Renewable energy in agriculture: a mitigation strategy to climate change & energy crisis in Pakistan

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The use of fossil fuels for power generation has severely damaged the global environment. It is evident from current temperature rises & global warming that humans are responsible for disturbing the environment. These climate changes are more evident in the South Asian region. Globally, agriculture contributes about 30 % of human-caused greenhouse gas (GHG) emissions because of its heavy land, water, and energy use that's more than every car, train, and plane in the global transportation sector. Livestock farming alone contributes around 18 % of GHG emissions, including 9 % of carbon dioxide, 35 % of methane, and 65 % of nitrous oxide. Activities like running fuel-powered farm equipment, pumping water for irrigation, raising dense populations of livestock in indoor facilities, and applying nitrogen-rich fertilizers, all contribute to agriculture's high GHG i.e. footprints. Pakistan is among the countries facing an energy crisis. The main cause of the energy crisis directly refers to the natural problem of scarce resources. As the whole world has scarce natural resources that are depleting with every tick of the clock, the chance of converting natural assets into electrical energy is decreasing day by day. Another problem increasing the energy cost is becoming a serious issue in the field of agriculture. In Pakistan, the energy crisis is the single largest drain on the economy, which cuts gross domestic product progress by more than 2 % each year. Due to the high cost of diesel and electricity and frequent shutdown of electricity, pumping groundwater has become uneconomical. Solar and biofuels are alternative energy sources that can help overcome this issue. Pakistan's agriculture sector has a high potential for renewable applied and new energy resources. In agriculture this is the need of time, to minimize carbon emissions and help to fight the climate and energy crisis. Government should make policies and integrate agriculture research with an agricultural extension so all these solutions can be disseminated to end users using different agricultural extension approaches. As renewable are costly, agricultural finance institutions can play an active role in the adoption of these renewable technologies (solar pumps, solar-powered drip irrigation systems, biogas plants, solar dryers for agricultural products, etc.) through its green banking financial products.

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