

SPEECH AT THE CLOSING CEREMONY OF THE 41ST ANNUAL SESSION OF THE UNU GEOTHERMAL TRAINING PROGRAMME.

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Director General, *Mr. Ingvi Már Pálsson*, Ministry of Industries and Innovation, Director *Mrs. Ágústa Gísladóttir*, Ministry for Foreign Affairs – Directorate for International Development Cooperation, distinguished guests and UNU Fellows.

This year is a very special one for the UNU Geothermal Training Programme, as for the other four UNU Programmes in Iceland, as this is the last year of a close cooperation between the Government of Iceland and United Nations University – UNU. This cooperation was initiated some 41 years ago with the signing of the contract between the Government of Iceland and UNU to run a geothermal training programme in Iceland for the benefit of developing countries. At the same time, we are looking towards a new era through the intended cooperation with UNESCO and with the establishment of a new UNESCO Category 2 Centre in Iceland under which banner the four programmes, GTP, FTP, LRT and GEST are expected to operate in the near future. The new centre will carry the Icelandic name – GRÓ – and from that spore (or seed) will hopefully grow a strong centre for capacity building in these four fields where Iceland has in many ways been among world leaders in recent years. At the Geothermal Training Programme, we regret to lose an old and proven partner through the UNU, but at the same time we look forward to a new future under UNESCO.

It is perhaps also appropriate that this will be associated with another change - at the helm of the Geothermal Training Programme. With me turning 70 years in late December this year, I will inevitably step down and retire from the position of Director at the end of the year. At that point, I will have served the UNU Geothermal Training Programme for exactly 30 years, taking the position of Deputy Director at the start of 1990, and then becoming the Director in 2013, at the retirement of my close colleague and friend for so many years, Dr. Ingvar Birgir Fridleifsson. I can confirm that I am very happy to know that the Geothermal Training Programme will be in the good hands of Dr. Gudni Axelsson in the near future, having been appointed my successor last month.

For the Geothermal Training Programme, the year 2019 was not quite as hectic as some of the recent years, but in our key sectors, *the 6-Month Training, the Academic Studies and the Annual Short Course Series* there was strong activity, but less so with *the Customer-Designed Courses and Training*. On the other hand, a lot of work has been associated with the fore coming changes in the set-up of the Icelandic programmes, which has kept us the staff as busy as ever.

This year 25 UNU Fellows were invited to Iceland for the 6-month training, but one candidate for training could not come for personal reasons, so 24 attended and all are graduating here today. Five of eight study lines were operated, with the line in *Geothermal Utilization* attracting the highest number of candidates, 7 in all. Other lines operated where in *Geothermal Geology, Project Management and Finances, Environmental Sciences and Reservoir Engineering*. The UNU Fellows of 2019 come from 15 countries on 4 continents, and, as in recent years, the highest number from a single country was from Kenya, five in total. Geothermal development in Kenya continues in a fast-tracking mode, now with almost 800 MWe on-line, and additional power plants in the planning or building stage. With this Kenya has surpassed Iceland's 755 MWe on-line, in geothermal electricity capacity, and probably passed Iceland for good. UNU-GTP welcomes this, as it is very much a prove of the success of the programme. The majority of the Kenyan UNU fellowships were financed by KenGen in Kenya, and in addition one UNU fellowship was financed by Maibara Geothermal Inc. in the Philippines. For the third year running we had no participation from Europe. Here, I hope to see the EEA funds come in soon, again, through the EEAs' new financial period.

With this group, 718 scientists and engineers from 63 countries have completed the 6-month training at UNU-GTP. Our new countries for this year are Nigeria in W-Africa, the most populous country in black Africa, sending the first participant from W-Africa; and Montserrat in the Caribbean, a tiny island with a very small population but a lot of potential for geothermal energy, but also a difficult past with

regards to their big active volcano. The contrasts can hardly be greater. The highest number of candidates has certainly come from Kenya, now with 134, with China in 2nd place with 90 candidates.

During 2019, 15 UNU fellows were carrying out their MSc studies in Iceland, 9 of them under our longstanding agreement with University of Iceland, and six under the agreement with Reykjavik University. Two of these graduated from RU in the spring and three have graduated from University of Iceland this summer, the last one actually only 2 weeks ago. They come from Costa Rica, Ethiopia, Kenya, Tanzania and Vietnam. Now, 67 UNU fellows have graduated with an MSc degree in Iceland on a UNU-GTP fellowship, a number I am very proud of.

Five UNU Fellows are carrying out their PhD studies on a UNU-GTP fellowship, 3 from Kenya, 1 from China and 1 from Tanzania. One of them is due to present and defend his PhD dissertation this year on December 13, the 3rd PhD Fellow to do so on a Fellowship from UNU-GTP, all are from Kenya.

Gender equality is important to the Geothermal Training Programme and for Icelandic foreign policy. The difficulty for UNU-GTP is that in many developing countries, which sorely need assistance for geothermal development, energy business and energy research are not attractive work for women, or perhaps they are just not given fair opportunities. As you heard from Director General Pálsson, the balance in 2019 has been better than before, with 11 women among the 6-month UNU fellows or 46%. To that we can add 7 of 15 MSc fellows, who are women, and 1 of five PhD fellows. And I can assure the representatives of the ministries that we will certainly do our best to continue improving on this – to reach full gender equality which is of course our ultimate goal.

This year was the fourth year of our cooperation with LaGeo of El Salvador on running the Diploma Course given at University of El Salvador intended for Spanish speaking geothermal experts. 29 geothermalists from Latin America attended the course. The Nordic Development Fund supported the course for the first 3 years of our direct involvement, through the ICEIDA department of the MFA and with some additional funding from Iceland. Unexpectedly NDF terminated its participation in the project in January. Instead, the Ministry for Foreign Affairs has taken over the financial burden and to reach parity there in 2019, UNU-GTP funds intended for the UN SDG Short Courses in LAC region in 2019 were used directly for the Diploma Course making the former event now a biannual one. Our UN SDG Short Course in Africa is on the other hand still going strong through our longstanding cooperation with KenGen in Kenya. This year, we are expecting to see 35-40 participants for the 4th edition of the short course lasting 3 weeks, starting on November 13.

An addition, in our training activities this year is our new cooperation with Sinopec Green Energy, China, aimed at training and capacity building in China. The intention is to strengthen Chinese know-how and manpower to drive onwards and step up use of geothermal for heating in China. The first step in this direction will be a 5-week short course given in November-December, where 40 Chinese students will receive training from Icelandic and Chinese geothermal experts, including many former UNU Fellows.

Our annual UNU Visiting Lecturer for 2019 was the Turkish Hydrologist and Environmental Scientist, Dr. Alper Baba, who gave a week series of excellent lectures on geothermal in Turkey and environmental problems associated with the tremendous growth in geothermal utilization in Turkey, which has been achieved in the last decade. His lectures were well received and attended.

During the 41 years of the operations of the Geothermal Training Programme, I can with good conscience state that we have had good support from the Government of Iceland, which has ensured the strength of the programme. The budget from the government is the basis of our activities. It has been good to see some improvement here, to allow us to continue along the same road.

Here, I would also like to thank the many teachers, trainers and supervisors, who have been a part of our activities during the year. You are the key to the success of the Geothermal Training Programme. It is really fantastic how well the whole geothermal industry in Iceland stands behind us and supports us when needed. The experts of ÍSOR – Iceland GeoSurvey have as before carried the biggest load with about 50% share, while about 20% have come from the Universities, and 30% are specialists from consulting engineering offices, energy utilities and other companies and institutions. In all, around 100 teachers contributed to the teaching, training and supervision at UNU-GTP this year, which certainly makes the UNU-GTP a large working place despite only 5 permanent employees.

With that I want to bring the attention to the staff – Ingimar, Málfríður, Markús, and Thórhildur have all been with us for several years. This summer Thórhildur left us to take up MSc studies in Forestry. We wish her success in a new career. We have been very fortunate to be able to replace her with the

geochemist Dr. Vigdís Hardardóttir, who is really thriving with new challenges at UNU-GTP. My deepest thanks to all of you for your dedicated work. Your drive and determination in work are so important for the success of the programme.

It is now overdue to turn the attention to the current UNU Fellows. This is your day and the focus is on you. Our class of 2019 is a good class – I can state that and stand by it. You have carried things out in your quiet and confident way. I am also sure that through your training, you are clear on the importance of geothermal development for your home country. You were selected to come to Iceland because we believed in you having the potential to contribute to a green future in your home country and for our world – and now it is your task to deliver – to help with the lighting or heating of the homes in your country with geothermal energy. I certainly hope turning geothermal on, will be a driving factor in your work in the near future. This was the reason for your coming to Iceland.

However, you also experienced other things, and I hope that Iceland has a small part in your heart from now on. I think most of you were a little afraid of what the future might be holding for you, when you arrived, but I confident you got a pleasant surprise. And you saw our country at its best. For us living in the Reykjavik area, the summer of 2019 will be remembered for the good weather – from late April into early August. The sun was shining most of the days and rain was something very much out of ordinary – in Iceland. And to experience temperatures of 20-25°C when we were travelling in N-Iceland was really something special. Adding a good autumn – at least Icelandic standards – you were definitely a lucky group.

I hope to see some of you here next spring for the World Geothermal Congress, held in late April 2020. We are expecting many former UNU Fellows to attend, with about 250 having written papers for the event. One of these is Mrs. Agnes Reyes, the first UNU Fellow in Iceland from 1979. UNU-GTP will be offering Fellowships to former UNU fellows for partial support to come to Iceland for the Congress and present papers.

Dear UNU fellows, in only a few days, you will be returning to your home. There you are expected by your families and friends who will cherish your safe and long-awaited home-coming. You must be longing for this reunion after your sacrifices, being so long time away. For some of you this has even been extra difficult. Here I have to mention our UNU Fellow from India, who has not heard from his family since Kashmir was closed by the Indian Government about 2 months ago – and I understand that his wife was expecting their child during this period. We will all be waiting for news from India when you depart. I also want to mention our UNU Fellow from Dominica here, who said goodbye to her father in late September, which is always a difficult experience.

When you return home, please remember to keep in touch with us and your fellow trainees. In our age of information there is no excuse for not being able to connect. And you must also remember your new families, which will be a part of your future live. The UNU Geothermal Family keeps on growing every year, now with 718 members, and the same applies also to the Big Geothermal Family, where development of geothermal resources is a live long ambition. As with other family ties, this means both duties and pleasures. We will be following you and supporting you in work as possible.

I wish all of you a very good and safe journey home. I may be retiring soon but I still look forward to see you again, wherever that may be.

THANK YOU