Abstract

Agriculture is not only a water intensive sector but it also contributes a major share to global greenhouse gas emissions. The aim of the study is to assess the environmental and economic benefits of sustainable development programs launched by Soon Valley Development Program (SVDP) to reduce water and carbon footprint of agriculture in Soon Valley, Pakistan. A structured questionnaire was designed to collect baseline data from the farmers. CROPWAT 8.0 was used to calculate crop water requirement and optimum irrigation schedule for maize, millet, barley, potato and wheat crops. Crop Water Allocator was used to make cost benefit analysis of crops. Results revealed that 26.6% of water footprint and 28.6% of carbon footprint had been reduced in the region by introduction of pipe irrigation, solar and electrical pumps and change of crop. It also provided farmers with annual economic benefit of Rs. 110,903/acre by pipe installation, Rs. 53,828/acre by crop change and Rs. 110,013/acre by installation of solar/electric pumps. Crop water requirements for maize, millet, barley, potato and wheat was observed as 206.3 mm, 175.3 mm, 217.5 mm, 243.4 mm and 217.6 mm, respectively. Results highlight the outcome of the green efforts of SVDP. The benefits from these advancements can be increased threefold by increasing their magnitude of installation on all cultivable land in the region