems approaches. The Brundtland Report, the UN Conference on Environment and Development in Rio de Janeiro in 1992 and the 2030 Agenda for Sustainable Development have consistently and increasingly emphasised the importance of such inclusive, integrated and systemic approaches to solve the most urgent and most complex issues of our times.

Of those concepts, transdisciplinary research has had a special standing within the scientific community, allowing to approach sustainability issues often transcending the conventional disciplinary scientific boundaries and that necessitate the contributions of non-academic actors (Cockburn, 2022; Scholz & Steiner, 2015). Critically, transdisciplinary research offers a way to approach highly divisive issues that come with high stakes for the parties involved delivering both scientific evidence and practical, problem-oriented solutions (Jahn et al., 2012; OECD, 2020a). Correspondingly, the role of the transdisciplinary research demands skills that reach beyond the traditional academic and research activities and duties. Correspondingly researchers trained in transdisciplinarity have been called change agents, knowledge brokers and process facilitators (Wittmayer & Schapke, 2014). While transdisciplinary research was largely seen complementary to traditional research, in 2020, the OECD emphasised the urgency to scale up transdisciplinary research “very considerably” and for it to become a “mainstream modus operandi for research, given the scale and urgency of the human-environmental system challenges that society is currently facing” (OECD, 2020a).

Yet, for this to happen, some major challenges have to be overcome within the transdisciplinary research framework and practice. There are, for example, demands to explore ways of decreasing the high transaction costs that come with a complex arrangement of partners that represent different cultures, disciplines and sectors (Brown et al., 2015). Other lingering issues are the tensions that arise from different agendas, values and stakes, insufficient funding and lack of practical guidance for collaboration (Arnold, 2022; Wardani

et al., 2022). However, perhaps the largest problem of all is the pace of adaptation (or lack thereof) in academic research that is still predominantly mono-disciplinary, shaping respective careers (OECD, 2020a; Wardani et al., 2022). Pursuing an inter- or transdisciplinary career path was correspondingly described as an “elusive pursuit” (Roy et al., 2013; Thapa et al., 2022; Wardani et al., 2022).

The literature on transdisciplinary research points us to the knowledge gap that our study aims to fill. Indeed, there is no comprehensive characterisation of bi-sectoral research–implementation institutions, beyond the Swiss study that we previously conducted. Owing to the inductive and screening nature, we have no hypothesis. Instead, our project design follows four specific research questions: (1) what are the main research–implementation institutions in Africa and what are their institutional structures?; (2) what are the benefits and disadvantages of such institutions with a view towards development projects and sustainable development at individual and institutional level?; (3) what are the structural opportunities and/or threats to those institutions' operations and to researcher–implementers?; and (4) how could funders of research and development assistance best support such institutions?

2.2 | SWOT framework

The SWOT concept was readily integrated into our study design. In brief, a SWOT analysis is a widely used decision-making instrument that allows for selecting the best survival and development strategy of, for example, an organisation or programme (Kenneth, 1971), based on enhanced capitalisation of internal abilities and advantages, improved management of disadvantages, mitigation of threats and achieving internal development objectives (Gurel & Tat, 2017). SWOT analyses were used previously in the different key areas where decision-making or the phrasing of recommendations was an important aspect. Fahim and colleagues, for instance, used the SWOT concept in combination with an analytic hierarchy process and entropy method to assess the quality of higher education reform towards sustainability, in Morocco (Fahim et al., 2021). Pucciarelli and colleagues applied a SWOT analysis to identify contemporary trends that impact higher education aiming at providing recommendations to the higher education sector and policymakers (Pucciarelli & Kaplan, 2016). Hanlon et al. used the SWOT concept to propose context-relevant strategies for moving towards universal health coverage for people with mental disorders in Ethiopia (Hanlon et al., 2019).

3 | METHODS

3.1 | Study design

In line with the objective to explore the personal views of institutional representatives of the institutional model to be characterised, the study presented here had a qualitative design: a situational assessment with the integrated components of the SWOT methodology. Semi-structured interviews were chosen as a primary tool for data acquisition to encourage interviewees to reflect in-depth about their personal experiences, prompting more comprehensive perspectives. This was

deemed important for this exploratory research that aimed to generate insights on a—thus far—little researched institutional model.

3.2 | Identification of African research–implementation organisations

This study sought to identify and assess African institutions that (1) are strongly anchored in research; and (2) regularly host implementation activities, as mandated by multi-lateral institutions, either bilaterally or by national governments. Eligible institutions were identified within the immediate collaborator group of this assessment and with the participants of the preceding study mapping Swiss research–implementation institutions (Saric et al., 2021). In addition, the criteria were communicated internally at the Swiss Tropical and Public Health Institute (Swiss TPH) via email with a request for details of any potentially relevant institution. Further suggested institutions were screened and included in the list of participants if they met our inclusion criteria. There was no regional limitation within Africa and all eligible institutions were contacted.

Institutions were generally approached with a request to make available two informants including (1) one institutional representative at the directorate level to gain a deeper insight into the institutional, strategic, structural and funding level; and (2) one junior to mid-career research professional with regular involvement in implementation activities to gain insight into career and work-related aspects.

3.3 | Data acquisition and analysis

A semi-structured questionnaire was developed in consultation with study collaborators that covered the following main themes: (1) institutional structure; (2) SWOT assessment; and (3) funding model. While prioritising one-to-one interviews, participants were also given the alternative to fill in the questionnaire—adapted for online use—sent to them via email, at their convenience. In general, the main informants were asked for an interview in the first and second email inquiry. If they did not respond after the second inquiry, or if interview dates were cancelled more than once, a third and final inquiry was sent, offering both options (i.e., interview or completing the questionnaire sent via email). Moreover, once one interview had taken place in a given key informant group, both options were offered to any additional informant in this group to complement the institutional data set. For French-speaking participants, however, filling in the questionnaire (translated into French), sent via email, was given as the only option owing to a lack of resource and sufficient expertise for leading French interviews. Semi-structured interviews with key informants were conducted between November 2021 and January 2022 by video conference. The email-based questionnaires were completed during the same time-period. Interviews were conducted in English and lasted at least 30 min up to a maximum of 90 min.

Written or oral informed consent to publish the data was obtained from each participant on behalf of the entity prior to the interview and as part of the email-based questionnaire. All in-depth interviews with key informants were recorded and transcribed using

TABLE 1 Study participants' details ($n = 42$)

Country (total number of participants)	Number of participants	Position	Means of data acquisition	Gender
Benin (7)	2	Director/institutional representative	Interview	Male
	1	Director/institutional representative	Survey	Male
	1	Researcher	Interview	Female
	1	Researcher	Interview	Male
	2	Researcher	Survey	Male
Burkina Faso (6)	2	Director/institutional representative	Survey	Male
	2	Researcher	Survey	Female
	2	Researcher	Survey	Male
Cameroon (2)	1	Director/institutional representative	Survey	Female
	1	Researcher	Interview	Female
Chad (1)	1	Researcher	Interview	Male
Côte d'Ivoire (3)	1	Director/institutional representative	Interview	Male
	1	Director/institutional and researcher-level representative	Survey	Male
	1	Researcher	Interview	Male
Ethiopia (4)	1	Director/institutional representative	Interview	Female
	1	Director/institutional representative	Interview	Male
	1	Researcher	Interview	Male
	1	Researcher	Survey	Male
Ghana (1)	1	Director/institutional representative	Survey	Male
Kenya (8)	2	Director/institutional representative	Interview	Male
	1	Director/institutional representative	Survey	Male
	1	Director/institutional and researcher-level representative	Interview	Female
	1	Researcher	Interview	Female
	2	Researcher	Interview	Male
	1	Researcher	Survey	Male
Nigeria (2)	1	Director/institutional representative	Interview	Male
	1	Researcher	Interview	Male
Senegal (1)	1	Researcher	Interview	Female
South Africa (2)	1	Director/institutional representative	Interview	Male
	1	Director/institutional representative	Survey	Male
Tanzania (2)	1	Director/institutional representative	Interview	Male
	1	Researcher	Interview	Male
Uganda (1)	1	Director/institutional and researcher-level representative	Interview	Male
Zambia (2)	1	Director/institutional representative	Interview	Male
	1	Researcher	Interview	Female

OTTER.ai (<https://otter.ai/>) and proof-read and corrected thereafter. French-language survey data were translated into English using Google translate and proof read and corrected by the lead author.

A qualitative content analysis was conducted with deductive application of predefined categories or codes according to the main questions and inductive development of new emerging categories/codes within each question. Qualitative data analyses were conducted using MAXQDA 2018 software (release 18.1.1. VERBI GmbH; Berlin, Germany). Based on the screening/inductive nature of the study and the non-homogenous and relatively small group of respondents and entities, no quantitative/statistical analysis was conducted.

3.4 | Participating research—implementation institutions

Of 51 African institutions that were approached, 24 provided at least one key informant. After interviewing the institutional representatives and further clarifying the institutional structures, two institutions were excluded from the analysis; one lacking in-house implementation activities and the other not having any researchers employed in-house. Consequently, data from 22 institutions and 42 informants from 13 countries were extracted and analysed from 26 interviews and 16 surveys (Table 1). The group of informants was composed of

TABLE 2 Key descriptors of African research- and implementation institutions assessed.

Type of institution	Name/description of institution	Country	Domains
<i>University or affiliated/associated</i>			
Centre de Recherche en Reproduction Humaine et en Démographie (CERRHUD)	Research centre associated with the Centre National Hospitalier Universitaire Hubert Koutougou MAGA de Cotonou	Benin	Health and biomedical sciences
Institut des Politiques et Initiatives Sociales (IPIS)	Research institution at Catholic University of Central Africa	Cameroon	Social sciences and anthropology
Makerere University School of Public Health (MakSPH)	Makerere University	Uganda	Health and biomedical sciences
School of Public Health	University of Ghana	Ghana	Health and biomedical sciences
School of Public Health and Family Medicine	University of Cape Town	South Africa	Health and biomedical sciences
School of Public Health	University of the Witwatersrand	South Africa	Health and policy
Water and Land Resource Centre (WLRC)	Associated institution of Addis Ababa University	Ethiopia	Water and land management research
<i>National institution</i>			
Armauer Hansen Research Institute (AHRI)	Biomedical research institute	Ethiopia	Health and biomedical sciences
Centre d'Études et de Recherche en Technologies et Innovations Socio-Sanitaires et économiques (CERTIS)	Social enterprise with research character	Burkina Faso	Socio-sanitary and economic innovations
Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS)	Bilateral research institution between the Government of Côte d'Ivoire and the Swiss Government	Côte d'Ivoire	Multi-disciplinary and sustainable development
Centre for Training and Integrated Research in ASAL Development (CETRAD)	Bilateral research and training institution between the Government of Kenya and the Swiss Government	Kenya	Water and natural resources management and governance; Regional development and agrarian transformation, including food sustainability
Ifakara Health Institute (IHI)	Health research organisation	Tanzania	Health and biomedical sciences
Institut de Recherche en Elevage pour le Développement (IREDE)	Research institution under the supervision of the Ministry in charge of livestock with own management autonomy	Chad	Livestock research
Institut des Sciences des Sociétés (INSS)	Public research institution	Burkina Faso	Social sciences and humanities
Kula Vyema Center of Food Economics	Non-profit research and development institute	Kenya	Nutrition and economics
Laboratoire d'Études et de Recherche sur les Dynamiques Sociales et le Développement Local (LASDEL)	Independent research laboratory	Benin	Social sciences
<i>International institution</i>			
Africa Rice Center ^a	Pan-African centre of excellence for rice research, development and capacity building; intergovernmental association of African member countries	Côte d'Ivoire	Agricultural research
International Institute of Tropical Agriculture (IITA)	International non-profit, research-for-development organisation	Benin	Agricultural research
International Institute of Tropical Agriculture (IITA) ^a	International non-profit, research-for-development organisation	Nigeria	Agricultural research
International Livestock Research Institute (ILRI) ^a	International research institute	Kenya	Livestock research
Right to Care	Non-profit organisation	Zambia	Health and biomedical sciences
World Agroforestry (ICRAF) ^a	International non-profit, research-for-development organisation	Kenya	Agricultural research and Agroforestry

^aOne of 15 international agricultural research centres of CGIAR—a global research partnership for a food-secure future.

FIGURE 1 Map of Africa highlighting the 13 countries represented in this project and their participating research–implementation institutions. [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1002/sd.2455)]



10 females (24%) and 32 males (76%). Most of the participating institutions were in Kenya ($n = 4$) and Benin ($n = 3$), followed by Burkina Faso, Côte d'Ivoire, Ethiopia and South Africa ($n = 2$, for each). The areas most represented were public health and biomedical sciences (by 8 institutions), followed by the area of agriculture, livestock and food security (7 institutions) and social sciences (3 institutions). Table 2 and Figure 1 present the key descriptors of the participating African institutions in greater detail.

4 | FINDINGS

4.1 | Structure and governance of African research–implementation institutions

4.1.1 | Types and structure of research–implementation institutions

Of the 22 institutions included in the analysis, 9 were national research entities not formally attached to any university, 7 were university or affiliated/associated institutions and the remaining

6 were international organisations (Table 2). The university research–implementation institutions were found to be structurally similar; five of them reported to have no formalised structure to their implementation activities with implementation activities running alongside research. The researchers would often play a major role as principal investigators (PIs) or actively implementing the work supported by permanent in-house staff or by project-based staff. In this group, the Water and Land Resource Centre (WLRC), showed the largest structural separation between activity areas, with specialisation of research versus implementation along divisions and designated staff for implementation. The Centre de Recherche en Reproduction Humaine et en Démographie (CERRHUD) reported a specific project management unit for the support of implementation activities across the institute.

In six of the non-university national institutions, the researchers were named as the ones that were mostly involved in implementation, while the remaining institutions—Laboratoire d'Etudes et de Recherche sur les Dynamiques Sociales et le Développement Local (LASDEL), the Centre d'Études et de Recherche en Technologies et Innovations Socio-Sanitaires et Économiques (CERTIS) and the Institut de Recherche en Elevage pour le Développement (IRED)—also

deployed non-academic in-house professionals to support implementation activities. Seven institutions reported not having a specific structural “home” for their implementation activities but had them organised around themes or research leads. However, three of them stated to be undergoing structural transition or in discussion on a clearer and more formalised separation of research versus implementation areas. Only the Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS) and CERTIS reported to have a specific unit for implementation activities.

Among the international research–implementation institutions, a spectrum of profiles was found; Africa Rice and the International Institute of Tropical Agriculture (IITA) in Benin suggested to have a strong focus on implementation research and relatively few “pure” implementation activities without a link to research. Correspondingly, researchers were reported to be in charge of all projects with no specific structure in place for implementation activities. Right to Care, was the only organisation in this current assessment that historically had a stronger implementation component and included research as an integral activity more recently. Here, the researchers were reported to be hosted in a designated department, while implementation was mainly pursued by programme managers and technical experts. The remaining institutions showed a more mixed approach; at World Agroforestry and the International Livestock Research Institute (ILRI) researchers were often found in charge, supported by project managers (and an impact at scale department at ILRI), with no structural separation between areas. IITA Nigeria reported to separate activity areas and staff by department but researchers were often also involved in programme management.

4.1.2 | Contracting strategy

The representatives of the institutions interviewed were specifically asked whether contracting for implementation activities would be formally carried out through institutional administrative channels or outside the institutional administration. All research–implementation institutions had formalised institutional contracting in place with six institutions indicating that all activities would run exclusively via institutional pathways. A total of 11 institutions stated that contracting at institutional level was the main and preferred pathway but acknowledged that individual contracting takes place. Reasons for preferring institutionalised arrangements were given by five respondents and included the optimal use of resources, knowledge generation and dissemination and knowledge retention within the institution around a given project and objective. Other reasons given were institutional capacity building, higher efficiency and enhanced accountability.

“We are convinced that it [institutional contract] is the best way we will develop the organisational foundations. So, if we have the choice, we opt for institutional contracts over individual contracts for effectiveness and efficacy reasons and, above all, for accountability reasons” (director-level representative).

Specific concerns were raised by the universities on the diversion of resources and mandates and a lack of tracking of university activities.

4.2 | Benefits and challenges of the research–implementation institutional model

4.2.1 | Implementation and wider sustainable development

The most frequently mentioned benefit of research–implementation institutions or researcher–implementer was the added value of the combined approach to one or both of the two core areas (76% of participants); this pertained mostly to higher quality, thematic fit and sustainability of implementation programmes, more effective identification of research gaps, more research opportunities and enhanced relevance of the research and an overall positive impact on development, compared with a single-purpose institution. The results of the full SWOT analyses are summarised in Figure 2.

“The service component is able to support and drive the national programmes. The research also provides cutting-edge opportunities to improve programme outcomes. The research and programme components provide the best of both worlds” (director-level representative).

Knowledgeability, competency and research–implementation institutions being a leader in a given area that is able to oversee a complete project cycle and to pass on that knowledge by training professionals and stakeholders, was mentioned by half of the participants. Half of all participants also commented on the extended skill-sets and knowledge of researcher–implementers—knowing the research as well as the complexity of a development issue on the ground and being able to “quickly grasp, understand and analyse a social issue” (director-level representative). In addition, a quarter (26%) of informants noted that research–implementation institutions and researcher–implementers often had closer relationships with decision-makers and communities leading to a higher uptake of key findings and project outcomes.

“The ability to bring solutions and to understand how to deliver them, makes the interaction with the local community more meaningful and more purposeful, and makes them want to come back to us” (director-level representative).

A quarter (24%) of informants referred to transdisciplinarity and co-design as a common practice and strength of research–implementation institutions. Eight informants (19%) commented on the rich academic teaching that research–implementation institutions can offer because of more comprehensive and application-based teaching, more diverse

STRENGTHS	WEAKNESSES
<p>Implementation and development</p> <p>RII: More immediate impact on development compared with single-purpose institution</p> <p>RII: Can act as national competence in specific area due to in-depth knowledge of whole project cycle</p> <p>Research</p> <p>RII/RI: Research activities can be cross-financed (e.g. research and publications)</p> <p>RII/RI: Higher uptake of research outcomes due to close relationships with decision-makers and stakeholders</p> <p>RII/RI: Apply an inclusive and locally viable approach (e.g. transdisciplinarity)</p> <p>RII/RI: Bridge gaps between project areas and stakeholders</p> <p>Education and training</p> <p>RII: Can offer a more comprehensive and rich teaching experience</p> <p>RII: Can train highly multi-skilled professionals</p> <p>RI: Professionals highly skilled in addressing complex real-time problems</p> <p>Institution and individual</p> <p>RII: Flexible use of resources across both areas of activity (research and implementation)</p> <p>RII: Increased visibility of RIO and its accompanying research</p> <p>RI: Experience high job satisfaction</p>	<p>Management</p> <p>RII: Increased complexity of institutional management, including aspects of:</p> <ul style="list-style-type: none"> • management of two different funding streams; • management of a wider spectrum of partners; • need to adjust staff composition dynamically and between two main areas of activity; and • co-management of two activity areas maintaining balance and quality <p>RII: Resource-intense model (e.g. finance, infrastructure, human resources and logistics)</p> <p>RII/RI: Difficult to achieve balance in activities and establish and maintain high-level performance in both areas of work</p> <p>RI: Management of complex funding arrangements, partnerships, demands and own career development</p> <p>Mandate</p> <p>RII: Model can dissuade partners because of relative research intensity</p> <p>RII/RI: Lack of clear identity/definition, and therefore, lack of recognition</p> <p>Research activities</p> <p>RII/RI: Research output and skills and teaching activities suffer</p>
OPPORTUNITIES	THREATS
<p>Global trends</p> <p>RII: Model is liked by African governments and international donors</p> <p>RII/RI: Growing recognition of the strengths of evidence-informed and impact-oriented strategies to deal with contemporary global challenges and development agendas</p> <p>Broader model → gain of opportunities</p> <p>RII/RI: More diverse range of partners and partnership opportunities</p> <p>RII/RI: Broader funding opportunities compared with single-purpose institution and professionals specialised in either research or project management</p> <p>RI: Excellent and broad career and job opportunities</p>	<p>Global and national trends</p> <p>RII/RI: Changing agendas and priorities of funding partners</p> <p>RII/RI: Political climate, including international security and domestic sensitivity issues</p> <p>Broader model → loss of opportunities</p> <p>RII/RI: Strong competition from three areas (i.e. research, implementation, and increasingly RIOs/RIs)</p> <p>RI: Career opportunities in academic research may be more limited, especially in high-income countries</p> <p>Broader model → loss of clarity & control</p> <p>RII/RI: Loss of independence and ownership</p> <p>RI: Lack of clear institutional career pathways</p>

FIGURE 2 Strengths, weaknesses, opportunities and threats (SWOT) analysis from the perspective of research–implementation institutions (RII) in Africa and research professionals that are involved in implementation researcher–implementers (RI).

internship opportunities and more diverse teachers and trainers. Concerns were primarily voiced at the institutional and individual level.

4.2.2 | Individual and institutional

Visibility and a positive reputation of the research–implementation institutions and its research was pointed out by 33% of participants. Many stated a high job satisfaction and expressed gratitude and fulfilment of being a researcher–implementer because of the palpable impact of their work and the flexibility and ability to pursue both. Eight informants (19%) commented on the flexible use of resources internally (e.g., support staff, finances and networks) and the scope to cross-finance research activities at the institutional and individual level.

The most frequently mentioned challenge (by 76% of participants) was the difficulty that research–implementation institutions and researcher–implementers were facing when being operated by a multi-purpose concept. Specifically, balancing of the two areas and establishing and maintaining high-level performance in both areas was pointed out as a major challenge due to a lack of competent staff, time and resource constraints and the challenges in communicating

between the two areas of inquiry. This related to the challenge of managing research–implementation institutions (mentioned by 52%), including the management of human resources vis-à-vis changing project demands and the struggle to find competent personnel that is able to perform in a highly dynamic environment. Moreover, the issue of retaining such staff to higher-paying organisations was emphasised, partially due to a lack of clear career paths. Mismanagement of research–implementation institutions was also pointed out as a potential challenge based on a lack of institutional clarity and outside guidance for such institutions and an institutional drift towards “where the money is”.

Another worry, expressed by 48% of the participants, was the negative effect to research activities and academic duties at the institution level, coupled with hindering the research career progress in individual researcher–implementers. The main reason was named to be a shift towards implementation activities due to a higher workload, higher urgency and more funding/income.

“There is potential to compromise quality of teaching and research as staff may be drawn away from their core roles and responsibilities due to financial incentives” (director-level representative).

A lack of identity and recognition was mentioned by 29% of participants. Having no definition and clarity on the double mandate of an institution internally might lead to a blurred identity and profile and a lack of recognition by funding partners and stakeholders.

“Hybrid institutions have generally low social reputation within the research society and development society unless they can guarantee excellence in both sides; a difficult challenge to meet” (director-level representative).

Some participants further referred to the resource-intensity of the model (12%) and partner dynamics (19%) as weaknesses. For the latter, the lack of a clear institutional definition and, especially the research heaviness of research–implementation institutions, was perceived to dissuade some partners being costly and slowing down implementation. In general, an increased need for relationship management was noted since research–implementation institutions and researcher–implementers often deal with a much greater spectrum of partners with different agendas and power-structures.

4.3 | Structural opportunities and threats to research–implementation institutions and professionals

4.3.1 | Opportunities

The most frequently mentioned opportunity was funding, as suggested by 64% of participants. It was perceived that research–implementation institutions and researcher–implementers had more funding sources available compared with single-purpose institutions and their researchers. Related to that, 14 participants (33%) noted a growing recognition of the inter-sectoral nature of many of the problems the world is currently grappling with (e.g., climate change, food security and wicked problems) as reflected in the global agenda (e.g., 2030 Agenda for Sustainable Development, Agenda 2063, COP26 and UN Food Systems Summit 2021) and the need for inclusive approaches and multi-purpose institutions. A total of 11 participants (26%) also mentioned that the research–implementation institutional model was liked by national governments and donors because they are viewed as a solution provider, offering an evidence-base while being impact-oriented. In fact, it was noted by one participant that there was “confidence of partners in multi-purpose institutions” (director-level representative). Half of all informants made positive statements on job and career opportunities that open up to researcher–implementers. The wider consensus was that there was a plethora of opportunities—nationally and internationally—in a wide range of areas, namely any other implementing institutions, the national government, multi-lateral institutions, the private sector and academia nationally or regionally.

“I think you can have problems finding a job actually, without being implementing researcher. Because presently, most of my colleagues are involved in both

research and implementation. So, I think, without having the experience in either research or implementation of projects limits you to the kind of jobs you can have” (researcher).

However, some participants also commented on the limitations based on such a mixed career path as outlined in the “threats” section. Two out of five participants (41%) noted on a more diverse range of partners and more partnership opportunities available to research–implementation institutions and researcher–implementers compared with single-purpose institutions and more specialised professionals.

4.3.2 | Threats

Funding was mentioned as a threat by 45% of the informants, generally referring to fragmented funding and separate funding systems and the efforts necessary to coordinate both.

“Funding sources can become a threat, especially when your implementation and your research are very well linked, but draw from different sources; then that affects the whole cycle (...). So that becomes a threat for a well-linked hybrid system” (director-level representative).

Moreover, the dependence on the funders (changing) agenda and priorities was widely considered a threat, referring in particular to the management of the COVID-19 pandemic and the migrant influx into Europe that diverted funding from other key areas. A lack of flexibility of funders and a general shift away from funding research in Africa was further noted affecting “scientific sovereignty”.

More than a third of respondents (38%), commented on the limitations to careers; notably, of getting into a purely academic career in high-income countries demanding a strong publishing record. However, while highlighting a potential threat, this seemed not to be something of immediate concern to many researcher–implementers. The lack of a clear career path and continuity or slow career progress was mentioned by 14% and seemed a more pressing issue.

National and regional political climate and security was identified as a relatively high threat to research–implementation institutions and researcher–implementers. Almost a third of participants considered they affect mobility and operations in a, generally, highly-mobile and high-interaction work domain. Domestically, involvement in sensitive issues and changing personnel and priorities within the government was seen as a threat. Nine informants (21%) stressed a threat from competition owing to increasing popularity of a hybrid model across the globe. Specifically, a growing trend of international research–implementation institutions was noted together with a persisting preference of African governments to mandate international consultants over national ones. Additionally, the high demands by funding partners were pointed out and the need for excellence in both

TABLE 3 Summary of strategies and actions to leverage the research and implementation institutions and professionals in Africa and other low- and middle-income countries, as suggested by the study participants and the author group.

Strategies and actions to leverage RI institutions and professionals	Main target group(s)
Offering more funding opportunities that cover all components of the innovation-to-implementation project cycle ^a within the same application and reporting process by, for example:	
1. Allowing for the integration of a coherent and comprehensive research component in national intervention programmes; and	Funders of implementation
2. Collaborating in thematic joint or coordinated approaches to cover for the whole project cycle	Funders of implementation and research
For projects that cover all components of the project cycle, adapt processes to enhance success and sustainability by, for example:	
1. Offering long-term funding commitment to allow for a (i) whole project cycle and (ii) build up institutional capacity	Funders of implementation
2. Offering a large degree of flexibility within a project that encompasses the whole project cycle, allowing for evidence-based adaptations	Funders of implementation
3. Adapting assessment of the performance of RI institutions, professionals and projects that encompass the whole project cycle	Funders of implementation and research
4. Simplifying renewal process of phased funding schemes	
Applying a strong collaborative and stakeholder-based approach to shape the national RI institutions landscape by, for example:	
1. Closely engaging at the national level (e.g., round table) to identify gaps, solutions and strategies for RI institutions and professionals at the national level;	International funders, governments, RI institutions and other stakeholders
2. Closely engaging between individual RI institutions and funding partner to identify institutional gaps and solutions; and	Funders and RI institutions
3. Involving national actors in all funding mechanisms	International funders
Supporting RI institutional capacity development by, for example:	
1. Strengthening managerial and administrative system to support bi-functional institutional structure;	International funders, governments and RI institutions
2. Training/supporting training of RI institutional managers and professionals in operations and fundraising in both activity areas;	International funders, governments and RI institutions
3. Identifying and investing in leading national/regional RI institutions and setting up a monitoring mechanism; and	International funders and governments
4. Setting up national or international support/mentoring schemes for RI institutions in weaker operational area	International funders, governments and RI institutions
Positioning RI institutions and establishing supporting national and international structures by, for example:	
1. Defining and communicating the structure and mandate of RI institutions to funding partners and stakeholders including the scientific community; and	International funders, governments and RI institutions
2. Making available an impact pathway and a system that will sustain RI institutions and professionals	International funders, governments and RI institutions

^aEvidence generation–evaluation–implementation–evaluation–policy.

areas; research and implementation. Nine informants worried about independence and ownership of institutions and being subject to the agenda of donors resulting in limited access to data and insufficient capitalisation of intervention experiences. Moreover, the issues of maintaining neutrality and limitation in pursuing one's own projects of purely institutional interest, were raised.

4.4 | Funding situation

When asked about best practice and examples of funders or funding instruments that would foster and support research–implementation institutions, hybrid researcher–implementer careers and mixed

projects, the following funding bodies were mentioned by two or more interviewees: (1) Bill & Melinda Gates Foundation; (2) European Union; (3) German Federal Ministry for Economic Cooperation and Development; (4) International Fund for Agricultural Development (IFAD); (5) Rockefeller Foundation; (6) Royal Netherlands Embassy in Ethiopia; (7) Swiss Agency for Development and Cooperation (SDC); and (8) United States Agency for International Development (USAID). Core funding and a long-term commitment were mentioned as strengths of SDC contributions, for instance, empowering the structure of research institutions and enabling them to demonstrate competency in the service area to build a hybrid reputation and the necessary network to be competitive. A specific instrument co-founded by SDC and the Swiss National Science Foundation

(SNSF)—the “research for development” (R4D) scheme—was viewed favourably because of its two-phase approach: phase I of the project focused on research and phase II on implementation and dissemination. Similarly, USAID was mentioned to offer a long-term horizon for grantees and follow-up schemes and to offer support for the whole innovation-to-implementation cycle.

“In internationally supported intervention programmes, it is a whole research component—not just an evaluation—that makes research–implementation institutions find their space to exist and shine and to make the case for what they do” (director-level representative).

In addition, USAID was specifically mentioned for its strong co-creation approach and sustained presence and willingness to interact and support during challenges. This was perceived to be particularly beneficial to research–implementation institutions with weaknesses in one of the two activity areas.

A few specific schemes were mentioned as good examples in funding comprehensive approaches. For instance, the funding from the Royal Netherlands Embassy in Ethiopia for the “Integrated Landscape Management and WASH” project was stated to be a good example based on funding, timescale and a design based on a multi-sectoral approach with one out of eight components dedicated for scientific research. The value of thematic joint or coordinated approaches was also emphasised, citing the African Plant Breeding Academy programme, with a allocated funds from different donors addressing a particular theme and problem.

Three individual schemes for researcher-implementers were also highlighted, namely, the International Research Training Grant from the US National Institutes of Health (NIH), which supports capacity building and research through postgraduate projects and implementation links with research and government institutions. The Rockefeller Foundation African Career Awards and UNICEF were also named, however, with no explanation on the best practice features.

When asked about how to improve funding schemes for research–implementation institutions or hybrid researchers (Table 3), a long-term horizon was deemed crucial to accommodate the cycle of evidence generation–evaluation–implementation–evaluation–framing of potentially actionable policies and recommendations. Owing to the coupling of innovation and implementation, more flexibility was demanded from the funding partner, since the desire and point of such an arrangement is a strong evidence-base and the research being directive for the second phase. A strong desire was also shown for intense exchange and co-creation between grantee institutions and/or the country and the funding partner, in addition to mapping out gaps and needs on both levels to frame a mutual agreement. This was deemed even more prominent with multi-purpose institutions with different capacity and experience in the two operational domains.

5 | DISCUSSION

5.1 | Structure of research–implementation institutions

The 22 participating Africa-based institutions in this study were composed of nine national research entities with no formal attachment to any university, seven universities or affiliated/associated institutions and six international organisations. Across the institutions, only five had a formal structural separation of implementation versus research activities along departments or units. A previous mapping of Swiss research–implementation institutions has shown one type – based or affiliated with Swiss universities and universities of applied sciences. However, the Swiss mapping also showed that most institutions had no strict separation of the two activity areas and that researchers would often do both implementation and research activities, as it was found to be the case for the African institutions (Saric et al., 2021). Theme-based structures were observed in both studies, where staff with different competencies would cluster around a thematic area or a given project for the application and project stages. The screening in both studies also revealed that most research–implementation institutions were operating by a “tribrid” rather than a hybrid model, including a strong education and training component/mandate, adding more relevance yet to sustainable development and training/shaping the current and future workforce. In both assessments, an advantage of working outside the university administration was voiced allowing for more flexible contracting and selection of partners.

The contracting structures as such were assessed in more detail in the current study, revealing that while all research–implementation institutions had formalised institutional contracting in place, at least in half of them, some degree of individual contracting outside the institutional structures took place. Reasons for preferring institutionalised arrangements echoed those issued in previous work commenting on the detriment of individual contracting for research consultancies in social sciences in East Africa (Wight, 2008). Individual contracting was suggested to divert university researchers from their academic duties, most notably research and education, and deprive institutional capacity and knowledge. As with the current study, it was suggested that commissioning services from researchers through institutional pathways rather than by individual contracting would be essential for strengthening institutional capacity. However, such a policy would bode well in an environment where academics earn enough to be free from financial worries and where research–implementation institutions managerial and administrative competency is already established. At least for the former, there still seems to be some way to go judging by a study by Ngongalah and colleagues who revealed that 85% of approximately 400 academic respondents from six sub-Saharan African countries had been in an unpaid research position at some point in their career, predominantly because of a lack of research funding (Makoni, 2018; Ngongalah et al., 2018).

5.2 | Leveraging research–implementation institutions for sustainable development

Based on the self-perception of the participants regarding their institutions, positions or skills, the single most often mentioned strength of research–implementation institutions or researcher–implementers was a positive effect to the quality of implementation and the relevance of the research as well as an acceleration of (sustainable) development per se, compared with a single-purpose institution either focused on research or implementation. Higher uptake of evidence, because of a relative closeness to policy-makers and communities, was named a part of this success model. In addition, those institutions were seen exceptionally well positioned to educate and train a sustainable development workforce. Accordingly, the research–implementation institutional model seemed to be liked by governments and funders, perceiving it to be a solution-provider and talent pool. Yet, the most frequently mentioned weaknesses of such institutions and researcher–implementers were the difficulty of operating such a multi-purpose concept, while maintaining a balance and a high-level of performance in both areas, and the breakdown of research quality and integrity. Some research–implementation institutions have put mitigation strategies in place for the latter; at the CGIAR institutions, for instance, researchers are encouraged to publish at least two scientific articles per year, while CERRHUD and CSRS entertain close partnerships with strong international scientific institutions to maintain high quality research operations. Indeed, such strong long-term partnerships, coupled with long-term structural bilateral funding, was seen as part of the reason that CSRS had featured among the top-three national publishing research institutions in Côte d'Ivoire from 2012 to 2016, as shown in a previous study (Saric et al., 2018).

The funding landscape for research–implementation institutions and researcher–implementers was widely perceived as an opportunity with more funding sources available compared with single-purpose institutions and their researchers, albeit fragmented. This largely mirrored the perception of the representatives of the Swiss research–implementation institutions assessed previously (Saric et al., 2021). In some countries represented in the current study, the relative abundance of funding and the preference for such institutions by national governments and international funders, alongside a chronic lack of research funding seems to have driven research and academic institutions into adapting a more multi-purpose-type model (UNESCO, 2021). However, if too many research and academic institutions are forced into adapting multi-purpose-type models, a lack of focused research and academic institutions might dilute African research quality and deprive African countries of their research sovereignty. While research–implementation institutions inhabit an important position in the sustainability research spectrum, they will operate best within a strong national research and innovation ecosystem and as part of a clearly defined chain of research and implementation actors.

5.3 | Careers and job opportunities

In the current study, a high level of employability and a large diversity of job opportunities was reported that seemed to include careers in academia. Moreover, a high job satisfaction was widely reported, owing to the ability to produce evidence and use it to improve processes and outcomes locally. On the downside, a slowing down of the academic career and the lack of a clearly defined career path for researchers wanting to do both research and implementation, was noted. A similar study on Swiss institutions also found high job satisfaction and a lack of career development opportunities for researcher–implementers (Saric et al., 2021). In line, a recent attempt to define “integration experts” – academics that are acting in a double-role within the inter- and transdisciplinary research arena–raised the issue of having to “carve out one's own niche” (Hoffmann et al., 2022). However, while reporting on an equally rich spectrum of career opportunities outside research in the Swiss setting (e.g., private sector, government and multi-lateral institutions), there seemed to be more limitations as to whether an academic career can still be pursued in parallel or after a mixed or non-research position, mostly owing to the high publication pressure in Switzerland and other high-income countries. Also, in the African countries assessed, there was no shortage of opportunities that would allow for the continuation of a mixed-type employment, including research activities. In the Swiss setting (and in other high-income countries), opportunities seem to be more limited and the academic and research environment often discourage multi-sector engagement (UN, 2019). Here, more combined and non-linear career opportunities may prevent the flight of early and mid-term-career researchers (Woolston, 2020a; 2020b). In many African countries, the problem seems a different one with enough alternatives besides a purely academic career path, but few good opportunities at the post-doctoral level discouraging engagement in research and continuity of research activities (Ngongalah et al., 2018).

5.4 | Going forward globally with the lessons learned

The studies from Switzerland and Africa suggest that research–implementation institutions can bring an added value to development projects and overall sustainable development as perceived by the institutional representatives. Benefits were also described at the staff and institutional level (e.g., regarding job satisfaction and diversity of funding sources). However, as much there is to gain from operating such a bi-sectoral model, it is as complex and resource intense to manage one, as it is demanding keeping up quality operations in two areas of work. This is especially so at institutions in sub-Saharan African and other low- and middle-income countries (LMIC). They may, therefore, rely on tailored support from funders and international networks (Table 3) to identify and fill capacity gaps so they can be leveraged at the global level to (1) continue and increase global contributions to high quality implementation products and context-specific, cost-effective and methodologically sound

interventions; (2) increasingly and more formally serve as national competence centres and national programme and policy and practice memory; (3) act as better recognised training and education centres for the sustainable development workforce; and (4) more formally, host non-conventional academic and research careers.

The structures described across the two studies that were supporting the research–implementation operations were diverse, ranging from theme-based groups without formal separation of the two work areas to having dedicated departments, divisions or units for implementation activities. While the former may ensure an even smoother interaction along the innovation–implementation pipeline, a structural division may be desired at institutions that are struggling to maintain their research quality, integrity and independence. This may also allow for a better distinction of the researchers' profile versus hybrid staff versus implementers, especially in the African institutions where researchers are often involved in implementation activities sometimes to the detriment of the research and teaching duties. In Switzerland and other high-income countries, the challenge is a different one, i.e., to fill the demand for more mixed, non-linear, non-conventional careers and job positions anchored in academia and research. Yet, both issues may benefit from the same structural design and a clearer definition of three different staff profiles: researchers, hybrid staff and implementers.

A first step towards leveraging the distinctive capacities of research–implementation institutions and to build upon their basic design, the operational model has to be defined and the structure and mandate of such institutions has to be communicated to funding partners and stakeholders including the scientific community (Table 3). To start a process of strategic inclusion of research–implementation institutions as a key actor in sustainable development, we hereby propose a terminology and a definition to be taken forward into discussion with institutions and funders (Box 1).

5.5 | Limitations

Our study has several shortcomings that are offered for discussion. First, this study represents a very broad assessment across a variety of different African countries and is therefore based on the opinions of only few institutions per country. There was, nevertheless, a strong consensus around many of the SWOT themes, and hence, we feel that the study offers a useful starting point for more comprehensive national mapping exercises in Africa and beyond, as was recently done for Switzerland. Second, while the study aimed at giving a comprehensive geographic representation of countries on the African continent, it does not include any North African or Arab countries. This was not planned but partially due to the fact that the work of Swiss TPH and its network historically has a strong emphasis on sub-Saharan/non-Arab African countries, while much fewer potential Arab institutions were identified and approached, none of which were responsive or eligible for inclusion. Moreover, since the sample selection was strongly influenced by the networks in Switzerland and especially the Swiss TPH, we have abstained from presenting any ranking (i.e. most/

BOX 1 *Proposed terminology:* Research–Implementation Organisations (RIOs).

Proposed definition: Organisations with mandates for (1) research; (2) education and teaching; and (3) consultancy, project implementation and development assistance services,

1. Track record of international publishing; governance framework includes regulations on good research practice and integrity.
2. Ability to offer degrees (including host or co-host PhD programmes) and continuing education and training courses.
3. Institutionalisation of implementation activities: explicit mandate and supporting structures and procedures in place to carry out services as PI institution; institutional contracting.
4. Established work practices across mandates.

least-named) or numbers with regards to the funders named in the results section 4.3. Third, the outcomes here reported are based on the opinions and the self-reflection of the interviewees regarding their own institutions, positions and skills; a positive bias can therefore not be excluded calling for (1) a complementary assessment of the funder's perspective and (2) a long-term comparative assessment of the contributions of RIOs versus a researcher–implementer partnership at the programme level.

6 | CONCLUSION

Anchored in academia and research, research–implementation institutions are at the same time part of the development assistance sector. Drawing from and combining the competences of the three worlds of research, education and implementation, they have a distinctive role to play in the attainment of the SDGs. Seen as problem solvers and a talent pool, those institutions provide high-quality implementations and effective interventions, while offering a wide and rich training experience to the current and future sustainable development workforce. In addition, they provide non-conventional careers and positions to researchers that wish to have their stake in solving the most imminent local, national and international problems of our times. Providing a structural description of such institutions and a definition of what we propose to term “Research–Implementation Organisations”, RIOs in short, we envision this tool to be sharpened and for institutions and funders to use and work around the RIO label to enhance the standing of those institutions, their operations and their significance for sustainable development, globally. With this baseline, we

suggest for three main immediate actions to be taken forward (1) for funders to consciously include RIOs when mapping national implementation actors; (2) discuss more tailored approaches to fund RIOs; and (3) renew the discussion on non-conventional academic/research careers, this time, driven by RIOs.

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CONFLICT OF INTEREST

The authors declare no conflicts of interests.

DATA AVAILABILITY STATEMENT

Main data associated with this submission are summarised in this article. All interviews and transcripts have restricted access in a research data repository to protect the confidential use.

INFORMED CONSENT STATEMENT

Written (or oral) informed consent was obtained from all participants involved in the study.

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