

How to Drain an Air Base in Korea – Watershed and Internal Drainage Challenges

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Abstract. The U.S. Air Force is proposing to construct a new runway at Osan Air Base. Osan Air Base is located approximately 30 km (19 miles) southwest of the capital city of Seoul, South Korea, and only 77 kilometers (km) or 48 miles south of the Demilitarized Zone (DMZ), which separates South Korea (ROK) from North Korea. The base is home to the 51st Fighter Wing, Combined Forces Command, 7th Air Force, and approximately 24 other tenant units. Permanently stationed aircraft include the F-16 Fighting Falcon and A-10 Thunderbolt. The base also hosts a number of heavy airlift and transient aircraft critical to the defense of the ROK.

The base is partially protected from the Chin Wi Cheon River by a levee. The Chin Wi Watershed above Osan Air Base is approximately 285 square miles and past studies have shown that the base is generally inundated by floods with an average return period of 25-years or greater. In addition to overtopping from the Chin Wi River, flooding also occurs from severe rain storms over the Osan Air Base Watershed. In extreme cases, the most severe flooding on the base is due to high river stages on the Chin Wi River coincident with heavy rains over the interior watershed and inadequate exit drainage channel capacity. Severe flooding has occurred on the base on several occasions over the past 20 years.

The construction of the new runway will eliminate a portion of the existing interior drainage system. A hydrologic model of the interior watershed was constructed to simulate larger storm events on the base and to review pumping alternatives to convey excess runoff from the base to the Chin Wi River. The discharges computed for the interior watershed were also used for the design of a new stormwater conveyance system. Levee improvements are proposed, pending negotiations between the U.S. Air Force and the Korean Ministry of Construction and Transportation (MOCT).