

Dr Asma Bashir: Hello world and welcome to the ALBA-IBRO Podcast Miniseries, a program that brings a global and intersectional approach to hot topics in equity, diversity, and inclusion in neuroscience. The miniseries delves deeper into the knowledge and expertise shared at ALBA-IBRO events at three major conferences in 2023 to make these valuable insights accessible to all. The events and this podcast are supported by the International Brain Research Organization, and I'm your host for this special miniseries, Dr Asma Bashir, the founder of Her Royal Science.

For our second episode, we're coming to you from the 11th IBRO World Congress of Neuroscience held in Granada, where ALBA and the IBRO Early Career Committee hosted a special event about how scientists from under-resourced communities and countries can leverage global collaboration to support affordable capacity development in neuroscience.

For the first part of this conversation, I'll be speaking with three scientists about the initiatives that aim to support neuroscience research in their respective regions. The researchers are Dr Mahmoud Bukar Maina from the University of Sussex in the UK and the Biomedical Science Research and Training Center (BioRTC) in Nigeria, Dr Jo Havemann from Access 2 Perspectives in Germany, and Dr Francisco Parada from Universidad Diego Portales in Chile.

I'd like us to start by talking about the key projects that you're working on in the hopes of increasing capacity development within international neuroscience.

Dr Mahmoud Maina: So, basically, African neuroscience has about five domains that makes it unique on a global stage. It has the potential to catalyze breakthroughs if properly invested in those regions. One of these regions is the human genetic diversity in the African continent, which is so important, not just for understanding brain health and disease, but for overall comprehension of human health. But then the question is, what has stopped African neuroscientists from fully exploiting these opportunities? We have published a number of papers over the last two years showing that the lack of infrastructure is one of the major challenge affecting the neuroscience committee in Africa. With BioRTC, we established it in Yobe State University in order to have a hub or a center that is locally driven, connected to local community, policymakers, [and] institutions, but also having a global reach that can allow African scientists to be able to address some of those big questions within the African continent.

Dr Asma Bashir: That is wonderful. I look forward to diving a little bit more into BioRTC. Thank you so much, Dr Maina. Let's go to Dr Havemann next. Let's hear more about what you shared at the ALBA-IBRO event.

Dr Jo Havemann: I'm a trainer and consultant in open science communication, and I've specialized in global research equity and co-founder of AfricArXiv, which is an African

publishing platform. But [at] the conference in our session, I basically took a meta approach first where I mentioned the Declaration of Human Rights with Article 27, which says that every person on the planet has a right to engage in research, so basically setting the stage for why we talk about equity and diversity in a research context. I personally don't have a background in neuroscience, but it very much applies to any research topic generally. And then, with AfricArXiv, we promote African scholars in particular by providing a platform for them to disseminate their research free of charge and with no hurdles and strings attached. And as such, that then enables also visibility and opportunity for collaboration and networking within the continent, across language barriers, and also globally.

Dr Asma Bashir: I remember hearing about AfricArXiv on Twitter and realizing that it's going to fill a niche very, very soon, and I imagine you're already getting a lot of posts and a lot of submissions to the archive. And I can't wait to hear more yet again; thank you, Dr Havemann. Let's go to Francisco Parada! Dr Parada, can you tell us a little bit more about the initiative that you shared?

Dr Francisco Parada: Certainly. So, psychological and brain sciences in Latin America face a very significant challenge in terms of scientific funding, research, and evidence-based innovation. In order to address this, what we did was to establish the Center for Human Neuroscience and Neuropsychology in the year 2017 at Universidad Diego Portales in Santiago, Chile. This is a multi-PI research center that focuses on the neuroscience of cognition and also serves as a day clinic for brain lesion survivors. The idea of this is that our mission is to advance the trans-disciplinary mobile brain-body imaging approach and the four cognition research programs through basic science, theoretical advancements, and bidirectional innovations to benefit the community.

Dr Asma Bashir: Alright, I would love to actually spend a little bit more time speaking with you before we go back to Dr Maina and Dr Havemann, if that's okay, Dr Parada.

Dr Francisco Parada: Mm-hmm. <Affirmative>.

Dr Asma Bashir: I'm wondering if we could discuss the history of Chile and why a research center like this is important. What were the sequence of events that led to the creation of a space like this?

Dr Francisco Parada: Certainly. In the fifties and the sixties, Chile reached an incredible potential and growth. Basically, we established a lot of technology, like electricity for the most of the country, so all of the stuff that Mahmoud was telling us about the lack of infrastructure, we kind of solved it in the fifties [and] sixties in Chile. In 1973, there was a coup d'etat and basically, they destroyed democracy. It was a link between the CIA, [the] private sector in Chile, and the military in Chile. These three agents or actors generated this very complicated situation in terms of psychological

distress for people [and] economical distress for the market here. Pinochet and his collaborators, they [spent] 17 years torturing, disappearing and killing people, and of course, stealing resources. After that, pretty much we had no funding and everything is very stalled up until today. Psychologists had to hide during the dictatorship because psychology was one of the forbidden sciences, therefore putting psychology and brain sciences into a complete state of sleeping, so basically we started doing psychological and brain sciences mid-nineties with no funding... So, so late. That's a super long story, made as short as possible, to show you how this political economical... and if you actually want to want to go further, this is absolutely coming from World War II.

Dr Asma Bashir: It's very important that we have this kind of conversation because present day problems are oftentimes the consequence of historical perspectives, historical experiences, so I thank you so, so much for sharing that. And since you're speaking about a center that was started a couple of years ago now, I guess six years ago now—by the way congratulations—

Dr Francisco Parada: Thank you.

Dr Asma Bashir: Dr Maina, can you share a little bit about the origin story of your center, BioRTC, the sequence of events that led to its creation and where you are now?

Dr Mahmoud Maina: Right. I was born and raised in Nigeria and educated there. After my bachelor's degree, or about the time when I was finishing my bachelor's degree, I picked interest in neuroscience, and I didn't realize that the neuroscience ecosystem is basically not existing in Nigeria and I think this is the case in most other African countries. Obviously, this is all linked to the lack of funding and infrastructure, because most of the institutions are basically focused more on teaching rather than research. So, a collection of these reasons made me realize that if I wanna become a neuroscientist, I have to leave Africa, so that's how I left Africa. A lot of these issues that I mentioned actually widespread across the whole of Africa, with exception of probably South Africa where we have the only center for neuroscience over there.

While in the UK, I realized that it's either I do something about the situation back at home, or I remain, like most of us do, outside Africa: the brain drain phenomena. That's when I started all these ideas, leading different initiatives and these papers in order to fully understand what is the best approach to establish something sustainable. That's when I realized that you really need a number of different things to be in place before you can get something to succeed. One has to be local institutional support, the institution where you want a center to be. You want also the support of the local community and perhaps the policy makers, because whatever you build has to be sustainable. And if you want it to be sustainable, then they need to be there. Most importantly, then you need global collaboration. We've recently submitted a paper to be published describing all the different steps that we've undertaken in order for a center

like this to come into existence. But basically, started in 2017 and in 2022, finally we had this center.

Dr Asma Bashir: That is beautiful, and congrats to you as well for getting this off the ground. We'll be sure to share the links to the papers that you were referring to. Let's now switch over to Dr Havemann. I would love to hear more about not only the consulting firm that you run, but also about AfricArXiv and what you feel the role is for open science in the research world at large. Take it away!

Dr Jo Havemann: Access 2 Perspectives basically provides researchers with information, trainings, and workshops on how to organize their research workflow as open as feasible in [line with] open science principles. And since two years now, we have a good reference with the UNESCO Open Science Recommendations, which had consultations all over the world with research stakeholders from all disciplines and compartments. Basically, at the end of the day, why we do research is to serve society one way or the other, so the question now is how can we make the research journey as efficient and rewarding to society and the planet as possible? And AfricArXiv is one of our pillar projects or initiatives [that] emerged pretty much five years ago now, basically providing a low threshold or no threshold publishing platform that then enables, like I said in the beginning, the visibility for African research and collaboration, cross continental as well as globally. And we also look towards multilingualism [and] we've launched with an invitation of submissions in any African language.

Dr Asma Bashir: That's amazing!

Dr Jo Havemann: Yeah! And we thought, 'Okay, when it comes or when they come, we'll deal with it,' because we were already embedded in good networks. So that's what we do, basically. We haven't gotten many African language submissions, but we've engaged ourselves in translation initiatives where we translate African first authors research articles in English with partner organizations.

Another initiative that was discussed during the ALBA-IBRO event in Granada was the Women for Africa Foundation, a Spanish nonprofit that was created in 2012. The main objective of the foundation is to contribute to Africa's development through the support of its women, who are the driving force behind its progress. To learn more, visit mujeresporafrica.es.

I'm wondering if all of you could take a moment to think about each other's initiatives and the conversations that you had at the IBRO event and what you've heard here today, and think about if there's anything that you've heard that will influence the work that you're doing now.

Dr Francisco Parada: Yeah, so for me, it's really important, the idea of open source and open science and [having] this bidirectional link with the community in order to generate better effects. Establishing capacities locally is also something that I completely learned from this experience. Especially in the clinic, the day clinic we have for neuropsychological rehabilitation of brain lesion survivors, it's particularly important to establish the capacity and generate a bidirectional link with them, having this information about what it means to survive a brain lesion open to the public. So, I think that the openness and establishing capacities, local capacities, are two things that I'm definitely taking with me and implementing in the hopefully near future.

Dr Asma Bashir: That's wonderful. Thank you so much for sharing that. Dr Maina, how about we go to you next? Is there anything that you've heard today or previously on the 11th about things that you want to implement in your own programs or in the center that you started in Nigeria?

Dr Mahmoud Maina: Yeah, so because BioRTC is this hub where you have researchers both within Yobe State University, but also people from outside the university who come to do their research because we have an open access policy, and the general idea of having this open access policy is because we want people that do not have access to some of these cutting edge equipment to be able to use this equipment in our center to address their scientific questions. So, at the end of the day, we'll be having a lot of people coming into this place to do their science, but then what happens after they get their results? How do they publish it? How do they, you know, make it accessible to other people? This is something that we've discussed with Jo about how we can get people who come and generate their data, learn about this preprint database to upload their articles to make it more visible to the scientific community before it gets published. I know that AfricArxiv also is very keen on that, and this is something that we've been discussing, how we can continue working together in that direction, which aligns very well with this openness that Francisco has mentioned earlier.

Dr Asma Bashir: All right. Dr Havemann, what do you think you want to implement in the work that you do with AfricArxiv or even the consultancy that you do, based off of what you've learned from your colleagues here?

Dr Jo Havemann: Yeah, what struck me by Francisco's presentation is the political dimension that research usually takes. And of course this is a recurring ongoing theme in the work that I do around global research equity. We see that painfully happening now and in front of our eyes with Ukraine and Russia and how that affects research in both countries and the surrounding countries. As a German, I can also testify to how politics influences research. I don't know if we will ever solve this to a satisfactory level, but <chuckle>, I think that's something that we need to keep in mind, what we're trying to achieve, and then work for the possible by aiming for the impossible.

Dr Asma Bashir: Completely agree. I think it is very, very important, of the most importance in fact, to have conversations around politics and science in unison, because as much as we like to think that science exists in a silo, it really doesn't. It's influenced by every moving part of society that happens around us, so I'm grateful that we're all having this conversation right now. Alright, let's talk about leveraging the Global North to help the Global South accomplish all of the goals and the points that we all want to reach in the next couple of years/decades. What do you wish your colleagues in the Global North would do to support each of your initiatives?

Dr Mahmoud Maina: Yeah, I think for me what we have done in BioRTC, you know, has come thanks to the support that we received from the Global North scientists, especially through Trend in Africa, because BioRTC is a center that was established from the laboratory donations that we receive from a lot of institutions across Europe as well as in the United States. We got the infrastructure locally, but the equipment came from there, so this is something that we continue to value and cherish. For our collaborators or listeners from the Global North, I would say that if you have your equipment that is functioning or you have surplus, you should consider donating it to us. Consumables, as well as those companies having Promega, you know, they have donated a lot of things to us, [and] StarLab. We really benefit from these donations because the African economy is still weak. When you want to buy something that costs around 500 pounds, if you convert it to local currency, it's a lot of money. So this is something that the local government might see as being too expensive, but because they provide other support, like the infrastructure, staffing, and other things, this other support that we could get from the Global North can then allow us to reach that level when the local support can come in.

Dr Asma Bashir: Lovely. Thank you so much for sharing that. Dr Parada, let's go to you next. Is there an idea or a hope for support from individuals and colleagues in the Global North that you could see fitting into the institution that you've built thus far?

Dr Francisco Parada: Absolutely. I think that the best way to go is establishing bridges, collaboration bridges. We need scientists to come to our centers. There's big gaps on on abilities, programming abilities, math, et cetera, so these exchange programs will be really, really important for us to help establish these local experts as well as generating transcultural or intercultural experiments and grants. That is something that, of course, Africa and Asia-Pacific can also benefit from. I would say that is mostly extending bridges of true bidirectional collaboration. There's no need for these imperialist ways of linking each other. We can definitely provide new perspectives and we can definitely as well get help with establishing specific abilities.

Dr Asma Bashir: Mm-Hmm <affirmative>, I want to kind of echo that sentiment in saying that when you're collaborating with members of the Global South who are doing amazing neuroscience research, you're not pulling them to your level, you're giving them equal playing field, right? I think there's this fallacy that when you're in a research

facility in the Global North, there's a sense of pride and elevation, which I think is, again, a fallacy. I think we wanna make sure that the listeners here today understand that you're creating equal ties; you're not saying that one is below or beneath the other. You're saying, 'you are a scientist with a mind and ideas that should contribute to whatever we have going on elsewhere in the world,' and it's just about connecting and creating those bridges. I think bridges is a perfect word for it. Dr Havemann, let's go to you. What do you wish that collaborators in the Global North, with the initiatives that you're running on the African continent and elsewhere, would do to amp up and support those initiatives?

Dr Jo Havemann: Yeah. Basically adding to what was just said by Mahmoud and Francisco, and what you also emphasized, that it's about collaboration, and equity is not about charity. It's about a playing field where everybody benefits and contributes equally with the means they have at hand, but also the local and regional resources and knowledge and expertise that's unique, and the experiences and innovative thoughts and ideas that every human being brings to the table, irrespective of the surroundings.

There's many things that every researcher can do in terms of widening the horizon of where to search for relevant literature beyond English in the respective regional databases and repositories, citing colleagues from various parts of the world. You can also use machine translation now for lack of language skills, and many of the more widely used literature search tools now also have or provide output from researchers in other languages. So, don't only cite the usual suspects of your colleagues in your field.

Dr Asma Bashir: That's a wonderful note to end this conversation on. I wanna thank each and every one of you, Dr Mahmoud Bukar Maina, Dr Jo Havemann, and Dr Francisco Parada. I am so grateful to have had this conversation with each of you, and I think the work that you're doing is not only amazing and inspiring, ultimately it's very necessary and it takes a lot of effort to do this work, so I want to just take a moment to express my gratitude for taking the time, the blood, sweat and tears that it takes to do this kind of work.

Dr Francisco Parada: Thank you so much.

Dr Jo Havemann: Thank you.

Dr Mahmoud Maina: Thank you so much.

Dr Asma Bashir: The ALBA Declaration on Equity and Inclusion is a resource for concrete positive evidence-based actions that individuals and organizations at any level can take to promote equity and inclusivity. Read it and sign it today on the ALBA website.

For the second part of my conversation, I'm joined by Dr Pike-See (Pixie) Cheah from the Universiti Putri in Malaysia, who was also a panelist for the ALBA-IBRO event that took place in Granada, and by Drs Isabel Del Pino and Miguel Maravall, who co-chaired the event. Collectively, they'll provide concluding remarks to our conversation. Let's start with Dr Cheah. Could you briefly describe the work that you do in the Asia-Pacific region to support affordable capacity development in neuroscience?

Dr Pike-See Cheah: Yeah, absolutely. I'm really glad to share how we actually support the affordable capacity development in neuroscience. Our key priority is to advocate for the importance on how to increase DEI, diversity, equity, and inclusion in neuroscience, and most importantly, to provide resources for Asia-Pacific researchers. Our committee empowers young investigators, especially those from middle and low income countries, by providing substantial funding opportunities to help them in their career development. This is because we strongly believe that the young neuroscientists are invaluable assets to our research community, and they will bring fresh perspectives and innovative ideas. For that, we provided them with both the short-term and long-term programs to foster overseas knowledge transfer and exchange opportunities. The short-term programs include travel grants, three months short-stay program; the long-term programs include, for example, one-year exchange fellowship or the Rising Star Award. We hope that by embracing their potential and reaches in the field, it will help them to propel the advancement in neuroscience, ultimately benefiting a broader community in Asia-Pacific region.

Dr Asma Bashir: That's wonderful and really exciting work. Let's switch over to our co-chairs from the event, Drs Del Pino and Maravall. Can you talk a little bit more about what you think the impact of this work that Dr Cheah just talked about and all of the other panelists spoke about as well, is from a global perspective? Let's start with Dr Del Pino.

Dr Isabel Del Pino: Regarding the neuroscience research training that the Biomedical Science and Research Center is providing—guided by Mahmoud Maina—I think this is advancing and providing researchers in Africa with state-of-the-art technologies and infrastructure. This could improve, and is improving already, the research of African researchers. I think it's very, very clear.

Dr Asma Bashir: How about you, Dr Maravall? What are your thoughts on the impact of this work from a global perspective?

Dr Miguel Maravall: So, I first got interested in the work that we discussed at the session because it felt to me that it was a very inspiring counter narrative to the increasing dependence of cutting edge neuroscience research on very expensive technology. It seemed to us that this approach that combines cheap and easily

adaptable consumer technologies like microelectronics, 3D printing, and so on, with a much more devolved way to make decisions locally, means that it's possible to train people up much more quickly at a local level for institutions in the Global South to really embrace modern research and healthcare advances dependent on neuroscience in a way that allows them to partner much more effectively with the institutions that already have those resources in the West. So, what we had at the session was a showcase of different approaches to that, which can work in different ways.

Dr Asma Bashir: Okay, so what I'm getting [is] a sense of is empowerment is the theme, equipping people not only with the technology to do this work in an accessible way, but also to empower the people to do all this amazing work in a way that doesn't drag down monetary resources, or you're not limited by time because you have to wait for this grant to be funded in order for you to get this particular type of microscope. You can build a cheaper microscope and still get the data that you need to do this kind of work. Is that kind of what you're saying?

Dr Miguel Maravall: That's right, and you're not limited by perhaps the commercial interests of companies that are perhaps based far away and that have a harder time shipping their products over to you. And those products may be, as you say, unaffordable in the first place anyway. And also, its empowerment not just to do science, but to train others to do science and to not just to do science, but to sort of adopt the scientific point of view or more widely broadcast the benefits of science in education and also in healthcare.

Dr Asma Bashir: Mm-Hmm <affirmative>. What do you all feel were the major takeaways from the discussion? Is there anything that you've learned in these conversations that will change the way that you carry out research in your own either groups or in the centers in which you work? Let's start with Dr Cheah.

Dr Pike-See Cheah: Thank you. For myself, I'm really inspired by how the scientists from the resource limited countries demonstrated a remarkable ingenuity in optimizing cost effective strategies to advance science. Their ability to maximize the outcome on the limited resources underscore the importance of creativity in scientific research, irrespective of financial constraints. Of course, I also find that it is really crucial to promote the globally inclusive science communication and research management, because this can be achieved through the open science practices, because open science enhances collaboration, knowledge sharing and access to resources that it can foster a more equitable and efficient scientific ecosystem. This transformation enables very diverse voices and also able to accelerate global progress in neuroscience research and also innovation.

Dr Asma Bashir: Alright, thank you so much for that. Dr Maravall, let's go to you next. Is there anything that you've taken away from the session that took place that will change the way that you do your own science?

Dr Miguel Maravall: Yes, for sure. I think maybe two or three things stand out for individuals. First of all, for those of us who are engaged in doing research and maybe producing outputs, I think one thing to think about is how we can share not just outputs openly, but also some of the tools that we develop or have to kind of tune up in order to achieve those outputs. There's a whole bunch of resources now for sharing hardware and lab designs in a way that kind of puts them out there much more effectively, and if they're out there, then that means that others can also contribute to improving the designs or or perhaps coming up with new applications for them. It's a virtuous circle really. So I guess lesson number one is share your hardware and software, not just your outputs. And maybe lesson number two is a little bit different for people in richer countries and in the Global South, and it's to do with seeking out the training programs that are popping up. Organizations like Trend in Africa, for example, do really effective training at the local level. People can either participate as volunteers and there's a lot of information out there on how to do that. But also, I would encourage those in the Global South listening to this podcast to seek out those if you like, kind of devolved training organizations that are running 'train the trainer' activities and so on. I think those are the take home messages for individuals.

New Speaker:

Then for funders and societies, I think there's a couple of things that stood out. One is that it's probably a good idea to start thinking about how best to fund and support the rollout of methods sharing and tool sharing, not just open outputs. And the second one is, you know, what happens after training, right? What happens after someone from a poorer country goes to train in a richer country and then comes back and wants to spread what they've learned and to maybe roll out expertise and methods across their country? How can successful trainees at courses be helped to pass on their knowledge locally and build capacity where it's needed? I think that's a broad question for maybe funders and societies to think about.

Dr Asma Bashir: Mm-Hmm <affirmative>, thank you for that. I think there's a multi-pronged approach to assisting and ameliorating research that is done in the Global South, and I appreciate you summarizing it so, so well. Dr Del Pino, let's go to you next: final words of the day! What was the major takeaway you felt from the session that took place, and how do you feel you're going to assimilate some of those lessons into your research now?

Dr Isabel Del Pino: Yeah, thank you. There are two dimensions of lessons. As a member of the IBRO Early Career Committee, since our objective is to secure that everyone has access to neuroscience research, what we learned as a committee in scientific policies is that we have to try to learn from those initiatives that are making a major impact on research training and biomedical research. And these initiatives, I think the major factor that makes them different is the onsite training, as Miguel said, and also the training in open technology, so it's not the same as training someone to build your own technology that you need for your lab, then just taking them to another country to

teach them about your research routine. I think that's a major lesson that I take as a IBRO career researcher. As a young group leader, I have to say that this special event brought us a lot of new information about how to get to these open technologies that I'm applying to the lab. I'm able to do, for example, behavioral research in mice thanks to the open technologies that we can build ourselves. This is just one of the examples.

Dr Asma Bashir: Mm-Hmm <affirmative>. Very, very well put. Very astute lessons. All right, I'll take this opportunity to say thank you to all of you, Dr Pike-See (Pixie) Cheah, Dr Isabel Del Pino, and Dr Miguel Maravall for joining me today. And I'd also love to say thank you to our audience for listening to the second episode of the ALBA-IBRO podcast miniseries. I'm Dr Asma Bashir, and it's been a pleasure to guide you through this conversation.

If you haven't yet listened to our 1st episode, be sure to check it out! There, I speak with Dr Sara Elfarrash, Dr Royhaan Folarin, and Dr Lihle Qulu about neuroscience mentorship on the African continent.

This podcast is organized with the support of IBRO, a founding partner of the ALBA Network, and the ALBA Network aims to promote equity, diversity, and inclusion to counteract bias and fight discrimination in brain research. For more information on this podcast, visit www.alba.network. Thank you.