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GEOTHERMAL TRAINING PROGRAMME
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SPEECH AT THE CLOSING CEREMONY OF THE 32ND ANNUAL SESSION OF THE UNU GEOTHERMAL TRAINING PROGRAMME

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I wish all of you welcome to this Closing Ceremony of the 32nd annual session of the Geothermal Training Programme of the United Nations University. It is a great honour for us to have with us the Minister of Foreign Affairs, His Excellency Dr. Óssur Skarphéðinsson. A special welcome also to the representative of the Ministry of Industry, Energy and Tourism, Mr. Guðjón Axel Guðjónsson, Director of Energy. We also have distinguished guests from the University of Iceland, the UNU Fisheries Training Programme, the UNU Land Restoration Training Programme, representatives of United Nations associations in Iceland, the Studies Board of the Geothermal Training Programme, as well as staff members of ISOR and Orkustofnun. Welcome, all of you.

Dr. Guðni Jóhannesson, Director General of Orkustofnun, the National Energy Authority, has asked me to bring you his greetings and congratulations, but he is abroad and cannot be with us here.

The United Nations University was established in 1975. The mission of the United Nations University (UNU) is to contribute, through research and capacity building, to efforts to resolve the pressing global problems that are the concern of the United Nations (UN), its Peoples and Member States. It is an international community of scholars and serves as a think-tank for the UN system as well as a bridge between the UN and the international academic community. One of its primary functions is capacity building in the developing countries.

Since the foundation of the United Nations in 1945, Iceland has participated in many parts of the activities of the organization, both in the political arena of the General Assembly and the permanent committees at UN headquarters in New York, and also within the various specialized agencies of the UN, such as UNESCO and UNDP. But the main activity in the name of the United Nations here in Iceland has, however, been in the field of capacity building for the benefit of the developing countries with the operations of the United Nations University Geothermal Training Programme (UNU-GTP) which was founded in 1978 and the UNU Fisheries Training Programme (UNU-FTP) founded in 1998. Earlier this year, a third UNU Training Programme was established here in Iceland, the UNU Land Restoration Training Programme (UNU-LRT). This year 18 graduated from the UNU-FTP after 6 month studies, 6 from the UNU-LRT, and today 28 from the UNU-GTP. This makes a total of 52 UNU graduates here in Iceland in one year.

A total of 678 UNU Fellows from 77 countries have completed six month specialized training at the UNU-GTP, UNU-FTP and UNU-LRT. Iceland is in this way making a considerable contribution to assisting developing countries in all continents in the sustainable use of their natural resources.

I have just returned from China where I was invited to a conference to commemorate the 40th anniversary of China's Modern Geothermal Development Plan. On this occasion, I received a shield where it says and I quote: "Certificate of Special International Award in recognition of sustained superior help and support to geothermal development in China", unquote. This award is an example of how valuable the Chinese authorities find the specialized training which the UNU Geothermal Training Programme has given to 75 specialists from China trained in Iceland. Many of them are in leading positions in geothermal research and development in the country. This shows how a country with 320 thousand inhabitants can assist the most populous country in the world. I want to share this recognition with the staff, the Studies Board and the teachers of the UNU Geothermal Training Programme.

This year, the six month specialized training session of the UNU-GTP had a record number of 28 UNU

Fellows. The courses operated this year were Reservoir Engineering (5 Fellows), Chemistry of Thermal Fluids (5), Environmental Studies (4), Borehole Geology (4), Geothermal Utilization (4), Geophysical Exploration (3), and Drilling Technology (3). The UNU Fellows came from China (3), Comoros (1), Costa Rica (1), Djibouti (1), Dominica (1), El Salvador (2), Eritrea (1), Ethiopia (1), Indonesia (3), Kenya (8, thereof 6 financed by Kenya), Mongolia (1), Nevis (1), Nicaragua (2), Rwanda (1), and Yemen (1). This is the first time we have UNU Fellows from the Comoros Islands, Dominica, and Nevis.

During 1979-2010, 452 scientists and engineers from 47 countries have completed the annual six month courses. Of these, 42% have come from countries in Asia, 29% from Africa, 15% from Latin America, and 14% from Central and Eastern Europe. Amongst these have been 81 women (18%). Over 90 professionals have received shorter training (2 weeks to 4 months). In many countries in Africa, Asia, Central America, and Central and Eastern Europe, UNU-GTP graduates are in key positions in geothermal research and energy development. The largest number of graduates has come from China (75), Kenya (53), the Philippines (31), El Salvador (30), Ethiopia (27), and Indonesia (27). Our records indicate that about 80% of all the trainees have continued working in the geothermal sector for five years or more after training, and the majority have made geothermal their career.

Fifteen former UNU Fellows have been working this year on their MSc and PhD projects under the cooperation agreement between the UNU-GTP and the University of Iceland. Five MSc Fellows (from El Salvador 1, Eritrea 1, Ethiopia 1, Indonesia 1 and Philippines 1), who started their MSc studies in September 2008, completed their studies in spring of 2010. Four MSc Fellows (from Costa Rica, El Salvador, Eritrea, and Indonesia) started their MSc studies in September 2009, and other four (from China, El Salvador, Kenya and Rwanda) commenced their MSc studies in late August 2010. In addition two PhD Fellows from Kenya continue with their studies. All MSc and PhD Fellows receive Fellowships from the UNU-GTP. Twenty five MSc Fellows have graduated since the MSc programme was started in cooperation with the University of Iceland in 1999.

The World Geothermal Congress (WGC) is organized every five years by the International Geothermal Association (IGA). There were 2100 participants at the WGC 2010 in Indonesia, and the conference proceedings included 1034 refereed papers. In all, 199 papers (19% of all papers) were authored or co-authored by 139 former UNU Fellows (out of 424) from 31 developing and transitional countries. Over eighty former UNU Fellows received travel fellowships from the UNU-GTP to participate in the congress. The UNU-GTP policy to support the participation of former UNU Fellows in the WGC every five years has made it possible for a large number of professionals from all continents to share their research results and experience with the international geothermal community.

The UNU-GTP has since 2005 held annual Geothermal Short Courses which are referred to as Millennium Development Courses. These courses are a contribution of the Government of Iceland towards the Millennium Development Goals of the United Nations. The next of the annual Millennium Short Courses for African countries will be held in Kenya in November, and for Latin American countries in El Salvador next January.

This year, the UNU-GTP has started a new series of customer designed courses in close co-operation with ISOR (Iceland GeoSurvey, which provides most of the teachers and supervisors of the UNU-GTP). The UNU-GTP held a customer designed Short Course on Geothermal Drilling in Indonesia 25 January – 19 February 2010 in cooperation with ISOR/Iceland GeoSurvey. The 16 participants who completed the course were professional engineers and geoscientists from Pertamina PGE and the Ministry of Mines. The UNU-GTP and ISOR also conducted a Short Course on Geothermal Scaling and Corrosion in Indonesia 19-23 April 2010. The courses were financed by Pertamina PGE.

In Kenya, the UNU-GTP conducted a customer designed Short Course on Geoscientific Exploration May 17 - June 13, 2010. The course was financed by the Geothermal Development Company in Kenya (GDC). A second customer designed Short Course on Geoscientific Exploration for Geothermal Resources started in Kenya 13 September and will last for 11 weeks. This course is financed by the Kenya Electricity Generating Company (KenGen). Many of the leading experts of GDC and KenGen are among the 53 Kenyan graduates of the UNU-GTP. The UNU-GTP will co-host the 6th annual Geothermal Short Course held for African countries in Kenya in November 2010. The lecturers in both courses were from ISOR.

The teaching and research supervision of the UNU-GTP this year was carried out as follows: by geothermal specialists of ISOR Iceland GeoSurvey 60%, the University of Iceland 15%, and specialists at other institutions, energy utilities and consulting engineering offices 25%. The availability of top grade supervisors for the nine specialized lines of studies offered is of vital importance to the UNU-GTP operations. Many thanks are due to the teachers and supervisors and their institutions, as well as members of the Studies Board which is the academic council of the UNU-GTP. I would also like to thank the staff of Orkustofnun, ISOR and the University of Iceland for the excellent support that the UNU-GTP has received through the thirty two years.

I would indeed also like to convey special thanks to the permanent staff of the UNU-GTP, Lúðvík S. Georgsson, Þórhildur Ísberg, Dorthe H. Holm, Ingimar Haraldsson, as well as Markús Wilde. It takes a lot of skill and dedication to run an international graduate school with over 40 UNU Fellows here in Iceland and an active network of over 300 UNU Fellows around the world. This is done at the UNU-GTP with five permanent staff members and 50-60 part time workers.

The annual UNU Visiting Lecturer this year was Dr. Roland Horne, Professor of Energy Resources Engineering at Stanford University, and Director of the Stanford Geothermal Program. He is one of the best known geothermal scientists in the world. He was the Technical Program Chairman of both the World Geothermal Congress 2005 in Turkey and the World Geothermal Congress 2010 in Indonesia. He has been the main supervisor of 36 PhD students and 99 MSc students. He gave an excellent series of lectures and held discussion sessions with the UNU Fellows.

The operations of the UNU-GTP are mostly financed by the Government of Iceland as a part of the development aid of the country. We are very grateful for the generous support which the UNU Geothermal Training Programme has received from the Government of Iceland through the years. We understand that the financial contribution to the UNU operations in Iceland has to be reduced because of the very serious economic situation of Iceland. We are, however, very grateful to the Ministry for Foreign Affairs and the Ministry of Industry for their continued support.

This year we have had an excellent class in the six months programme. Dear UNU Fellows, you have worked hard and kept a very good working spirit. Many of you have already with your research projects here in Iceland laid the foundation for introducing new technology to your countries. Some of your countries are just starting to use geothermal energy. By using this environmentally friendly energy source, you will not only make the environment cleaner in your own countries but also in other countries, as air pollution does not respect national boundaries. But it is not a coincidence that we have year after year almost as good classes as this year. Each of you is nominated by your institutions and carefully selected after a personal interview with a representative of the UNU-GTP. In accordance with the selection criteria of the United Nations University, staff members or representatives of the Training Programme travel to several countries each year to select candidates for the training and to learn about the geothermal situation in the countries. An assessment is made of the potential role of geothermal energy within the energy plans of the country and the institutional capacities. In this way, we try to secure that the training is tailor suited to the needs of the countries. It takes a lot of work and a lot of travelling to operate an international university under the name of the United Nations and to secure such a good class as you. In fact, there have been made 183 site visits for the UNU-GTP during the 32 years or about 6 per year. The site visits have contributed significantly to making the UNU-GTP an international centre of learning

Dear UNU Fellows, you will be returning to your home countries after a few days. At home there are waiting 13 children, 11 wives, 4 husbands, and perhaps a few sweethearts which I do not know about. All of you have made personal sacrifices in being away from your families and friends for such a long time. But we hope that you have enjoyed your six months in Iceland and that you will benefit from your studies and experience here both professionally and in your private lives. I would like to thank both you and your excellent teachers and supervisors for all the hard work and the application of skill that makes up a high quality university.

Dear UNU Fellows. Please remember when you get back home to keep in touch with us and your fellow students. Just like in many of your countries, the family tradition is very strong in Iceland, and you are

now members of a new family, a large international family of geothermal scholars who are working for a common goal all over the world. The Internet and e-mail has made the exchange of knowledge and sharing of experience easier than ever before. Let us make full use of this technology and strengthen the co-operation within the network of UNU Fellows in the different parts of the world.

I wish all of you a very good and safe journey home. Thank you.

Now I will ask the Foreign Minister, Dr. Össur Skarphéðinsson, to address the UNU Fellows.

Now Ms.Thecla Munanie Mutia, environmental scientists from Kenya, will speak on behalf of the UNU Fellows.

Now I would like to ask Minister Össur Skarphéðinsson to award the UNU Certificates.

Now I would like to ask the UNU Fellows to come up to the podium and receive their UNU Certificates and a book about Iceland.