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Evidence of heavy metal contamination of agricultural soil in Ameri, Abakaliki Lead-Zinc mining area, Ebonyi State Southeast Nigeria: An indication for phytoremediation

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Mining industry, as with other extractive industries, is an economically viable enterprise in developing countries. There is an increased artisanal mining activity in Ameri, Ebonyi State Southeast Nigeria. This study investigated the extent of heavy metals contamination/concentration in soil and plants in Ameri mining area. Translocation factor of four staple plants species were studied to ascertain their suitability for phytoremediation in Ameri mine site. The soil and plant parts (root and stem) were obtained from farms around the study area and from control site, 30 km away. Both were subjected to standard methods of chemical analysis. Results obtained showed that the mean concentration of Lead (Pb), Zinc (Zn), Iron (Fe), Cadmium (Cd), Manganese (Mn) and Chromium (Cr) were all significantly higher ($P < 0.05$) in the mine sites when compared to the control sites. The total mean concentration of metals in different parts of *Dioscorea rotundata*, *Ipomea batatas*, *Telfairia occidentalis* and *Chromolaena odorata* plants were significantly higher compared to the control site. The translocation factor of the plant species were above threshold safe for consumption and up to acceptable level needed for phytoremediation. The toxicological implications of the study were discussed.

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Women, sustainable agriculture kits and food security in Nepal

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Women and elderly are the major custodians of agriculture in Nepal as out-migration of men and youth for employment and education is significantly increased recently. This paper examines the importance of sustainable agriculture kits to reduce the workload of resource-poor women in the context of food insecure hillside terrace farming in Nepal. Sustainable agriculture kits are defined as the small tools and technologies which are less costly and easy to use by the illiterate and resource poor farmers such as women farmers in Nepal. IDRC funded project "Sustainable Agriculture Kit and terrace farmers in Nepal" tested more than 30 small farm tools and technologies which were based on the need and demand of women and elderly farmers in the mid-hills of Nepal. Findings suggest that most of the tedious work has been performed by women farmers with traditional way of farming in rural area of Nepal. Hillside terrace specific farm tools which are small, easy to carry out in narrow terrace and less expensive are the most preferred tools by women farmers. Among these, corn sheller, mini tractor, electric millet thresher and yam in sacks technologies are most preferred and adopted by women farmers. These small farm tools and practices helped to reduce the workload of women ranging from 10 to 35%. Further, it increased the participation of men farmers in agricultural activities by 17%. It shows that small tools and technologies can reduce the gender gap in agriculture at household level. Study further reveals that women farmers from male out-migrated household are more interested towards adoption of technologies as compared to women farmers with men at home. However, regular supply of these small technologies in less price with continuous follow up from extension agents are required for the wider level of adoption of technologies in food insecure hill side terrace farming of Nepal.

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