Overview of the Legal and Regulatory Aspects of Decommissioning Planning

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Country	International Instruments		Legal Framework on decommissioning	Regulatory framework on decommissioning
	Joint Convention	*Code of Conduct of Research Reactors*		
Argentina	Yes	Yes?	"National Law of Nuclear Activity" of 1997 in place "Decommissioning of Nuclear Power Plants", AR 3.17.1, Rev.1, 1995.	Regulatory Authority ARN is the Regulatory Body (RB) is responsible for regulation of decommissioning
Brazil	Yes	Yes?	Law n. 10.308 of 20 November 2001 in place, however not covering decommissioning Regulations on decommissioning to be developed	CNEN – part of the CNEN has regulatory function (RB). The research and development Directorate is responsible for the research reactor operation. However this directorate is responsible for radioactive waste.
China	Yes?	Yes	Radioactive Pollution Control Act in place supported by: (1) Code on the Application and Issue of the Safety Licenses of research reactor issued by NNSA on March 1, 2006 (2) Decommissioning of research reactors and critical assemblies (HAF1004) issued by NNSA on April 18,1992, (3) Methodology and Technology of Decommissioning Nuclear Facilities(HAF·J0063) issued by NNSA on Mar.25, 1997 (4) Factors Relevant to the Decommissioning of Land-Based Nuclear Reactor Plants(HAF·J0064) issued by NNSA on Mar.25, 1997 (5) Format and Content of the Safety Analysis Report for Research Reactor Decommissioning(HAF·J0 072) issued by NNSA on Jan.25, 1998	NNSA (RB) in place
Egypt	-	-	Law 95 of 1961 Law No. 4 for environment of 1998 Presidential decree on safeguards and some authorities to the RB, May 2006	National Centre for Nuclear Safety and Radiation Control is RB responsible for all licensing procedures, incl. decommissioning of RR

			Use of IAEA standards	
Indonesia	-	-	• Act No. 10/1997 on Nuclear Energy, Government Regulations and BAPETEN Chairman Decree No. 10/1999,concerning the nuclear safety, security and safeguards and operation of research reactors • Draft Law exists • Draft Regulation on Safety Provisions for Decommissioning under development	Nuclear Energy Regulatory Agency (BAPETEN) is the RB
Libya	-	-	Draft Law on Atomic Energy under revision and planned to include provisions on decommissioning	Section of Nuclear Safety and Security under the National Bureau of Research and Development (RB) established few months ago
Malaysia	-	-	Atomic Energy Licensing Act 304 of 1984 (AELA) is being amended	Atomic Energy Licensing Board (AELB) is RB has been established pursuant to Act 304, under supervision of a Minister of Science, Technology and Innovation
Mexico	-	Signed and applied???	Constitution Draft regulations based on	National Commission on Nuclear Safety and

			USA legislation and IAEA standards	Safeguards (RB)
Philippines	Signed and ratification in process of ratification	Signed ?	Existing Law does not address decommissioning Draft Law exists Regulations on decommissioning to be drafted	Planned establishment of an independent RB with the new Law At present RB within PNRI (internal regulatory control programme being implemented) according to PNRI Office Order 002 Series of 2004 and in accordance with the PNRI Policy Instruction No.02 Series of 2001 entitled Radiological Health and Safety Policy
Romania	Yes	Yes	Law and regulation ”Decommissioning norms for nuclear installations” in place	Independent RB (CNCAN)
Serbia	To be signed	?	Law on 1996 New law in preparation (2006) Existing regulations serve a basis to be further developed	Current RB within the Ministry of Science Establishment of an Agency for Radiation Protection with the new Law as an independent RB
Vietnam	-	?	Law in preparation Ordinance for Radiation Protection and supplemented	Vietnam Agency for Radiation and Nuclear Safety and Control is RB

			by a Decree but do not address decommissioning No specific guidance /regulations on decommissioning	

Decommissioning Planning of Research Reactors

Country	Reactor type	Years of operation (starting and shutdown)	Planned decommissioning	Decommissioning Strategy	Status of decommissioning plan
Argentina	RA-3 radioisotope production reactor decommissioned		1988-1990	?	No plans Funding of decommissioning is an issue
	RA-0	1970			
	RA-1	1958			
	RA-2	1966-1983	decommissioned		
	RA-3	1967			
	RA-4	1971			
	RA-6	1982			
	RA-8	1997			
Brazil	IEA-R1 (2MW)	1956	To be defined	To be developed	To be developed
	IPR-R1 (TRIGA 250kW)	1960	To be defined	To be developed	To be developed
	Argonauta – IEN (1kW)	1965	To be defined	To be developed	To be developed
	IPEN-MB-01 (100 W)	1988	To be defined	To be developed	To be developed
China	CARR (60 MW)	Under construction		Plans under development	To be developed
	CFER (65 MW) FAST BREEDER	Under construction		To be developed	To be developed
	HFETR tank type (125 MW)	1979 in operation		To be developed	To be developed
	HFETR CRITICAL, critical assembly	1979 shutdown			
	HTR-10 High temperature gas type (10 MW)	2000 in operation			

	HWRR-II heavy water type (15 MW)	1958 OPERATIONAL		?	Decommissioning plan under development
	MJTR POOL TYPE (5MW)	1991 In operation			
	MNSR IAE, MNSR type (27 kW)	1984 In operation			
	MNSR-SD MNSR type (33 kW)	1989 In operation			
	MNSR-SH. MNSR type (30 kW)	1991 In operation			Decommissioning plan under development
	MNSR-SZ MNSR type (30 kW)	1988 In operation			
	NHR-5, heating prototype (5MW)	1988 In operation			
	PPR PULSING, Pool type, UZRH (1MW)	1990 In operation			
	SPR IAE , pool type (3.5 MW)	1964 In operation			
	TSINGHUA UNIV.(1MW) pool 2 cores type	1964 In operation			
	ZERO POWER , critical assembly	1966 shutdown		?	?
	ZPR FAST (0.05kW) CRIT FAST	1970 In operation			
Egypt	ETTR-1 (2 MW)				
	ETTR-2 (pool type, multipurpose) 22 MW				

Indonesia	Bandung Triga II (2000 kW)	1964	2015	To be defined	To be developed
	Kartini Research Reactor TRIGA II (100 kW)	1979 In operation	To be defined	To be defined	To be developed
	Siwabessy Multipurpose Reactor (30 MW)	1987 In operation	To be defined	To be defined	To be developed
Libya	Tajoura research reactor IRT-1 (10MW) pool type reactor cooled and moderated by light water	1982 In operation (in a process of conversion from HEU to LEU)	To be defined	To be defined	To be developed on the basis of IAEA safety standards
Malaysia	Puspati Research Reactor (TRIGA Mark II) 750 kW	1982	To be defined	Under study	To be developed
Mexico	Reactor TRIGA Mark III (ININ)	1968	After 2016	To be defined	To be developed 5 y before shutdown
Philippines	TRIGA reactor 1MW	1963 PRR1 1984-1988 converted to TRIGA 1999 shutdown	2008-2011	Immediate dismantling	Decommissioning plan to be developed (2006-2007)
Romania	VVR-S tank type reactor was commissioned in 1957, and operated at a power of 2 MW	1957 1997 - shutdown	2007-8	Immediate dismantling - 12 year project	Draft detailed decommissioning plan for approval (Dec 2006)
	TRIGA reactor is a pool type reactor, with 2 cores: Steady State Reactor operated at maximum 14	1979	2021-2055	Immediate and deferred dismantling options under consideration	Conceptual Decommissioning Plan was submitted to the regulatory

	MW				body but the Cost estimation chapter was not completed
Serbia and Montenegro	Tank type heavy water reactor (6.5 MW) Russian type	1959 1984 shutdown for reconstruction 2002 governmental decision for final shutdown and decommissioning	2009 after shipment of SF to Russia	Immediate dismantling	Decommissioning plan in preparation (2007 expected finalization)
Vietnam	TRIGA II (500 kW) light water reactor	1960 Modified to DNRR	To be defined	To be defined	To be developed (IAEA assistance required)