



Study of pollutants and participation of pollution sources in the Sivand River

H. Fakhraei¹, A. Karimi-Jashni²

1- Master of Science in civil and environmental engineering, Shiraz University, Shiraz, Iran

2- Assistant professor, Shiraz University, Shiraz, Iran

habibfa@yahoo.com
akarimi@shirazu.ac.ir

Abstract

The Sivand River Originates from the southern heights of Eghlid City and joins Kor River at the Khan Bridge, and eventually, pours into Tashk and Bakhtegan Lake after 310 Kms. In this study, we were able to estimate quantity of each of the pollutant sources and by dividing amounts of pollutant load to total load we calculated participation of each pollutant. The study, shows that Sivand River is mostly affected by the residential discharges and many food processing industries such as Yek-O-Yek factory along side the river and the municipal waste discharge from the Marvdasht City.

Keywords: Sivand River, pollution load, pollutants, contribution of pollutant sources.

1. INTRODUCTION

Kor River and its major tributary, Sivand River are located in north-west of Fars province, Iran. Kor River Originates from the southern heights of the Zagros Mountains, and eventually pours into Tashk and Bakhtegan Lake, after 310Kms. Numerous creeks and streams pour to Kor River. Sivand River originates from Safashahr and joins up with the Kor River, at the Khan Bridge, Being one of the major pollution tributaries of Kor River. These two rivers are major sources of agricultural water of northern and central plains of Fars province. Therefore, water quality of the Kor and Sivand Rivers has far reaching importance, not limited to the adverse environmental effects within the river with regard to the aquatic life, but also, with regard to the consumers of the agricultural products. Thus it necessitates the study of Sivand River pollutants and determination of contribution of pollutant sources.

2. SITE DESCRIPTION

Fars province is located in the southern half of Iran. Geographically this province is situated between 50° 42' to 55° 36' eastern longitude and 27° 02' to 31° 43' northern latitude. Its surface area equals to 12 million hectares and its center is the city of Shiraz. With respect to divisions of basins by Jamab consulting engineers, 25.5 percent of the area of the province is located in Kor and Sivand basin.[1] The Kor and Sivand River basin is located in a semi-arid region of Fars province (Iran) (Fig. 1) with a mean annual rainfall in the range of 300- 400 mm. The wet season goes from October to April but most of the rainfall occurs during the months of December and January. The rivers drainage area covers approximately 15780 km², while almost 9650 km² corresponds to the Kor river drainage area.

Currently, about 1.2 million people reside within the basin and more than 2.4 million people intake water from the rivers. During the last several decades, the combination of rapid population growth coupled with industrial and urban development had resulted in a serious deterioration of water quality in downstream area. Major pollution sources include domestic sewage, industrial wastewater, livestock discharge, and urban and agricultural runoff [2].