

# Input-Output Analysis of Taiwan' s Food-Energy-Water Risk

\*CHU-CHUN YAO<sup>1</sup>, Gene Jiing-yun You<sup>1</sup>

1. National Taiwan University

The water, energy, and food (WEF) nexus means that the three sectors are inextricably linked and that actions in one area more often than not have impacts in one or both of the others. From a national planning perspective, it is necessary to more precisely investigate the relationships among food-energy-water sectors. This study applies input-output analysis based on interdependencies between economic sectors or industries in Taiwan' s food-energy-water challenge and risk. In this study, the research data is based on Taiwan' s trade association tables of 52 economic sectors (including food, energy, and water-related sectors) for the year 1996, 2001, 2006, and 2011. We develop the extrapolation method to produce available I-O table. The future I-O table can be forecasted by applying different predictive models (e.g., linear or nonlinear regressions). We will observe the changes in Taiwan' s economic structures during the time period (e.g., between 1996 and 2001) and also investigate the uncertainty of economic impact focusing on food, energy, and water. Based on the results of analysis of Taiwan' s trade association tables, we can predict the risks that Taiwan' s industries may face under different conditions in the future and might provide some useful information to the government for taking countermeasures.

Keywords: WEF, input-output analysis, extrapolation, I-O table, economic structures, risk