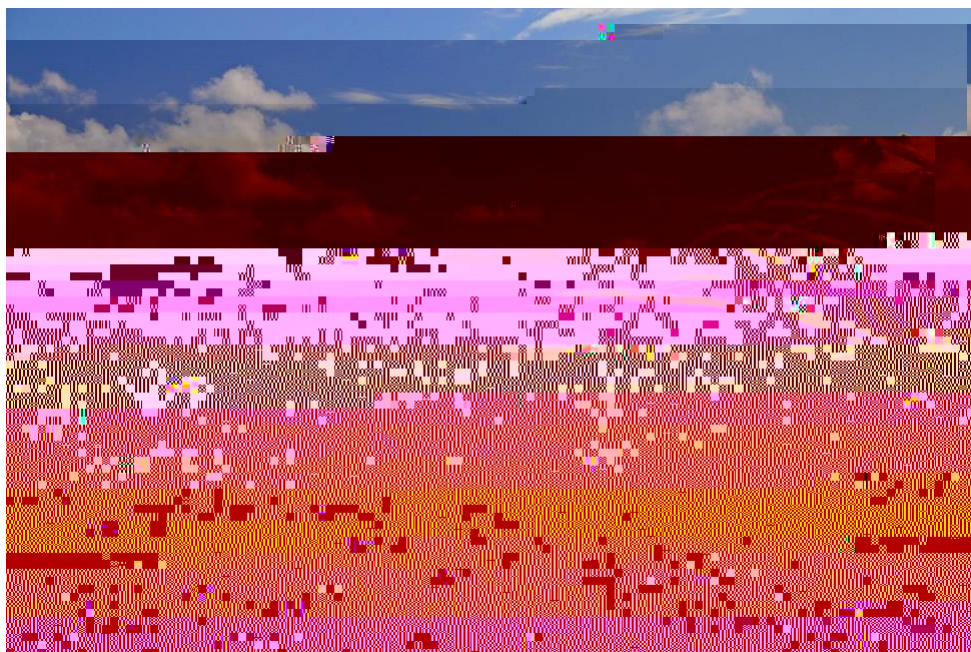
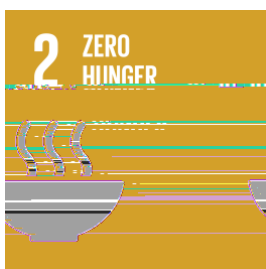


CLEW Case Study: Assessing Interdependencies among Energy, Water, Land-Use and Climate Change in Mauritius



Sustainable Development Goals Addressed



Organization, Institution or Company
Food and Agricultural Research and Extension Institute (FAREI), Mauritius and International Atomic Energy Agency (IAEA)
Location of project site, Country
Mauritius
Brief narrative description of objective/project/activity/initiative
<p>With limited land and energy resources, along with geographic isolation, Mauritius faces significant challenges relating to land use, water and energy, along with high vulnerability to climate change. The country relies on imports for 70% percent of its food needs and over 80% percent of its energy needs, while the economy is highly dependent on exports of sugarcane. To respond to climate change, while reducing dependence on energy imports, one option for Mauritius is to utilize sugarcane for ethanol production.</p> <p>The IAEA supported national experts in Mauritius to examine the potential implications of alternative biofuel production strategies on GHG emissions, land use, and water and energy balances using an integrated CLEW (Climate, Land, Energy and Water) approach. Researchers in Mauritius utilized three integrated software models – one each for energy, water and land use – to analyse a set of scenarios to 2030. The models were calibrated with common assumptions for GDP growth, international energy and other commodity costs, domestic water constraints and other drivers.</p> <p>Alternative climate change scenarios were considered, including a base scenario without climate change and a scenario incorporating a reduction in precipitation due to climate impacts. For each climate scenario, three policy strategies were analysed to compare first- and second-generation biofuels from sugarcane as well as from alternative drought resistant crops.</p>

Economic, environmental and climate benefits (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100)

Overall, the analysis illustrates the value of an integrated approach to energy, water and land resource planning, and highlights how the impact of climate change, particularly on water availability, can have a substantial bearing on the suitability of biofuels for climate change mitigation.

Additional information: website addresses and contacts

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