B531   Influence on the Land Use Factor Affecting the Water Quality
of Iwonchŏn Basin

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Characterization of water quality was performed from March 1993 to March 1998, on the purpose of clarifying the relationships between water quality and land use types. The study sites were two reservoir basins; Kaesim and Jangchan in Iwon-myŏn, Okchŏn-gun, Chungcho'ngbukdo Province. The two basins were characterized by cultivated area (Kaesim reservoir) and mountain area (Jangchan reservoir), and divided into eleven small basins, where topographical characteristics, dynamics of pollutants, forest vegetation and soil environmental conditions were surveyed. Area below altitude 200m occupied 56% in Kaesim and 45% in Jangchan reservoir basins. Especially total phosphorous and total nitrogen increased in small basins where the proportion of cultivated and residential area increased. The analysis of influences of pollutant discharge on water quality showed that pollution charge was very high in cultivated areas. The concentration of pollutants were attenuated flowing into watersheds through physical, chemical, biochemical, and biological processes. The pollution level of mountain area was lower than that of cultivated areas, but the increase of suspended solids (SS) such as soil particles could increase flood susceptibility.

B532   A Study on the Topographical Factors Affecting the Water Quality of
Iwonchŏn Basin

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Characterization of the topographical factor and water quality were performed from March 1993 to March 1998, on the purpose of clarifying the relationships between water quality and topographical factor, in Kaesim and Jangchan reservoirs. Basin shape factors of Kaesim reservoir were at 0.030~0.210, those of Jangchan reservoir were at 0.217~0.452. Circularity ratio was 17.114 in Kaesim, and 7.444 in Jangchan. In the correlation between distance from the source of stream (L) and basin area (A), Iwonchon basin was calculated as $L = 1.44A^{0.6}$. Rainfall reaching time in each small basin was 337.53 min in A' (Jangchan-ri) basin of Jangchan and 49.26 min in H (Iwon-ri) basin of Kaesim. In the relationship between watershed frequency (Df) and drainage density (Dd), the regression equation was $Df = 0.023Dd^2$ in Kaesim and $Df = 0.189Dd^2$ in Jangchan reservoir. As slope degree increased, DO became higher ($Y_{DO} = 0.2628X + 4.9732$, r=0.82), but COD ($Y_{COD} = -0.2092X + 9.7104$, r=0.52) and BOD ($Y_{BOD} = -0.2722X + 10.443$, r=0.81) became lower. Basin shape factor and circularity ratio increased total nitrogen, because residential areas below altitude 200m was extended and the amount of N in the water was increased by soil erosion. Ratio of BOD to COD was 1/1.2 ($Y_{BOD} = 0.6415X_{COD} + 3.1374$, r=0.91).