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#EU GREEN WEEK

EU Green Week Partner Event

A systematic mapping approach to represent and analyze the Water-Energy-Food nexus interlinkages for sustainable planning

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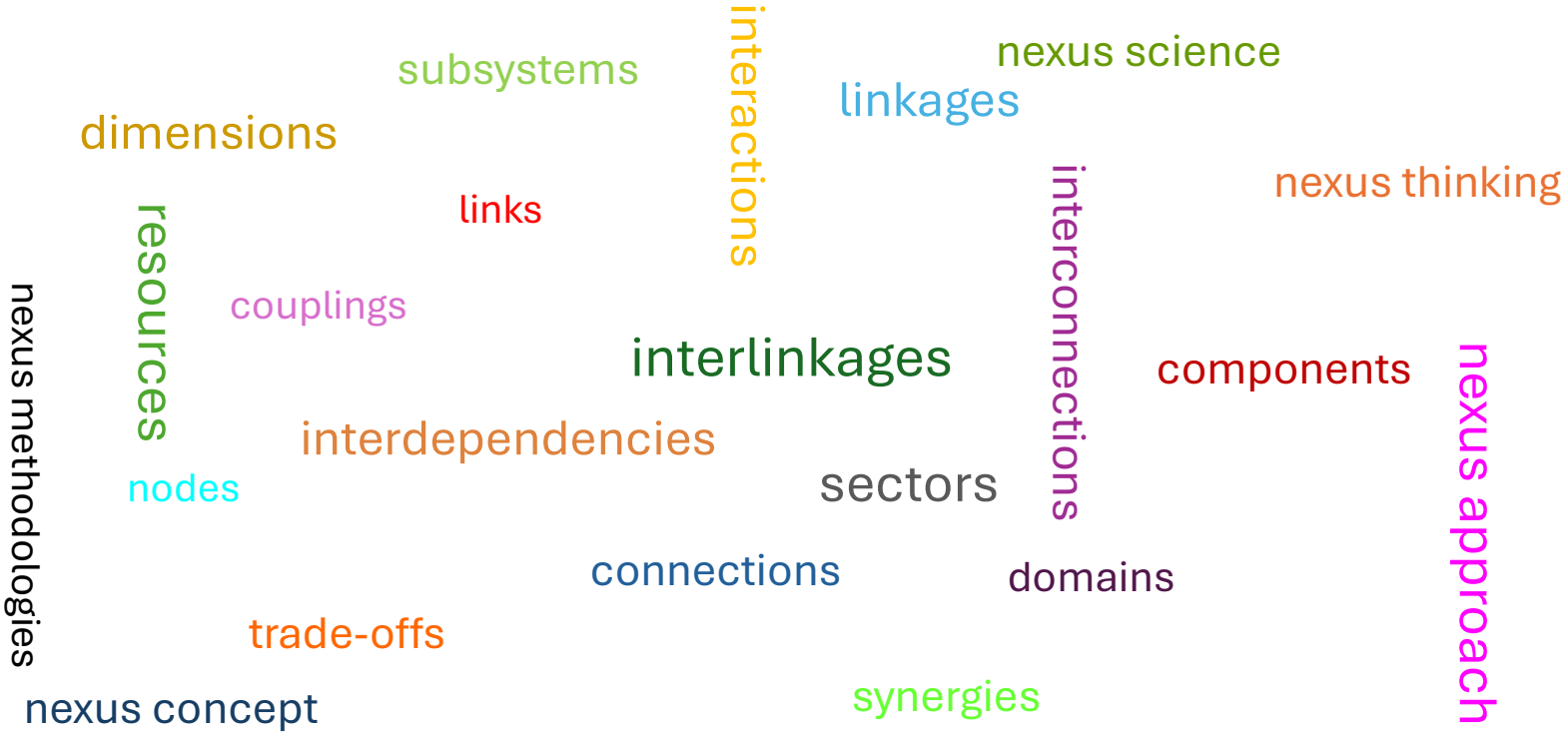
THE WATER-ENERGY-FOOD NEXUS: BUILDING RESILIENCE TO GLOBAL CHALLENGES

The development of nexus framework by diverse teams worldwide has resulted in varied terminology and interpretations

vagueness in the terminology

importance of a harmonization in terminology and frameworks

The idea…



Objectives

- ✓ Develop a structured representation of Water-Energy-Food (WEF) nexus framework to support consistent modeling and analytical approaches through terminology harmonization and semantic alignment.
- ✓ Ensure the extensibility of the framework to incorporate additional nexus components.
- ✓ Promote the comparability of nexus modeling approaches by establishing common standards and reference structures.

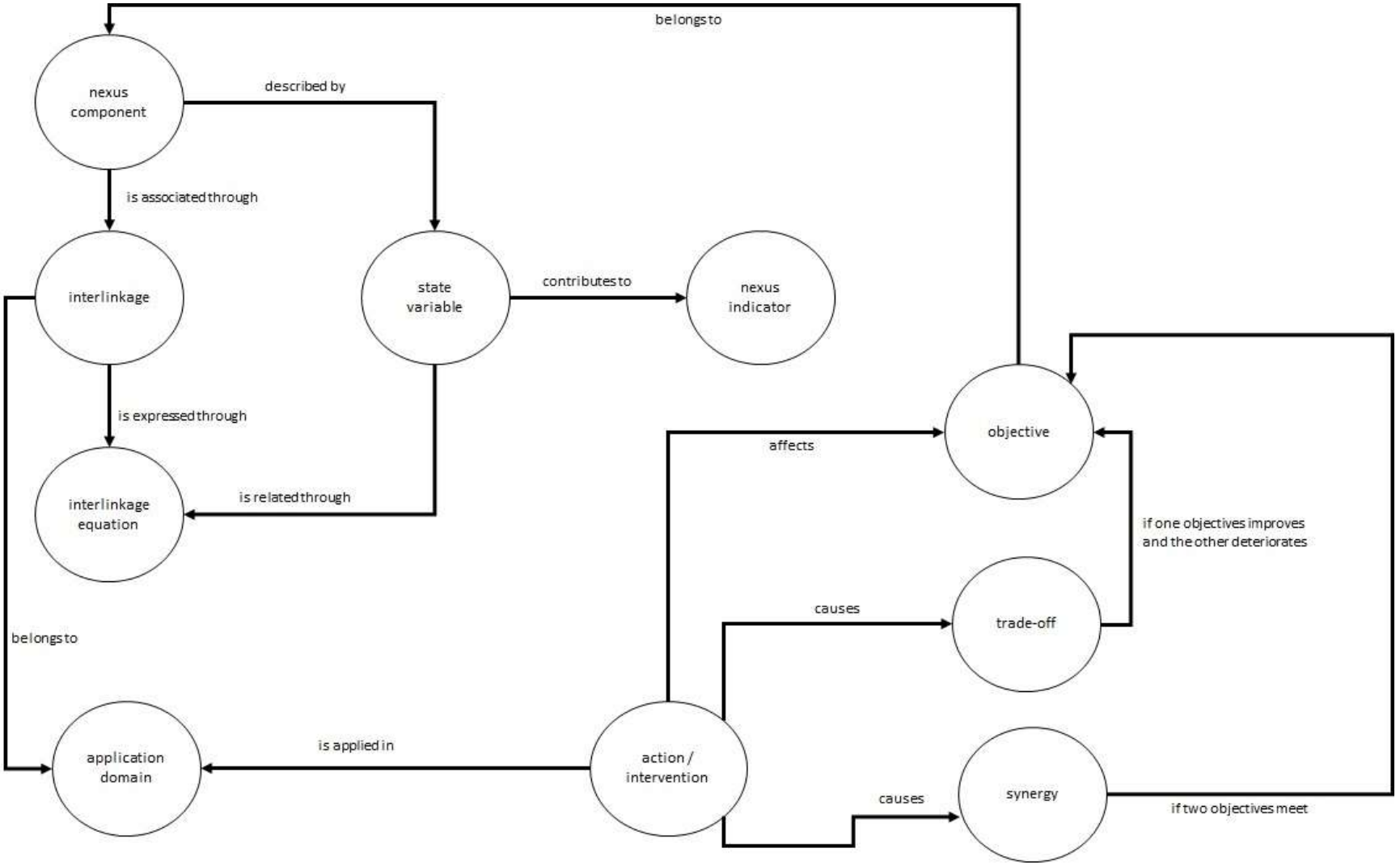
Aim

- Harmonize terminology, concepts, and relationships within the Water-Energy-Food (WEF) nexus
- Ensure clarity and consistency across diverse studies and practical applications
- Promote openness and transparency to support accessible and collaborative research

Enable the following key features within the Nexus framework:

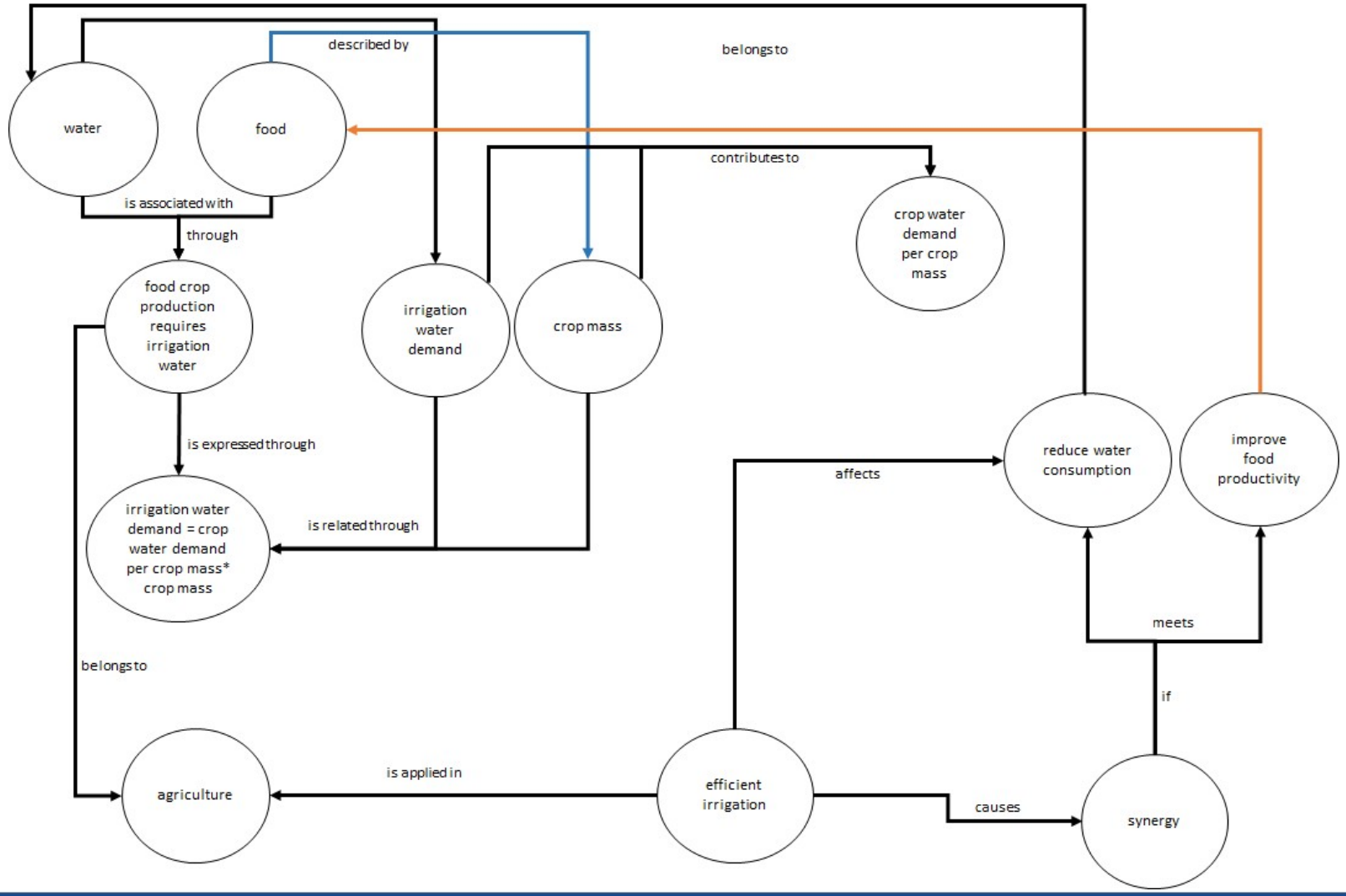
- Extensibility – adaptability to new findings and future needs
- Replicability – validation of results and increased research credibility
- Interoperability – seamless integration across different systems and models
- Scalability – effective application at multiple spatial levels, from local to global
- Support the development of a robust and versatile tool for addressing complex, multi-sector resource management challenge

Nexus Systematic Mapping Approach

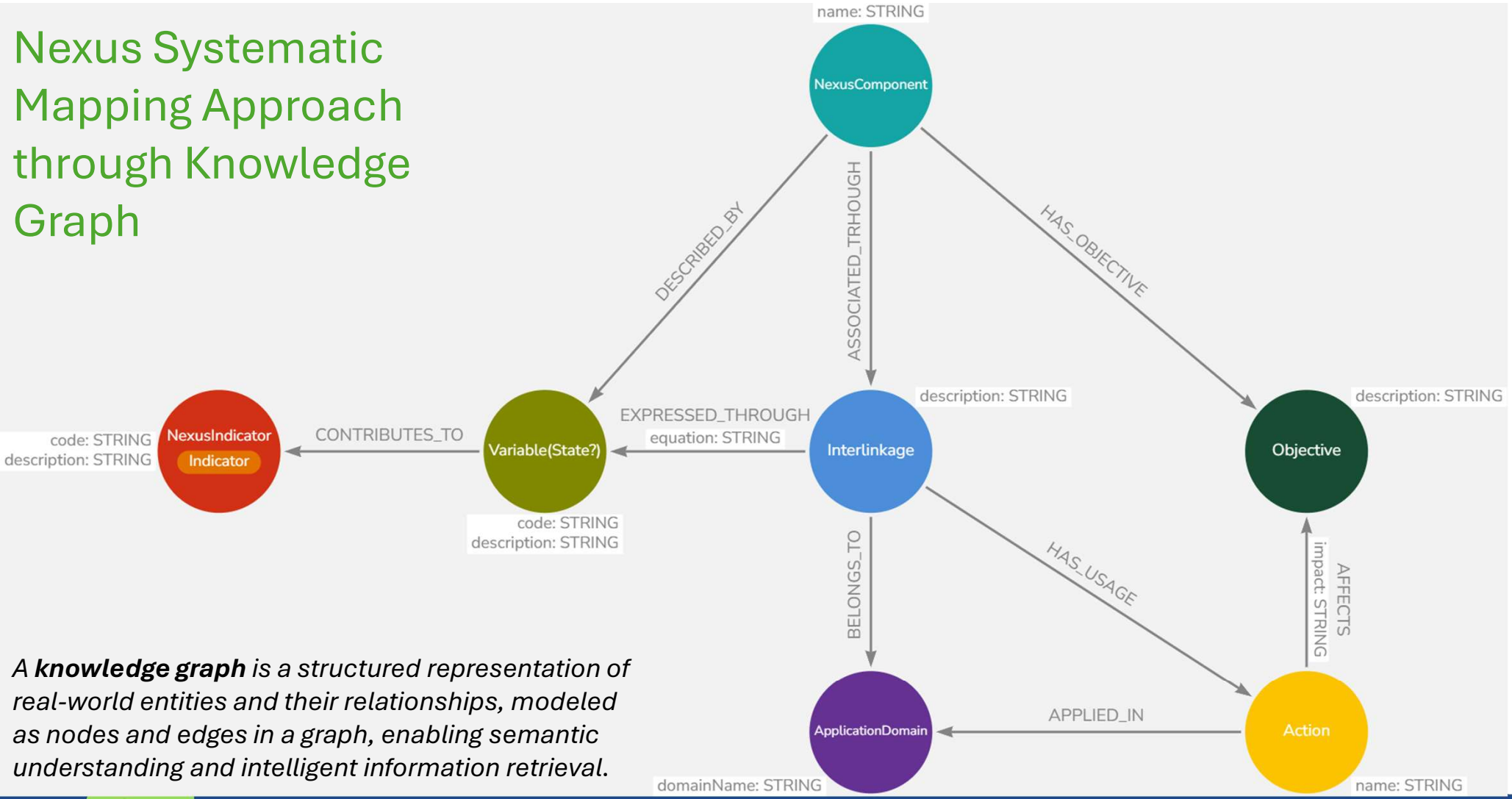


Nexus Systematic Mapping Approach

example

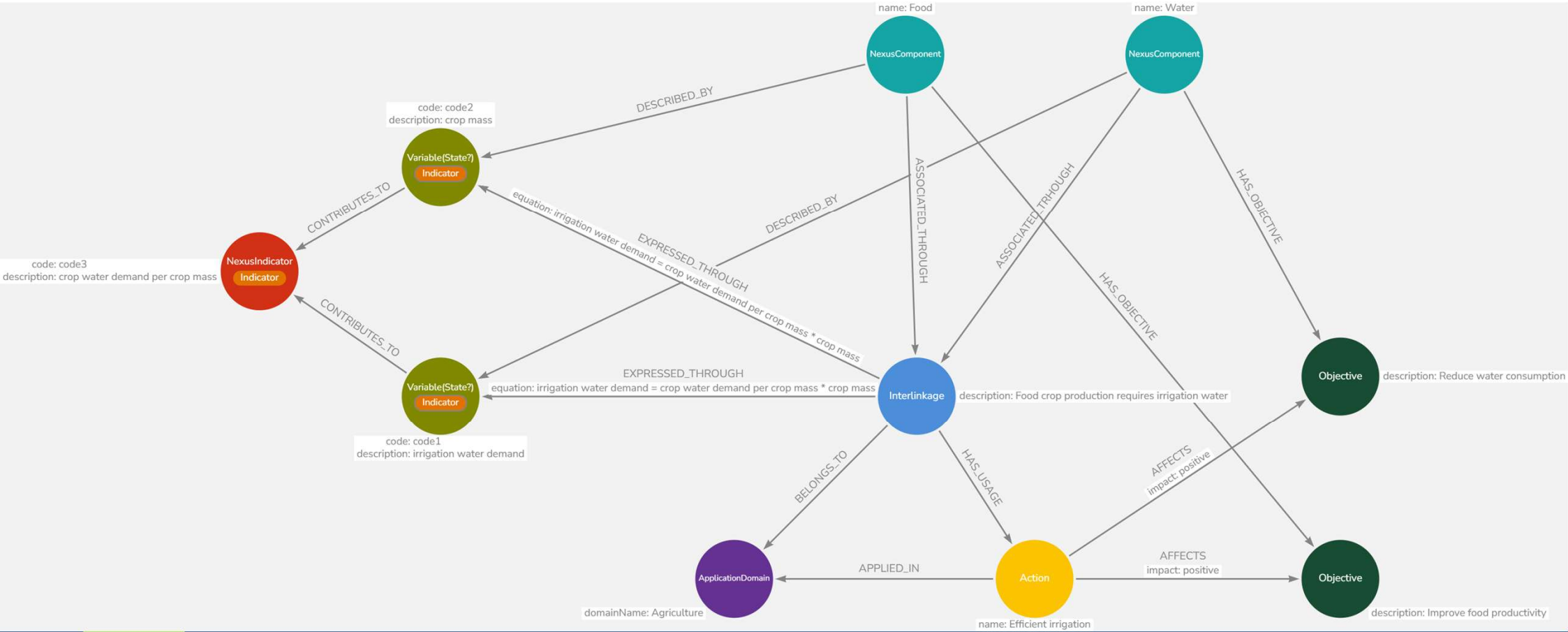


Nexus Systematic Mapping Approach through Knowledge Graph



*A **knowledge graph** is a structured representation of real-world entities and their relationships, modeled as nodes and edges in a graph, enabling semantic understanding and intelligent information retrieval.*

Nexus Systematic Mapping Approach through Knowledge Graph



Conclusions

Semantic harmonization has been achieved, and a Nexus Systematic Mapping Approach (NSMA) has been developed to support structured integration and analysis within the Nexus framework.

An open-access tool has been developed to facilitate knowledge gathering within the Nexus framework. This tool enables the generation of aggregated, query-based knowledge reports without requiring the development of computational models

Thank you for the attention!