

# Assessment of Environmental Gamma Dose Rate in Ho Chi Minh City, Vietnam

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Assessment of environmental gamma dose in air and radioactivity in surface soils in Ho Chi Minh city, Vietnam has been conducted to establish a baseline data of gamma dose rate in air, natural activity concentrations and associated radiological hazards in the city. Soil samples were collected at 120 locations distributed widely in the city and the gamma dose rate at 2245 locations using a portable dosimeter installed on a motorbike with GPS integrated and positioned 1 m above the ground surface. The activity concentrations of  $^{226}\text{Ra}$ ,  $^{232}\text{Th}$  and  $^{40}\text{K}$  are within the range of 9.6 – 48.5, 14.8 – 59.6 and 10.9 – 637 Bq kg<sup>-1</sup>, with the average values of  $21.1 \pm 1.3$ ,  $36.6 \pm 1.3$  and  $279 \pm 29$ , respectively.

Radium equivalent activity varies from 48.2 to 142 Bq kg<sup>-1</sup>, with the average value of 94.9 Bq kg<sup>-1</sup>. Cumulative gamma dose rates have also been measured using the TLD dosimeters located at 20 fixed locations around the city to evaluate the total component and the contribution of cosmic rays in the rainy and dry seasons. The gamma dose rates in the city were found in the range of 0.05 – 0.18  $\mu\text{Sv/h}$  with the average value of 0.10  $\mu\text{Sv/h}$ . The cumulative gamma dose in the dry season is greater than that in the rainy season by about 15%.