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## **LECTURES ON GEOHERMAL IN KENYA AND AFRICA**

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## PREFACE

Kenya is the leading African country in geothermal exploration and development. Electricity generation from geothermal started in 1981 at the Olkaria I power station. In 2005 the installed generation capacity is 129 MWe, and the electricity production constitutes 11% of the total electricity production in the country. There is a plan to increase the generation capacity by 576 MWe by 2026. Behind all this is the Kenya Electricity Generating Company Ltd. (KenGen) and their very able staff.

The UNU Visiting Lecturer 2005 was Mr. Martin N. Mwangi, Chief Manager of KenGen's Olkaria Geothermal Project, who is one of the leading geothermal experts of Africa. He received training in geophysical exploration as UNU Fellow at the UNU-GTP in 1982. With him came a geochemist (Mr. Zaccheus Muna) and a drilling engineer (Mr. Joseph Ng'ang'a). Including the trio from that vintage year in geothermal studies, a total of 37 Kenyans have completed the six months specialized training at the UNU-GTP. Of these, 33 have come from KenGen.

Martin gave an excellent summary of geothermal work in Kenya. In the first lecture (co-authored by Mrs. Martha Mburu, UNU Fellow 2003) he gave an update on geothermal development in Kenya and other African countries. In the second lecture (prepared by Mr. Mariita Bw'Obuya and Mr. Peter Omenda) he dealt with the history of development of the conceptual model of the Olkaria geothermal field by use of geophysics and other methods. In the third lecture (prepared by Mr. Cornel Ofwona, UNU Fellow 1996) he dealt with the response of the Olkaria reservoir to exploitation. In the fourth lecture (prepared by Mr. Godwin M. Mwawongo, UNU Fellow 2004) he dealt with the status of exploration and development of Kenya's geothermal prospects outside Olkaria. In the fifth lecture (co-authored by Dr. Silas Simiyu, UNU Fellow 1990) he dealt with geothermal education in Africa, the past experience and future prospects. It was a great experience for the UNU Fellows to hear one of the leaders of geothermal exploration and development in Kenya describe the fruitful achievements which are so important for the Kenyan nation and the neighbouring countries. Martin is the fourth UNU Fellow who is invited to be the UNU Visiting Lecturer.

Since the foundation of the UNU-GTP in 1979, it has been customary to invite annually one internationally renowned geothermal expert to come to Iceland as the UNU Visiting Lecturer. This has been in addition to various foreign lecturers who have given lectures at the Training Programme from year to year. It is the good fortune of the UNU Geothermal Training Programme that so many distinguished geothermal specialists have found time to visit us. Following is a list of the UNU Visiting Lecturers during 1979-2004:

1979 Donald E. White	United States	1993 Zosimo F. Sarmiento	Philippines
1980 Christopher Armstead	United Kingdom	1994 Ladislaus Rybach	Switzerland
1981 Derek H. Freeston	New Zealand	1995 Gudm. Bødvarsson	United States
1982 Stanley H. Ward	United States	1996 John Lund	United States
1983 Patrick Browne	New Zealand	1997 Toshihiro Uchida	Japan
1984 Enrico Barbier	Italy	1998 Agnes G. Reyes	Philippines/N.Z.
1985 Bernardo Tolentino	Philippines	1999 Philip M. Wright	United States
1986 C. Russel James	New Zealand	2000 Trevor M. Hunt	New Zealand
1987 Robert Harrison	UK	2001 Hilel Legmann	Israel
1988 Robert O. Fournier	United States	2002 Karsten Pruess	USA
1989 Peter Ottlik	Hungary	2003 Beata Kepinska	Poland
1990 Andre Menjöz	France	2004 Peter Seibt	Germany
1991 Wang Ji-yang	China	2005 Martin N. Mwangi	Kenya
1992 Patrick Muffler	United States		

With warmest wishes from Iceland  
Ingvar B. Fridleifsson, director, UNU-GTP

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