trace metals. Atmospheric deposition was the most quantitatively important anthropogenic Pb source, which contributed 38–49% of the total sediment pollution and had an average contribution rate of 43.7%. The clusters in farther distances were mainly chemical fertilizer and livestock manure samples, in- dicating that they did not substantially contribute to watershed sediment pollution by Pb. On the other hand, the river sedi- ment cluster was very near to the concentrated clusters for background soil and atmospheric deposition samples. Different Pb sources were also quantitatively discrim- inated by using Isosource.