

Graduation ceremony of the 44th 6-month session of GRÓ GTP, Thursday November 16th, 2023

by Guðni Axelsson

Distinguished guests, colleagues, friends and GTP fellows. I've been the Director of the GTP for four years now, a period which has been quite eventful and varied. It started out by our affiliation being changed from the United Nations University to GRÓ and UNESCO at the beginning of 2020. And then covid hit, severely disrupting our operations, even though we were able to respond to the pandemic through some online activity. The following year, 2021, operations were still heavily affected by covid, nevertheless we managed to operate our six-month training and some short courses. In 2022 we were able to resume full and normal operations, much to our relief. In 2023 we've had to scale back on some of our activity, however, due to budgetary reasons.

This year 24 fellows have taken part in the six-month training. They come from 12 countries on 5 continents. Two from South America, 2 from Central America, one from the Caribbean (both belonging to the continent of N-America), 9 from Africa, 7 from Asia and one from Oceania. The greatest number from a single country comes from Kenya, or 6 fellows, but Indonesia comes in second with 4 fellows. We added two new countries to our roster this time, Kazakhstan and the Solomon Islands, each with one fellow, they follow Columbia as a newcomer in 2021 and Peru in 2022. We're very happy to welcome both these extremely different countries, both of which however have extensive geothermal resources which can help them increase the role of renewable energy in their respective energy-mix, Kazakhstan for space heating and the Solomon Islands for electricity generation, to name the most obvious.

Five of our eight study lines were offered this time around, that is geothermal geology, geophysical exploration, reservoir engineering and borehole geophysics, drilling engineering as well as geothermal utilization. The three lines first mentioned had the largest populations while the other two were smaller. It should be noted that 3 of the fellowships were financed by the power company KenGen in Kenya, while the rest of the fellowships were financed by the Icelandic Ministry for Foreign Affairs.

After the completion of this year's 6-month training, that is as of today, 790 scientists and engineers from 67 countries have completed the training in 44 years. Gender equality has always been a matter of attention for GTP with the percentage having slowly been improving through the years and we achieved almost full equality in 2021, but we suffered a small setback in this regard the two last years, only reaching about 40%.

But even though we are closing the 44th 6-month training session of the Geothermal Training Programme, the activities of GTP are more varied than that, as you all know. At the moment, 10 elite former 6-month fellows are pursuing MSc-degrees at Icelandic universities with our support and 7 are working on their PhD-projects. Of these 17, 9 are women and 8 are men, on par in terms of gender equality. This year 4 students have already completed their MSc-studies and actually 4 new students started theirs this year, resulting in a perfect equilibrium. With those completing this year, 84 students have now obtained an MSc-degree with GTP support, and 5 successfully defended their PhD-theses with comparable support. We anticipate that 2 PhD students will defend their theses next year.

I complete this brief review of our activities in 2023, by mentioning our activities outside Iceland, or on-site in the developing countries. This will unfortunately not be as comprehensive as last year. The 19th yearly short course on geothermal exploration for

Africa is starting these days in Kenya, with the essential support of the Kenyan power companies KenGen and GDC, lasting up to early December. The 13th El Salvador short course will not be offered until the beginning of next year, so that this one course will encompass both 2023 and 2024. On the bright side, this course is now planned for two weeks instead of the normal one week. Unfortunately, the Geothermal Diploma Course in El Salvador could not be offered this year, but instead we supported a three-week geothermal training course in Beijing, China, operated by the oil company Sinopec. In spite of this decrease in activity, compared to 2022 in particular, we're hopeful that we can pick up where we left off soon, especially in the case of the El Salvador Diploma Course as well as with online courses, which we have high hopes for. We have also found great interest from many directions in GTP courses, set up on demand in different parts of the world, financed by local or international entities. We're also hopeful that the training program in China, I just mentioned, will eventually become a vehicle through which geothermal knowledge can be spread to China's neighbours such as Central Asia.

I should also mention GTP's role in the World Geothermal Congress 2023, held in Beijing in September, where we supported partly 50 former fellows to attend and present papers on their current research and the status of geothermal in their home countries, as we have done at previous WGCs also. This was quite an undertaking for us but most importantly constituted major support benefitting GTP's alumni.

I would like to use this opportunity to thank the Government of Iceland for its continued financial support, which has been the backbone of our activities for 45 years and for 44 six-month training sessions. I would also like to thank the Ministry for Foreign Affairs for their role in this through the years and GRÓ, our mother centre, for

its support. Then I'd like to thank ÍSOR for all the practical support involved in housing us.

I would also like to sincerely thank the numerous lecturers and supervisors, that have contributed to the training this year – the number is probably greater than 80. Your unselfish and dedicated input is the pillar of our activities and the key to GTP's success. I'd especially like to mention the ÍSOR-staff, teachers from engineering firms, from the two universities and from energy companies as well as several independent highly dedicated instructors. Last but not least, I'd like to thank the permanent staff of the GTP, that is Ingimar Haraldsson and Málfríður Ómarsdóttir, for their absolute devotion and extremely hard work, which has been essential for our success. This year we experimented with having only 3 permanent staff, but the jury is out and that's not enough with our multiple activities. We've had some part time help from time to time and I'd especially like to thank Daniel Villarroel who lightened some of the load, especially during the summer, and Agata Rostran who's supported us the last half a year or so. Finally, I'd like to acknowledge Vigdís Harðardóttir, who was employed here since 2019, but retired early this year, we miss her. Then there's our parttime assistant, Alexander Guðmundsson, who moved to a new job recently.

I'm approaching retirement age as all of you see and will only be here at the helm of GTP for a short time compared with the long and fruitful history of the GTP, now almost half a century. It feels like the blink of an eye. My sincere wish is that the program will continue to flourish through the resourcefulness and devotion of all those involved, which has really characterized the program. This has been based on the trust bestowed on the program through the decades, which has paid off in my opinion and I sincerely hope will continue for decades to come.

I'd like to complete this by turning to you, dear fellows, you are the centre of attention today. First, I'd like to say that in our opinion

you, the class of 2023, has been a very closeknit, happy, hard-working and dedicated group. I believe you've all benefitted greatly from the training. In a general sense from the various lectures and assignments and more specifically from your project work. I know that you'll now be able to apply your newly acquired knowledge for the benefit of your home-country. I also hope that your stay in Iceland was enjoyable and memorable, we'll hear more about that from Oscar later on; I for one certainly enjoyed interacting with you and I can especially mention the week we spent travelling back and forth to the North – that was great!

Congratulations, all your hard work and sacrifices have and will pay off. I, and the GTP staff, wish all of you a safe journey back home, a happy reunion with your families, success in your professional careers and a long healthy life ahead. Don't forget to stay in touch with us, that's becoming easier and easier with the help of the ever-growing internet and social media. We also hope to see all of you again at some point in the near future.

Quite a few people, unable to be here for various reasons, have sent their best regards. They are too many to name except for Lúðvík Georgsson our former Director, who sends his regards from Japan. He has not missed many graduation ceremonies in recent decades.

Thank you and stay safe!