

# Overview of Disinfection of Cultural Heritage Artefacts and Archive Materials by Ionizing Radiation in Brazil: Culture Meets Nuclear

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Brazil is a multicultural South American country that has had the influence of the pre-Columbian native civilizations, the Portuguese and African colonization and lately the European colonization especially from Germany and Italy, not to mention that Brazil is home to the largest Japanese population outside Japan. In addition other factors, this situation makes the country own a vast variety collection of historic value objects. Brazilian weather conditions have been affected directly tangible materials causing deterioration besides on insects and fungi attack. Natural disasters particularly floods also have been affected many collections inside the country. Within this scenario, the  $\gamma$ -radiation processing arises as an alternative to traditional methods to the disinfection of cultural heritage artefacts and archived materials. Over the last years, the Nuclear and Energy Research Institute (IPEN), mainly through the Multipurpose Gamma Irradiation Facility located inside the São Paulo University campus, started a strong interaction programme with conservation and preservation institutions and too with the conservation community to disclose the irradiation technique. Currently, this facility has irradiated for disinfection purposes effectively several works of art, museum collections artefacts, books, manuscripts, drawings, archive documents, musical instruments, ethnographic objects, archaeological findings, natural history collections among others from various regions of the country.  $\gamma$ -irradiation has several advantages when compared with conventional preservation methods mainly related to the safety, efficiency, reliability, capacity, process time and safe for environment. The success obtained in Brazil with these applications is due to the support of the IAEA to many regional projects related to the nuclear techniques applied to cultural heritage preservation and research. The IAEA policies are helping to understand that the cultural heritage is a legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and restored for the benefit of future generations.