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Book

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Provided in Cooperation with:
Observer Research Foundation (ORF), New Delhi

Reference: Banik, Dan/Venkatachalam, Meera et. al. (2023). Catalysing progress through capacity-building initiatives : learnings from India's Pan-African e-Network Project in Ghana and Malawi. New Delhi, India : ORF, Observer Research Foundation. https://www.orfonline.org/wp-content/uploads/2023/11/ORF_OP-420_Indias-capacity-building-initiatives-in-Africa.pdf.

This Version is available at:
http://hdl.handle.net/11159/654418

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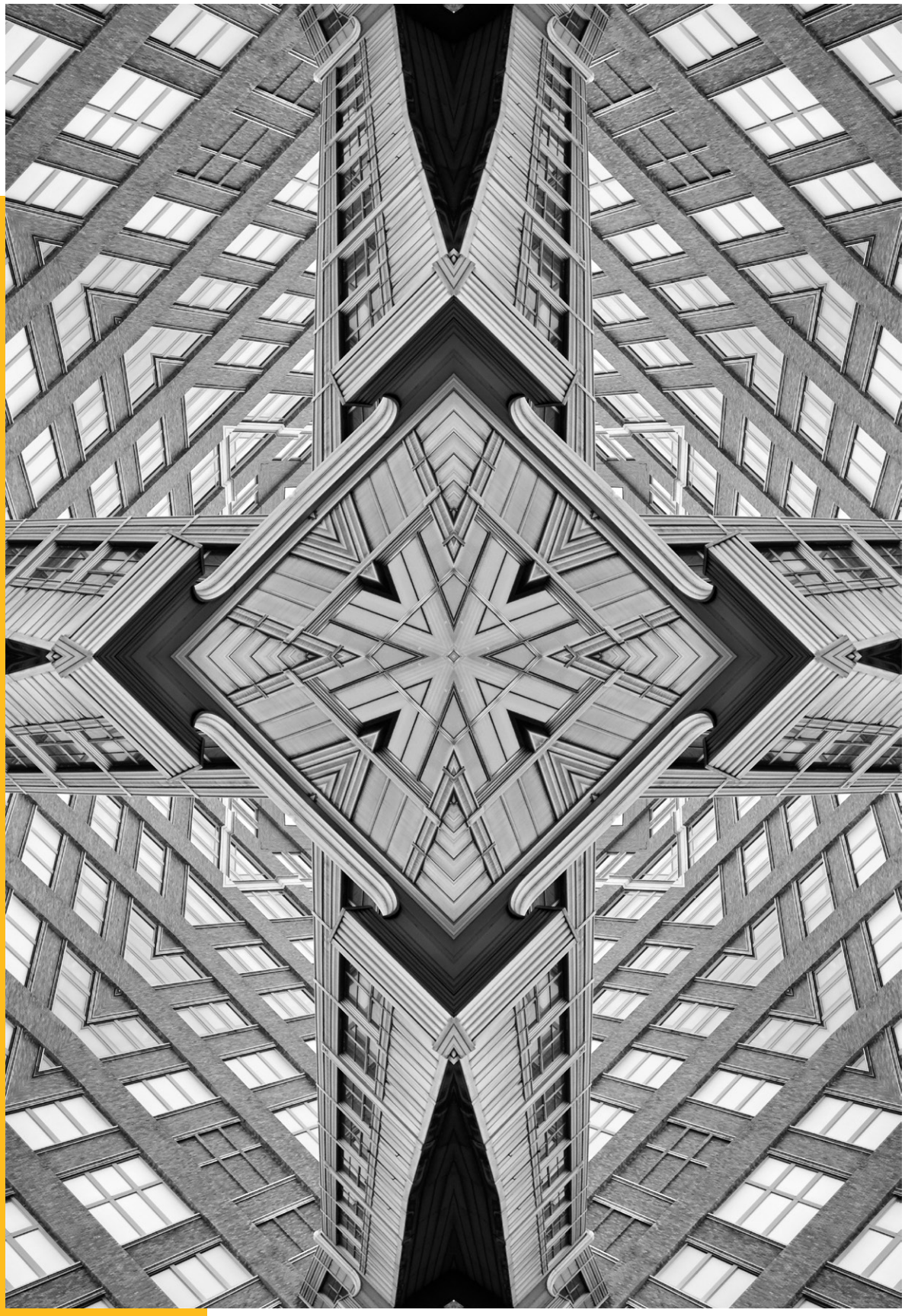

ISSUE NO. 420 NOVEMBER 2023

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Catalysing Progress Through Capacity-Building Initiatives: Learnings from India's Pan-African e-Network Project in Ghana and Malawi

Dan Banik, Meera Venkatachalam, and Renu Modi

Abstract

Capacity building is a central feature of India's outreach to Africa. Over the last seven decades, the Indian government has provided numerous scholarships to African students through the Indian Council for Cultural Relations and the Indian Technical and Economic Cooperation scheme. India has also established several technical institutes throughout the continent. However, assessments of India's capacity-building initiatives remain limited. This paper assesses the impact of the flagship Pan African e-Network Project through qualitative fieldwork in Ghana and Malawi. It aims to understand how Indian expertise and technology were utilised by end-users in the two countries, outlining what worked and what did not. These learnings and the logistical and practical challenges outlined in this paper could be helpful in the implementation of future projects that involve knowledge transfers from India to Africa.

Attribution: Dan Banik, Meera Venkatachalam, and Renu Modi, "Catalysing Progress Through Capacity Building Initiatives: Learnings from India's Pan-African e-Network Project in Ghana and Malawi," *ORF Occasional Paper No. 420*, November 2023, Observer Research Foundation.

Introduction

In recent decades, India's foreign policy has evolved from idealism founded on southern solidarity and non-alignment to pragmatism and the explicit pursuit of commercial, diplomatic, and security interests. Still, Indian foreign policy remains rooted in support for multilateralism and South-South solidarity. Nowhere is India's outreach in the Global South more evident than in Africa, where numerous bilateral agreements have been signed following high-level visits, with New Delhi outlining a set of guiding principles for a renewed engagement with African countries.[1]

Development cooperation with the African continent emerged within the framework of postcolonial solidarity and in the aftermath of the 1955 Bandung Conference, which brought together leaders of newly decolonised nations to discuss geostrategic issues and economic development. India's Africa outreach has since included student scholarships, technical training, contributions to peacekeeping, grants and concessional loans, bilateral trade, and, more recently, engagement through civil society organisations, NGOs, and the private sector.[2]

As of June 2023, India's cumulative investments in Africa were worth about US$75 billion, while it has extended concessional lines of credit (LoCs) worth US$12.37 billion.[3] Trade was valued at US$98 billion in 2021-22,[4] up from US$56 billion in 2020-21.[5] Numerous scholars have discussed the modalities, scope, and challenges for New Delhi's engagement with African nations,[6,7,8,9,10] but these outputs have been macro studies based on secondary data without in-depth analyses of specific projects from an African viewpoint to understand the range of opportunities and challenges involved. Some modalities of Indian assistance to Africa, such as the LoCs, have been studied in greater detail than others.[11,12]

This paper[a] attempts to offer a nuanced analysis based on qualitative data on the extent to which India's current capacity-building activities, through concessional loans and grants, offer value for money, including lessons for implementing future development projects.

a This paper is part of a collaborative research project, 'India's Footprint in Africa: South-South Cooperation and the Politics of Gifts and Reciprocity', funded by the Research Council of Norway, under the Norwegian Programme for Research Cooperation with India.

Introduction

In 2020, the authors began a multi-country project to assess India's capacity-building efforts in education and health in Africa (by studying select flagship schemes),[b] supported by the Research Council of Norway.[13] The project sought to establish why some initiatives were more successful than others, how end-users perceived their educational experiences, and how and to what extent local stakeholders were involved in shaping the form and structure of these initiatives. The answers to these queries will enable a better assessment of Africa's development landscape and present learnings for the effective implementation of future government or private sector projects. This is particularly important as India-Africa engagements are likely expand exponentially in the coming decades.

This paper focuses on the Pan African e-Network Project (PAEN) in Ghana and Malawi that was launched in 2009 and entailed the establishment of a fibre-optic network to provide satellite connectivity, telemedicine, and tele-education to African countries. The paper presents empirical material and perspectives based on fieldwork conducted by the authors in the two countries between October 2020 and December 2022. The authors interviewed staff, students, and management (55 individuals)[c] at the Kwame Nkrumah University for Science and Technology (KNUST) in Ghana and Chancellor College in Malawi, two of the 53 institutions that hosted the PAEN programme in Africa. The responses received also provide feedback about the opportunities such initiatives offer African citizens and the challenges faced by these centres in incorporating the resources and technologies channelled by India into their operational matrixes.

b Researchers from the University of Oslo and the University of Malawi are also involved in this project. The team attempted to study the workings of the Pan African e-Network Project and its successor, e-VBAB, in Senegal, Ghana, Malawi, and Mozambique. The team also visited other Indian capacity-building initiatives, such as the Entrepreneurial and Training Development Center in Dakar (Senegal) and the Kofi Annan Centre for Excellence in ITC in Accra (Ghana).

c All interviewees requested anonymity.

India's Capacity Building Efforts: An Overview

Historically, educational assistance has been a critical area for India's engagements with African countries. During the 1950s, when many African countries became independent, the Indian Council for Cultural Relations (ICCR) announced 70 scholarships for African students at the undergraduate and postgraduate levels in all fields of study at Indian universities.[14] Since then, the number of scholarships offered has risen manifold, to 251 in 2011-12[15] and 900 in 2015.[16] However, in 2021, the ICCR acknowledged that about 50 percent of scholarships allocated for African students typically remained unutilised (an issue addressed later in this paper) and were therefore "reappropriated" to other eligible countries.[17] One reason for the underutilisation was that candidates from Francophone and Lusophone African countries were not conversant in English, the language of instruction in India. In 2021-22, 908 scholarships were offered—but 916 granted—to African students due to the significant increase in applicants from the previous year amid the ICCR's attempt to re-engage African interest.[18]

Perhaps more successful than the ICCR scholarships is India's flagship Indian Technical and Economic Cooperation (ITEC) programme, instituted in 1964. ITEC, along with its corollary, the Special Commonwealth Assistance for Africa Programme, has offered several short-term and fully funded academic courses in various vocational, managerial, cultural, and technical fields that typically last one to three months. ITEC scholarship slots are allocated bilaterally, based on a country-specific quota, and between 40 percent to 50 percent of the places are earmarked for Africa.[19] While there were just under 6,000 slots offered annually in 2008, this number had risen to over 10,000 by 2015 (the latest available figure).[20]

In recent years, India's capacity-building efforts in Africa have also included non-governmental actors,[21] such as civil society organisations, NGOs, the multilayered Indian diaspora, Indian multinationals (MNCs), and other private sector players in Africa. For instance, the Gujarat-based Self-Employed Women's Association (better known as SEWA) has partnered with African groups to organise rural women, build supply chains, and promote self-sufficiency.[22] Similarly, the Barefoot College in Tilonia, Rajasthan, has trained several hundred African women (known as 'solar mamas') to become solar energy technicians, who have applied their skills to initiate a multiplier effect in the local communities.[23] Many Indian MNCs, such as Tata International (a Tata Group subsidiary), have also developed sophisticated programmes for their African staff (including training technicians in India).[24] As part of their community engagement strategies, these companies also fund open scholarships at African educational institutions for undergraduate and postgraduate study, and also contribute to local community-based enterprises in the social sectors (primarily health and education).[25] In July 2023, India's

foreign ministry announced that the Indian Institute of Technology-Madras will set up a campus in Zanzibar, Tanzania, with plans to launch programmes in November 2023.[26]

Despite these efforts, many observers have noted the lack of qualitative assessments of India's capacity-building schemes in Africa.[27] Apart from enrolment numbers, little is known about how these projects operate on the ground and how the end users in Africa perceive them. To be sure, there were a few early accounts of how Africans understood India's outreach activities, such as *Two Months in India* (1965), authored by Kenyan politician Jaramogi Oginga Odinga,[28] who praised India's development planning, former Prime Minister Jawaharlal Nehru's high modernist vision of economic development, and the country's emphasis on science and technology in the educational system. More recent academic work has shown how early Afro-Indian interactions through India's scholarship programme helped develop frameworks that actualised future postcolonial and technocratic imaginings of India's role and influence on the continent.[29] There are also a few recent accounts of African students' day-to-day experiences of living in India, in which they acknowledge the merits of the Indian educational system, their experiences of cross-cultural dialogue, and the logistical and cultural challenges faced while studying in the country.[30] Moreover, the Association of African Students in India, a country-wide student-led body, has often engaged in constructive criticism of India's capacity-building initiatives, making a case for enhanced cultural sensitisation, reform of student immigration procedures, and the importance of cultural interlocutors to improve pedagogical processes and address the racism that some African students face in India.[d, 31]

In addition to the range of programmes that provide African citizens with opportunities to study in India, over a dozen bilateral and African Union (AU)-negotiated agreements have established capacity-building institutions in Africa since 2000. The institutionalisation of the India-Africa Forum Summits (IAFS; held in 2008, 2011, and 2015) saw India's capacity-building emphasise educational training and skilling in Africa through distance and online learning. The Framework of Cooperation of IAFS-I (2008) sought to establish 21 institutes in Africa,[32] focused on areas such as information technology, diamond processing, foreign trade,[33] and vocational training centres. Under IAFS-II (2011), 80 more institutions were proposed at the Pan-African

d All interviewees requested anonymity.

e Blocs such as the Economic Community of West African States and the Southern African Development Community.

regional[e] and bilateral levels. The agreement was that African host nations were to provide the land, building, and local facilitation for these establishments, while India would provide the software and technical know-how and conduct the programmes for three years (during which the training of the locals would be complete). It was also agreed that an Indian implementing agency—a government ministry, private sector entity, or both working together—would be involved in the process.

Despite these ambitious goals, little is known about how Indian capacity-building initiatives in Africa have progressed, especially since nearly half of the institutes pledged at the IAFSs have not materialised for a variety of reasons.[34,35] There is insufficient research and critical assessments on the possible logistical challenges and why the implementing ministries in India, and the African and Indian governments could not streamline their efforts and capabilities to establish these centres. In some instances, there were challenges coordinating the efforts of India's foreign ministry and other implementing agencies. One reason was perhaps that expenditure related to many of these pledges required cabinet approval,[36] which in turn had to follow due processes and contributed to delays on the Indian side. Another reason was that the AU played a role in deciding the location of the institutes via the Banjul Formula,[f] ensuring that all the countries from the different regional economic communities of Africa were adequately represented.[37] This did not necessarily match demand or capacity to see the proposals through.

Thus, while feasibility studies may have been carried out beforehand, visioning exercises (which could have helped define the purpose of these institutions and their operational culture) were not prioritised. For these reasons, a joint monitoring mechanism with the AU was created to review the implementation and establishment of such institutions ahead of the IAFS-III in 2015.[38] This was an important exercise as it helped monitor the projects that were successful or had the potential for renewal, while the projects that did not take off could be discontinued.

f The Banjul Formula was adopted by the African Union (AU) in 2006 and recognised the three-tiered organisation of the continent. It aims to provide a fair and equitable representation of member states in decision-making processes within the AU. The formula mandates that the AU choose the location of projects as per these considerations through a needs-based assessment. India has pursued cooperation through the 'three-tiered approach' with the AU, the regional economic communities, and bilaterally.

A review of existing literature on capacity-building efforts establishes that India has typically had closer relations with eastern and southern African countries due to historical factors and the presence of a settled diaspora.[g,39] Despite this advantage, India's institution-building efforts were unsuccessful in Kenya, Mauritius, and Uganda (the countries with which India shares strong historical and cultural ties),[40] Libya (due to political instability),[41] and Chad (which did not have the infrastructure to support the proposed civil aviation institute).[42] However, vocational training centres were successfully established in three Francophone countries, Burkina Faso, The Gambia,[43] and Burundi,[44] where it was expected that the usage of French would pose a communication barrier for Indians.

> "Many observers have noted the lack of qualitative assessments of India's capacity-building schemes in Africa. Apart from enrolment numbers, little is known about how these projects operate on the ground and how the end-users in Africa perceive them."

g India has had thriving trading relations with eastern and southeastern African coastal societies for millennia, predating colonialism. During the colonial era, Indians settled in these parts of Africa, initially having moved there as indentured labourers or traders. Their presence led to the formation of networks between India and Africa, which facilitated small-scale trade, cultural exchanges and mobilities of people. It was assumed that these networks facilitated Indian diplomacy in this part of Africa, as opposed to West Africa, which was cut off geographically from India.

The Pan African E-Network Project

A brainchild of former Indian President A.P.J. Abdul Kalam, PAEN aimed to ensure that the expertise of some of the best Indian universities and super-speciality hospitals were accessible to African citizens. As such, the project sought to create linkages for tele-education and telemedicine, video conferencing, and voice-over IP services. Telecommunications Consultants India (TCIL), an Indian government undertaking, was tasked with implementing the project with a budget of US$125 million (INR 542 crores) in 2009.[45] The project was expected to run for five years after the infrastructure had been put in place.

A hub with a satellite earth station was established in Sebikotane, a small town near Dakar in western Senegal. Thereafter, so-called 'very small aperture terminals' were installed in 53 African countries with an international private leased circuit that linked the landing station in Chennai to a similar one in Dakar. The Regional African Satellite Communication Organization (RASCOM) network helped connect the hub in Dakar to other centres on the continent.[46] The location of the satellite centre, regional hub, and regional centres for telemedicine and tele-education were decided by the AU on the principle of regional distribution. In 2009, five regional tele-education hubs were identified—KNUST in Ghana, Makerere University in Uganda, Yaounde University in Cameroon, Alexandria Faculty of Commerce in Egypt, and Chancellor College in Malawi.[47,48] Five regional telemedicine hubs were established at Ibadan Hospital (Nigeria), Brazzaville Hospital (Republic of Congo), Sir Seewosagur Ramgoolam National Hospital (Mauritius), Alexandria University Hospital (Egypt), and Fann Hospital (Senegal).[49,50] The PAEN's long-term goal was to reach smaller centres across the continent via these major regional hubs using RASCOM. Towards the end of the project period in 2017, 48 tele-education centres and 49 partner hospitals across most AU member states were enlisted as a part of PAEN.[51] In addition, 43 African universities had signed memoranda of understanding (MOUs) with Indian counterparts.[52]

In Indian policy circles, the PAEN programme is widely acknowledged to be a success. At the project's conclusion in 2017, 21,280 students had reportedly registered with Indian universities, and another 8,501 had completed their degrees, indicating that the retention rate was only slightly over 40 percent.[53] A total of 6,132 sessions for undergraduate, postgraduate, diploma, and certification programmes were conducted. In relation to the telemedicine

component, continuous medical education (CME) was more successful than telemedicine, with a total of 6,771 CME sessions held, each with 20-50 attendees.[54] Consultations and CME sessions were focused on an array of medical disciplines, such as radiology, urology, and cardiology.[h]

However, there are no detailed accounts of the workings of PAEN's tele-education component, while only about three studies have been undertaken on the telemedicine component. Vincent Duclos discusses in some detail the conversations that took place during teleconsultations at the FANN hospital in Dakar as Senegalese doctors sought advice from their Indian counterparts.[55] These exchanges indicate that providing clinical and practical advice when unfamiliar with the nature of equipment and infrastructure at Fann Hospital was challenging for Indian doctors, in addition to language-related issues (communicating in French was more of a challenge than in English). In his study of the PAEN in Mozambique, Tom De Bruyn argues that despite its efficient implementation and state-of-the-art infrastructure, end-users could not achieve outcomes proportionate to the investment in the project. Indeed, the one-size-fits-all approach and the inability to adapt to specific local conditions were highlighted as significant obstacles.[56] Eben Afarikumah and S. YunkapKwankam conducted a detailed study at KNUST and concluded that the initial interest of medical practitioners waned after a year. In 2013, about two-and-a-half years after the project's launch, the majority of the hospital staff were either unaware of the existence and benefits of the project or were not motivated enough to participate.[57]

- **Telemedicine in Ghana**

When a researcher from the authors' research team visited the Komfo Anokye Hospital in Kumasi, Ghana, in June 2022, few respondents remembered that the hospital was ever a centre for the PAEN's telemedicine programme (the hospital had joined the programme in 2009-10). This was in sharp contrast to the tele-education segment, where over a dozen students and staff who had participated in the programmes came forward to share their experiences, which were generally favourable. According to two senior doctors familiar with the telemedicine project in Ghana, CME sessions were conducted regularly in the first year, with one session scheduled every fortnight or every month, depending on the demand. Initially, about 20 doctors attended each session. However, the timings of these sessions were a problem (due to the five-and-a-

h Indian doctors were paid a standard fee of INR 1,200/- per consultation by the MEA, while they were paid INR 5,000/- per CME lecture. This is one of the reasons why the CME sessions outnumbered the consultations.

half hour time difference between India and Ghana). Indian doctors would, for example, begin the sessions at the end of their workdays, which was late afternoon in Ghana, and this would interfere with the local staff's work schedule. Moreover, an in-depth analysis of Komfo Anokye Hospital's areas of expertise and shortcomings was not paid heed to. As a result, some of the CME sessions were in areas that the hospital already had expertise in and, therefore, did not add much value.

- **Telemedicine in Malawi**

The Kamuzu Central Hospital in Lilongwe, Malawi (which also hosted PAEN's telemedicine component) had a similar experience. The main criticism among the staff interviewed was that PAEN was a top-down process, where Indian doctors would "lecture" Malawian doctors on topics that were viewed as not too relevant to local needs. Moreover, since many Malawian physicians had been educated abroad, they preferred to reach out to their extensive networks in North America and Europe whenever needed for a second opinion or advice. Apart from the tedious process of trying to schedule a consultation session with their Indian counterparts (which was also time-consuming), the Malawian doctors involved in PAEN told us that they found the advice given to them from Indian hospitals to be of such a general nature that it was of little use for their patients. Hence, the staff at Kamuzu Central Hospital decided that they would rather use their time to treat patients in consultation with Western colleagues than rely on the PAEN. Most importantly, however, the management of several African hospitals believed that while capacity building was important, it was equally (and often perhaps even more crucial) to invest in infrastructure and equipment. Simply imparting advice from India to African doctors—some of whom were trying to function in a system without X-ray and MRI machines, for instance—was of little use.

- **Tele-education in Ghana**

KNUST, a large public university with an uptake of approximately 100,000 students in Kumasi, was an early PAEN partner institution and a regional hub for its tele-education component. The university administration attests that their institution was chosen after a quick feasibility study conducted by the Ghanaian government, presumably under the direction of the AU.[58] Accordingly, KNUST was chosen to house PAEN on two accounts. First, it had a long history of collaboration with Indian partners, with many Indian academics working there for decades. It had signed a bilateral MOU with

the University of Madras for high-performance computing and engineering degrees before 2009, and several smaller groups of students and staff had visited Chennai for brief periods for practical training.[i] The University of Madras's modules were also offered as additional modules in KNUST degrees. Second, KNUST had considerable experience with distance learning courses. In the 2000s, it was part of the African Virtual University consortium with partner universities in Kenya and Australia.[59]

The tele-education facilities were housed at the university's Open Distance and e-Learning (ODeL) Centre. KNUST staff interviewed in May 2022 attested that they were keenly involved in shaping the operational procedures for delivering tele-education during the project's life. To popularise the courses among the student community, KNUST initially decided to bear the fees for staff who wished to enrol. Those not associated with the university had to finance themselves. A wide range of academic course options were made available by Indian counterparts, which included subject areas in which KNUST did not possess expertise. The university's academic management chose courses they thought would interest Ghanaian students. These included a PG diploma in IT, an MA in Financial Management, and an MBA in International Business from Amity University; an MSc in IT from the University of Madras; and an MBA in Management from Indra Gandhi National Open University (IGNOU). Given that the PAEN project had the potential to attract a considerable number of students, a local coordinator was appointed from the OdeL Centre. The coordinator's responsibilities included answering student queries throughout the academic programme, especially concerning the syllabus, organising and supervising exams, liaising with Indian universities for certificates and results, and regularly updating the Indian High Commission on progress. Through the coordinator, the project was able to establish regular contact with several key persons from the participating Indian universities and to streamline academic and managerial issues that arose over the process of course delivery. The project staff at KNUST could thus regularly communicate directly with point persons in Indian universities.

As PAEN began its operations when the use of computers was not yet widespread, a project engineer from the Indian nodal agency (TCIL) was engaged in the technical aspect of the project, including troubleshooting issues that emerged in relation to the use of servers and satellites. KNUST's tele-education coordinator and the TCIL engineer maintained regular contact

i KNUST was introduced to the University of Madras and several potential Indian partners by an Indian academic based in Kumasi.

with each other throughout the project period. The Indian High Commission in Ghana was also actively involved in the PAEN. KNUST organised several in-person graduation ceremonies at the end of the courses, with the Indian High Commissioner presiding over some of them. Over the five years of the project (2010-2015), about 10 students enrolled for courses offered by IGNOU, Amity's courses attracted about 200, while the University of Madras admitted about 30 students.[60]

- **Tele-education in Malawi**

The tele-education component of the PAEN project in Malawi was rolled out in 2009. In 2008, President Bingu wa Mutharika's administration announced that it would prioritise increasing access to university education and that all districts of the country would receive equal priority. This was particularly important for some regions of Malawi that were historically underrepresented in higher education, with the Northern region typically sending more students to universities than others. The government realised that technology would help offer university education to larger groups in the population, given the substantial increase in local demand for university degrees. When the Indian government approached the Malawi government regarding the possibility of offering tele-education services, the Ministry of Education began enquiring which institutions in the country would be interested and able to host the facilities. The University of Malawi's Chancellor College in Zomba, a premier education institution, announced its interest and made a strong case for PAEN to be located within its campus.

Once Chancellor College was selected to be Malawi's tele-education hub, it took around three months to set up the infrastructure. While the formal agreement was signed in September 2008, classes began in April 2009. The University of Malawi made available a room beside the library building, and TCIL installed video conferencing equipment, including video cameras, large television screens, a sound system, microphones, and a dedicated satellite connection with an antenna. Since electricity access in Malawi is often unstable, backup inverters (battery-powered) were also provided later in the project. All equipment was manufactured in and sent from India. There were some delays related to clearing customs in Malawi, but these were quickly resolved. TCIL ensured a full-time engineer was stationed on campus, working closely with a locally hired employee. This confirmed that there was always someone available to manage the technical systems.[61]

The Indian partners that tied up with the University of Malawi to offer tele-education degrees included Amity University, IGNOU, and Birla University of Technology and Science. These three universities combined to offer 10 study programmes, which ranged from a diploma degree to bachelor's and master's degrees. The duration for a standard certificate course ranged from six months to one year, diplomas programmes from one year to 18 months, a bachelor's programme for three years, and a Master´s programme (including an MBA degree) for two years.

The recruitment criteria, mainly determined by the University of Malawi, required that all students have a high school certificate of education for diploma courses and a bachelor's degree for master's programmes. However, these criteria were not strictly enforced in all cases. In some cases, the admission criterion was lower than the comparative progress offered by the University of Malawi. Students who benefited from this relaxed criterion included those who typically could not complete their prior education due to financial challenges and those who did not have the required coursework to get admission to a particular study programme (for instance, if they did not do well enough in the natural science subjects at high school). The typical cohort size in Malawi was around 30 students, although some popular programmes recruited up to 50 students.

Chancellor College was not consulted regarding the syllabus and design of teaching modules, which were solely determined by the three Indian universities. The typical format was that students arrived on campus once a week for half-day sessions. As India offered the same programmes to other African countries, students attending the same sessions as their counterparts in different regions of the continent could see each other.

The dedicated satellite network used for this project ensured that the connection speeds were decent compared to 2008-2009. The typical internet connections ranged from 10-14 Mbps, which allowed students to see their lecturers clearly. The audio link was also of reasonable quality. However, there were limited opportunities for students to interact with their lecturers or among themselves since they were spread across campuses across the continent.

Assessing the Experiences

Both Ghana and Malawi were interested in rapidly expanding access to university education, and PAEN provided timely and affordable tools that helped resolve the shortage of teaching facilities and filled the course content gap. There were some initial concerns in Malawi that e-learning would, at some point, out-compete traditional forms of learning, and this caused some

reluctance to embrace PAEN's technology fully. However, a decision was made to experiment with the format for five years and evaluate the results. In both countries, there were also concerns that online learning would create its own challenges, especially in relation to slow internet connections and lack of high-quality equipment. These initial concerns were quickly dissipated as PAEN, according to those interviewed, was well ahead of its time. While there were some technical problems, these were relatively minor. The satellites used by PAEN offered relatively high-speed connections, and the video and audio quality were good enough for education purposes.

Students enrolled in PAEN's tele-education services in both Ghana and Malawi believed the course design, syllabus, and quality of knowledge imparted to be of high quality. The diverse range of academic programmes offered by PAEN allowed them invaluable access and exposure that was unavailable in either country then. Both KNUST and Chancellor College saw considerable interest in tele-education. In addition to university students (high school and undergraduates), the programmes attracted many individuals from the private sector who did not previously have the degrees they believed were essential to further their careers. Although PAEN was subsidised by the Indian government (Indian universities were compensated for their efforts), both KNUST and Chancellor College charged tuition fees to cover some of the expenses related to the day-to-day running of the online centres and staff salaries. Several respondents pointed out that this was a significant challenge and that the programme would have been even more successful had the Indian government covered the overall expenses at these institutions for hosting the PAEN. For instance, several hidden costs emerged once the programmes were operational, which had to be borne by the African partner institutions. However, the Indian stakeholders and African bureaucrats who signed off on the agreement to implement the programmes had not envisioned these additional costs. Senior administrators at Chancellor College, for example, told us that their institution had invested heavily in the PAEN programme by offering space (despite having limited infrastructure facilities) and covering the salaries of local administrative staff. They hoped to recover these expenses by charging tuition fees from students, which generated a new revenue stream for the institution.

The MBA programme in Malawi was not only attractive for private sector employees but also for ministers (five sitting ministers enrolled over the five years) and officials from public sector entities such as the Reserve Bank of Malawi. Apart from the design of the MBA course, the low cost of the programme was a significant contributing factor to the high enrolment rate. However, despite the low fees, students from lower-income groups could not afford the course. In some instances, students from the lower income groups

made partial payments for certain parts of the programme but could not sit for their exams and were not conferred the degrees as they could not make the total payments. Some of the other initial challenges included the teaching component. E-learning was in its infancy in 2009, and the equipment used, although state-of-the-art, had limitations. For example, the video quality of the lectures was sometimes not of optimal quality. Sometimes, students found Indian accents challenging to follow but overcame this by downloading lecture videos or audio and watching them at their leisure. On occasion, the lectures were pre-recorded, or live lectures were recorded to be downloaded and watched later, which was particularly helpful for students who could not attend class for several reasons, such as bad weather and lack of transport facilities from rural areas. Occasionally, there were time-lapses between the delivery of lectures from India and their reception at the African centres because of the VSAT, which was another reason for downloading lessons. This, however, often resulted in students being less inclined to attend lectures in real time.

Interactive sessions were not encouraged, and the teaching essentially adopted the top-down approach, with lectures given by Indian professors to African students, who listened to these without being prompted to provide feedback or participate in active class discussions. Some of this was due to technical issues. For example, the equipment installed was configured for a one-way interaction (from India to Africa), and the lack of proper microphones in classes meant that professors in India were often not able to hear their students in Africa.

Another challenge for both students and staff in Ghana and Malawi was the student evaluation process. Most student assignments were uploaded to a server in India via a website. These could only be done in the classrooms (and not from home or other locations) at the two institutions, which meant that those who could not attend class in person for any reason could not submit their assignments on time. Several former students, especially those enrolled in IT courses, stated that the examinations were too elaborate and heavily focused on theoretical concepts, as opposed to more practical or operational knowledge relevant to their local contexts. To overcome this issue, Indian professors should have offered lectures in consultation with their African counterparts, who could factor in the local contexts and make knowledge transfers meaningful.

The exams were conducted online, and each student had access to a separate computer. In Malawi, the project engineers had to extend computer facilities to other rooms at Chancellor College, such as the library. While this was not viewed to be a problem, the extra costs were borne by the host institution.

As the project approached its end after five years in 2015-16, several logistical and administrative complications arose. Not all Indian universities could process the results, issue certifications, and arrange graduations in a timely manner. The public universities—IGNOU and the University of Madras—lacked the proper personnel to resolve queries that arose from KNUST. As a result, several students did not receive their final certificates for months after the completion of the programme. In one extreme instance, a student interviewee received his final certificate from the University of Madras in May 2022 for a degree course completed in 2016.[62]

Additionally, there were specific operational procedures unique to Indian universities that proved to be cumbersome for students and project staff in Ghana and Malawi. For example, IGNOU did not allow students to upload assignments to their online portal, and exam scripts had to be sent physically to India. This led to delays in grading, due to which students sometimes missed enrolments into the subsequent teaching semester. KNUST also had to scan the physical documents/scripts sent through a courier service to India because a few were lost in transit. In one instance, students had to retake exams because the University of Madras had lost the scripts.[63] At times, technical glitches also affected grading systems. Online results would show certain students had passed, but the physical marksheets recorded them as failed. These issues delayed students' progress into the next semester and posed challenges for the students and administrators of the project.

Respondents in Ghana and Malawi noted that many problems persisted despite providing regular feedback to the participating Indian universities, the Indian embassies, and TCIL. The general feeling was that the Indian universities did not consider the challenges faced by their African counterparts.

Apart from inadequate financial resources to maintain and upgrade infrastructure facilities, there was frustration that local academic staff at participating African universities were not involved with the PAEN. This also meant that the online modules offered remained disconnected from the remaining teaching modules offered at KNUST and Chancellor College. From a capacity-building perspective, this was believed by African partners to be a lost opportunity as teaching was exclusively conducted by the staff at Indian universities rather than encouraging a mixed team of Indian and African scholars. Some of the frustration with the project was also related to the TCIL engineer stationed at the participating universities. This was mainly a problem at Chancellor College, which had made available three large rooms in a new wing on campus for the PAEN project. While PAEN installed the required state-of-the-art equipment in the room—air conditioners, projectors, video cameras, servers, microphones, and battery backup systems—the area soon came to be viewed as a "property of India" under the control of the TCIL

engineer, who severely restricted access to the facilities, even when Chancellor College requested that the lecture hall be used for other classes when not in use by PAEN. The TCIL engineer consistently refused such requests and was particularly adamant that equipment purchased through the project (for instance, the projector) was the "property of India" and could not be used by others. This resulted in growing animosity between the engineer and local staff.

Still, the tele-education component of PAEN was seen as a success. The first few batches who participated in tele-education modules offered by Indian universities in Ghana and Malawi could interact with peers from Kenya and elsewhere in Africa in real-time in the teaching studio, which was especially rewarding. It gave them the feeling of being part of an international community of learners. Indeed, most informants the authors spoke with appreciated the PAEN and expressed that it was a unique project. As is evident from the preceding discussion, PAEN's tele-education component was more successful, while several design flaws plagued the telemedicine component.

PAEN stakeholders in India, including the implementing agency and project partners, did not pay adequate attention to how Indian expertise could be best tailored to address the needs of the host hospitals on the African continent. Telemedicine was conceived as a doctor-to-doctor enterprise and not a patient-to-doctor consultation. However, doctors—the most crucial players in the process—were not consulted or made aware of the PAEN's potential or the catalogue of expertise available from India. Besides, they were often under time pressure and could not link up to the telemedicine project as they already had a full schedule. Ghanaian and Malawian doctors needed to determine when to consult an Indian doctor, and unlike other telemedicine models, patients did not reach out to doctors directly. There was also inadequate awareness among doctors in Ghana and Malawi about exactly how they could tap into the expertise of their Indian counterparts, which meant that they were less likely to use this facility. One of the ways this could have been achieved would have been to organise onsite visits to India for doctors at participating African hospitals, which would have helped establish bilateral connections with their Indian counterparts. There were also other challenges, including the recruitment of an operations manager (tasked with day-to-day operations of the network, supervision of technical staff, and vendor relations) and outreach coordinators (tasked with understanding customer needs concerning clinical and education programmes and liaising with Indian counterparts to address these needs). Finally, the telemedicine programmes faced numerous logistical challenges. Partner hospitals required consulting rooms, which were in short supply. Often, the patient had to be physically moved to this consultation room; if they were in feeble health, they could not be moved, which posed a problem for the process.

PAEN's tele-education component was relatively more successful because the key stakeholders, such as the university management, academic board, and students, had been consulted to ascertain which courses were in demand. African students showed considerable interest in enrolling for tele-education programmes offered by Indian universities, and India provided good quality equipment and reliable satellite connectivity. Local coordinators played an important role in facilitating the various modules, and they worked closely with the TCIL engineer. These coordinators, who had direct contact with academic staff and management of the participating Indian universities, were able to ensure that the academic components of the course were conducted on time. The coordinator downloaded lectures, organised discussions amongst students, and ensured that assignments and coursework were completed on time and received by the concerned Indian university and that exams were successfully conducted. PAEN's telemedicine component did not have a similar local coordinator and was remote-controlled from India.

Local engineers were, however, not recruited to the tele-education component. The TCIL staff at its New Delhi headquarters revealed that it was difficult to find candidates with suitable qualifications at participating African institutions. On the contrary, the representatives of African institutions where the PAEN was housed said there would have been many qualified African candidates had the remuneration package been attractive enough. In India, the authors' research finds that various agencies involved with PAEN, including TCIL, were often overly focused on the maintenance of the equipment provided and could not address or engage with the academic needs of the end-users. This meant that, on occasion, the state-of-the-art infrastructure remained underused, both during the implementation phase and when the project was completed. The African stakeholders suggested that Indian technical experts and implementing agencies must work closely with local coordinators who are equipped to handle the equipment and can understand the requirements of end-users.

> "International collaboration is likely to be successful only when local knowledge partners are equally invested in knowledge exchange."

Considerations for Future Capacity-Building Initiatives

PAEN aimed to utilise resources, expertise, and personnel from several private hospitals and universities. Coordinating and harmonising the interests of these various stakeholders was not always easy. In the future, similar capacity-building initiatives should place even more emphasis on improving the communication of goals and results between official institutions and implementing agencies in India and African partner institutions. Feasibility studies should be conducted before a project is initiated to better ascertain the demand for and type of capacity building offered by India.

International collaboration is likely to be successful only when local knowledge partners are equally invested in knowledge exchange. Both parties must understand each other's needs. PAEN's tele-education component attempted to address this issue through a dedicated coordinator, who was encouraged to reach out and build communication channels with Indian service providers.

PAEN's successor, e-VBAB, also consists of two components: VidyaBharati (e-education) and ArogyaBharati (e-medicine), sometimes referred to as iLearn and iHealth, respectively. It aims to offer 15,000 scholarships to learners in Africa for various courses, including undergraduate and postgraduate diplomas and degrees and MOOCs (massive open online courses) in the humanities, sciences, and vocational learning.[64] Indian universities participating in the scheme can also offer partial scholarships to African learners after exhausting their free slots. However, e-VBAB lacks a framework to support conversations between Indian and African knowledge partners, as it is designed to encourage the flow of information from India without feedback from the African end-users. E-VBAB's operational structure means African institutions are even less involved in coordination and student support than they were during the PAEN phase. The nature of the technology used during the PAEN phase necessitated the appointment of engineering and support staff at African institutions, who were also assigned the task of making sure the programme ran smoothly. The Internet as a medium of communication, which is widely available and requires little technical maintenance, has cut out the need for committed technical support staff, who sometimes also doubled up as knowledge transfer facilitators and supported local coordinators in ensuring the programmes ran smoothly. KNUST staff were unable to explain key issues related to the e-VBAB's tele-education component, including the liaison process between KNUST and Indian universities, KNUST's obligations in terms of supporting students, and their role in the examination procedure. Furthermore, the number of students enrolled in courses through e-VBAB and at specific institutions was unknown to the KNUST administration. This was because almost all students applied through an e-VBAB application portal rather than to the

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university of their choice through KNUST, as was the case during the PAEN project. During a visit in June 2022, the authors observed that the e-VBAB tele-education centre was being used by students who had recently graduated and were undertaking their mandatory national service[j] at the university so as not to keep it empty. Meanwhile, e-VBAB's telemedicine component was yet to commence at KNUST at that time. In Malawi, the authors could not find anyone aware of e-VBAB, although several organisations expressed a keen interest in continuing something that resembled the education component of PAEN.

Many capacity-building initiatives were discussed and designed at the ministerial level, whereas the African host institutions could not understand their role within the collaboration. Including staff at the mid-level would have made the project more viable as they are implementing it. In relation to both tele-education and telemedicine, the AU determined where the project would be hosted. This brought an added layer of bureaucracy to the operations of PAEN. In retrospect, a bilateral approach with proactive recipient countries in Africa would have been a more viable approach. In addition, the location of the satellite hub in Senegal, which is on the Atlantic coast in West Africa and farthest from India, was not helpful. Countries on the continent at a distance from Senegal worried about security issues for data transfer through a remote hub in a faraway country. Regional sub-centres with partner countries could have enhanced African ownership of the project.

> "A committed agency in India could potentially alleviate some of the administrative and logistical hurdles that arise during the execution of capacity-building projects."

j The national service programme is a compulsory one-year service required of all citizens of Ghana who are 18 years or older. This could include various voluntary activities, including social services and enlisting in technical training schemes.

Conclusion

PAEN was an ambitious, forward-looking programme. While video conferencing, tele-education, and telemedicine platforms are now commonly used in many parts of the world after the COVID-19 pandemic, PAEN offered such services when the internet was still in its infancy. PAEN envisioned a cost-effective way of transmitting technical expertise and knowledge from one part of the Global South to another, while also aiming to build a virtual community of learners located in different parts of Africa to facilitate the exchange of ideas and learning experiences.

However, for collaborations of this sort to be successful, initiating stakeholders need to take a more proactive role. In the case of both PAEN and the e-VBAB projects, there appear to be varying degrees of coordination between the designers and end-users of the programme. Indian stakeholders need to be more proactive in designing and implementing the programme. An assessment of the capabilities of host institutions, student profiles, and how Indian expertise could help develop capacity for local industry should have been undertaken beforehand to align the programmes offered with local needs. PAEN was meant to be an Africa-wide programme, but diverse economic and social landscapes characterise the continent, and a one-size-fits-all approach will not work. A committed agency in India, managed by the foreign ministry's Development Partnership Agency, could potentially alleviate some of these administrative and logistical hurdles that arise during the execution of such projects. Dedicated personnel could ensure better coordination between Indian and African participants and institutions for the duration of such schemes. Indeed, a more empathetic approach to the mechanics and processes of capacity building will enable India to further its goal of developing local capacity across the Global South in a people-centric and cost-effective manner.

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