

INPRO Thorium Steps

During a IAEA/INPRO consultancy meeting in January 2009 a number of thorium-based fuel cycle options were identified for consideration by Member States of INPRO. In the meeting, the following three groups of fuel cycle options suitable for short-term to mid-term applications were identified:

- 1 Once-through uranium/thorium fuel cycle in HWR, PWR, BWR and HTGR. This includes the conventional once-through, fuel shuffling and recycling of mechanical-reconfigured fuel;
- 2 Once-through plutonium/thorium fuel cycle in HWR, PWR, BWR and HTGR. This is similar to the first option except existing Pu239, instead of U235, is used to start the fission process prior to sufficient creation of U233 in the reactor core. A special variation of this are designs for the purpose of reducing the plutonium as potential weapon material; and
- 3 Synergism between fast reactors (FRs) and thermal reactors, in which a number of FRs are operated as factories for converting Th232 into U233 to feed other reactors.

In addition to the participating members of the collaborative project, several observers from Thorium Power (USA), Thor Energy (Norway) and the Institute of Energy Research at Juelich (Germany) took part in the meeting.