

**LANCASTER ENVIRONMENT CENTRE**  
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**An Assessment of Pesticide Contamination and its Impact on the Environment and the Health of People in Sierra Leone**

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## **Abstract**

One of the biggest challenges faced by Sierra Leonean farmers is pest control. Birds, insects, rodents, crustaceans and other organisms can drastically reduce yields. In order to prevent these organisms from destroying their crops, farmers use pesticides. However there are reports that these chemicals are being misused and are having negative impact on the environment and the health of the farmers. This research aimed to investigate pesticide use in rice fields and its potential effects on the environment and the health of rice farmers. The research also studied the fate of chlorpyrifos (the most widely used pesticide) in Sierra Leone soils when applied using local methods used by farmers in Sierra Leone. Five hundred farmers and one hundred health workers across the country were interviewed. Fifty focused group discussions were done. Field observations were also done. Two experimental plots (one on a boliland and one on a riverine ecosystem) on which rice cultivated were setup. Three concentrations of each of chlorpyrifos diethyl, chlorpyrifos dimethyl and a 1:1 mixture of chlorpyrifos diethyl and chlorpyrifos dimethyl were applied. Soils and rice samples from the plots were analyzed for residual chlorpyrifos. Soils, rice and biota samples were from rice fields were also analyzed for residual chlorpyrifos. It was found that the prevalence of pesticide use on rice farms is high and the chemicals are misused. Farmers are exposed to pesticides. Cases of pesticide related symptoms investigated in this research were found to be more prevalent among farmers that use pesticides than those not using pesticides. Chlorpyrifos is not persistent in Sierra Leone soils when recommended doses are applied. Levels of chlorpyrifos in rice samples are far below the UK and WHO recommended maximum limits when recommended doses are applied during cultivation. Soils from farms are highly contaminated. Rice and biota samples from the farms are contaminated and

their consumption can expose humans to levels that could cause chronic effects.

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