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## A global analysis of the interplay between flood severity and human dynamics in floodplains

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This study aims at exploring whether changes in the spatial distribution of the human population and the built-up areas within floodplains can be associated with extreme flood events generating severe economic losses and fatalities. We relate economic losses and fatalities caused by floods during 1990–2000, with changes in human population and built-up areas in floodplains during 2000–2015 by exploiting global archives as the Global Human Settlement, GFPLAIN250m, and the EM-DAT datasets. Despite the frequent flood losses in the previous period 1990–2000, we found that population and built-up areas in floodplains increased in the period 2000–2015 for the majority of the analyzed countries. On the other hand, we observed a reduction in floodplains population after more severe flood losses that occurred in the period 1975–2000. Finally, floodplains population increased after a period of high flood fatalities in low-income countries, while built-up areas increased after a period of frequent economic losses in upper-middle and high-income countries. This study can be used as a general framework for advancing knowledge of human–flood interactions and support the development of sustainable policies and measures for flood risk management and disaster risk reduction.