



“Gheorghe Asachi” Technical University of Iasi, Romania



CONSTRUCTION OF A BIOGAS HEAT STORAGE GREENHOUSE ECOSYSTEM UNDER THE CONTEXT OF WATER POLLUTION RESULTING FROM LIVESTOCK BREEDING

Songying Zhao^{1,2}, YuQing Qin¹, Haonan Zheng¹, Lei Chen^{1*}

¹*College of Municipal and Environmental Engineering, Jilin Jianzhu University, Changchun 130118, China*

²*Engineering Research Center of Geothermal Resources Development Technologies and Equipment, Ministry of Education, Changchun 130000, China*

Abstract

Livestock farming in rural areas in Jilin Province is producing a huge amount of organic pollutants like livestock and poultry manure, of which, a large portion is directly dumped into the Yitng River, bringing serious harm to the environment. Taking Soonlng Village as an example, this paper investigates the environmental pollution caused by the livestock husbandry in this village and builds a biogas heat storage greenhouse ecosystem, which, by using solar energy to heat the biogas digester, not only supplies the necessary temperature for the ecological greenhouse, but also helps compost the soil in the greenhouse. The system model can avoid the direct discharge of livestock manure and aquaculture wastewater into rivers, and to a certain extent alleviate the pollution of surface water. The developed biomass energy can be used in the greenhouse, enabling farmers to get rid of the single corn planting mode and realize economic benefit increase and income, thus realizing the organic unification of environmental benefit, economic benefit and social benefit.

Keywords: livestock breeding, recycling, water pollution

Received: August, 2018; Revised final: November, 2018; Accepted: January, 2019; Published in final edited form: March, 2019

* Author to whom all correspondence should be addressed: e-mail: coffeezsy@163.com