CONTENTS

Preface	ix
RA President's Message	xi
Opening Remarks NATO Advanced Research Workshop <i>David J. Diamond</i>	xiii
CHAPTER I – DEVELOPING THE NECESSARY INFRASTRUCTURE	
IAEA Activities in Support of Countries Considering Embarking on Nuclear Power Programme <i>Omoto Akira</i>	1
Creating a National Nuclear Regulatory Authority <i>Ralph Way</i>	9
Building Safeguards Infrastructure <i>John McClelland-Kerr, Rebecca Stevens</i>	13
Regulatory Challenges Related to the Licensing of a New Nuclear Power Plant <i>Marcel Maris</i>	19
Infrastructure Development Through Civil Nuclear Cooperation <i>Marc A. Humphrey, Alex R. Burkart</i>	23
Nuclear Safety Infrastructure <i>Robert L. Moffitt</i>	37
Upgrading Nuclear Regulatory Infrastructure in Armenia <i>Ashot Martirosyan, Armen Amirjanyan, Sergey Kacenelenbogen</i>	45
Seven Principles of Highly Effective Nuclear Energy Programs <i>Charles D. Ferguson, Philip D. Reed</i>	53

CHAPTER II – THE CASE FOR NUCLEAR ENERGY

Nuclear Safety and Energy Security <i>Greg Trosman</i>	63
Nuclear Energy and Social Impact <i>Natividad Carpintero-Santamarsia</i>	69
The Role of Nuclear Power in the Reduction of Greenhouse Gas Emissions <i>Anthony J. Baratta</i>	79
Nuclear Energy & Energy Security <i>Jumber Mamasakhlisi</i>	89
Overview of the Electricity Market of Estonia and the Plausibility of Nuclear Energy Production <i>Mariliis Lehtveer, Alan Tkaczyk</i>	93
The Role of Small and Medium Reactors in the Energy Security of a Country, IRIS Example <i>Nikola Čavlina</i>	101

CHAPTER III – APPLICABLE TECHNOLOGY

Status Report on the Safety of Operating US Nuclear Power Plants (Why Experts Believe that Today’s Operating Nuclear Power Reactors are much Safer than they were 20 Years Ago) <i>Robert J. Budnitz</i>	109
NATO-ASTEC-MATRIX – Research Environment, Information Sharing and MC&A <i>Samuel Apikyan, David Diamond, Karen Yerznkanyan, Movses Vardanyan, Gera Sevikyan</i>	121
Establishing Control over Nuclear Materials and Radiation Sources in Georgia <i>Grigol Basilia</i>	127

Nuclear Energy in Armenia History, Problems, Possibilities and Outlook	133
<i>Gera Sevikyan, Movses Vardanyan, Samuel Apikyan</i>	
Development of Nuclear Energy in Armenia	143
<i>Aram A. Gevorgyan, Areg A. Galstyan</i>	
Some Neutron Absorbing Elements and Devices for Fast Nuclear Reactors Regulation Systems	147
<i>Paata J. Kervalishvili</i>	
Development of Design of a Radioisotope Switchable Neutron Source and New Portable Detector of Smuggling	157
<i>Lary Meskhi, L. Kurdadze</i>	
New Designs of Medium Power VVER Reactor Plants	167
<i>S.B. Ryzhov, V.A. Mokhov, Mikhael P. Nikitenko, A.E. Chetverikov, D.O. Veselov, I.G. Shchekin, V.V. Petrov</i>	
National Assessment Study in Armenia Using Innovative Nuclear Reactors and Fuel Cycles Methodology for an Innovative Nuclear Systems in a Country with Small Grid	181
<i>Vahan H. Sargsyan, Aram A. Gevorgyan, Areg A. Galstyan</i>	
CANDLE Reactor: An Option for Simple, Safe, High Nuclear Proliferation Resistant, Small Waste and Efficient Fuel Use Reactor	197
<i>Hiroshi Sekimoto</i>	
Emissions of the Corrosion Radionuclides in an Atmosphere	205
<i>Movses Vardanyan</i>	
IAEA Support for Operating Nuclear Reactors	211
<i>Omoto Akira</i>	
The Solid Coolant and Prospects of Its Use in Innovative Reactors	221
<i>A.M. Dmitriev, Valentin P. Deniskin</i>	

Innovation Projects of Atomic Energy Institute of National Nuclear Center RK in the Area of Peaceful Use of Atomic Energy	225
<i>E. Kenzhin, Irina Tazhibayeva, Y. Vasiliyev, A. Kolodeshnikov, A. Vurim</i>	
Innovative Designs of Nuclear Reactors	235
<i>Boris A. Gabaraev, Yuri S. Cherepnin</i>	
Development of Devices for Handling with BN-350 Radioactive Waste	247
<i>A.G. Iksanov, S.N. Pustobaev, Yu.P. Shirobokov, G.P. Pugachyev, A.N. Baldov, L.N. Tikhomirov, V.V. Tkachenko, Irina L. Tazhibayeva, A.Kh. Klepikov, O.G. Romanenko, E.A. Kenzhin, V.V. Yakovlev, S. Khametov, V.I. Kalinkin, A.I. Skvortsov, S.A. Dmitriev, A.E. Arustamov, Dmitri I. Zelenski, Yu.A. Serebrennikov</i>	
Institutional Support to the Nuclear Power Based on Transportable Installations	255
<i>Viacheslav P. Kuznetsov, Yuri S. Cherepnin</i>	
International Cooperation and Security in the Field of Nuclear Energy in Armenia	261
<i>Dimitri A. Khachatryan, Arman A. Avagyan, Vilen E. Stepanyan</i>	
Applied Model of Through-Wall Crack of Coolant Vessels of VVER-Type Reactors	275
<i>Vahram Petrosyan, Telemek Hovakimyan, M. Vardanyan, A. Khachatryan, K. Minasyan</i>	
Index	281