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***Thorium based fuel options for  
the generation of electricity:  
Developments in the 1990s***

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## FOREWORD

The IAEA has maintained an interest in the thorium fuel cycle and its worldwide utilization within its framework of activities. Periodic reviews have assessed the current status of this fuel cycle, worldwide applications, economic benefits, and perceived advantages with respect to other nuclear fuel cycles.

Since 1994, the IAEA convened a number of technical meetings on the thorium fuel cycle and related issues. Between 1995 and 1997, individual contributions on the thorium fuel cycle were elicited from experts from France, Germany, India, Japan, the Russian Federation and the USA. These contributions included evaluations of the status of the thorium fuel cycle worldwide; new incentives to use thorium due to the large stockpiles of plutonium produced in nuclear reactors; new reactor concepts utilizing thorium; strategies for thorium use; and an evaluation of the toxicity of the thorium fuel cycle waste compared to that from other fuel cycles. The results of this updated evaluation are summarized in this publication as a contribution toward documenting past experience.

The IAEA would like to thank individuals who participated in the consultants meeting, and provided written contributions. Special thanks to I.A. Weisbrodt (Germany), who compiled the expert input; and to A.M. Baxter (USA) who reviewed the final draft. The IAEA staff member responsible for this publication was V. Arkhipov of the Division of Nuclear Power.

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