

Abstract:

Lake Champlain Basin faces a growing threat to water quality due to algal blooms. In 2002, the EPA created an implementation plan to assist Vermont in meeting the Clean Water Act (CWA) requirements. The EPA reversed its approval of the 2002 Total Maximum Daily Load (TMDL) requirements as it was not meeting the CWA requirements. In 2015 a new TMDL was drafted which included new tasks, coordination, and stakeholder organizations. This research project looked at the networks and structure of networks within the implementation plan. The results were then compared to the 2010 TMDL. The delta between the two plans show a change in amount of actors and the structure of the plan.

Methods:

The method used in this project consisted of extraction of information from the TMDL. That data was then categorized into six different groups based on the type of task it was: financial resource sharing, info sharing, technical assistance, and collaboration. The frequency of tasks were then counted and graphed. Actors which worked with other actors were also collected to see which actors were working with whom. The tasks and interactions between actors were mapped out in Gephi to show the overall interactions with actors within the TMDL. Those maps were then compared to the 2010 map to show the differences between the two implementation plans.

2010 Implementation Map

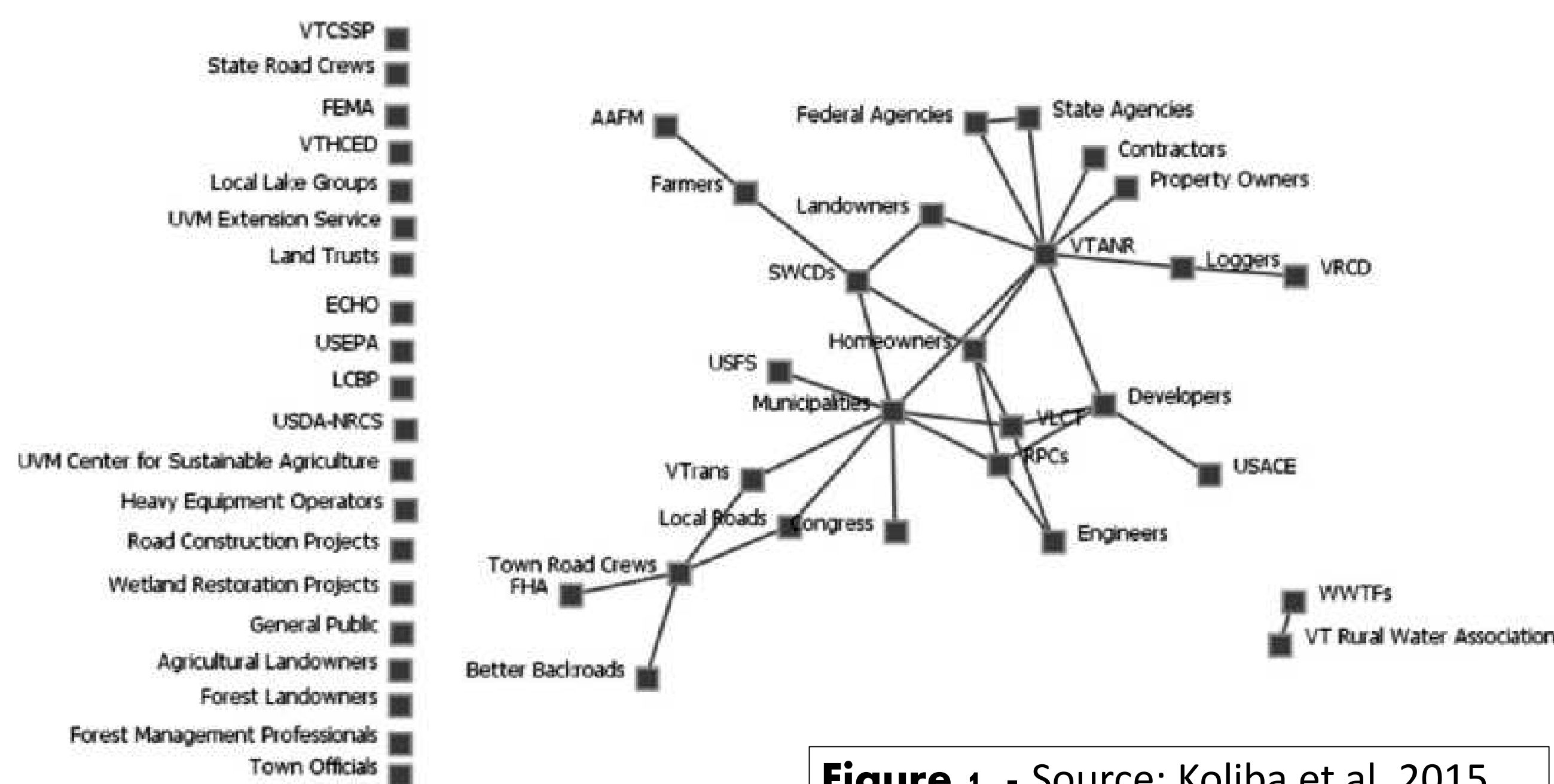


Figure 1. - Source: Koliba et al. 2015

Results:

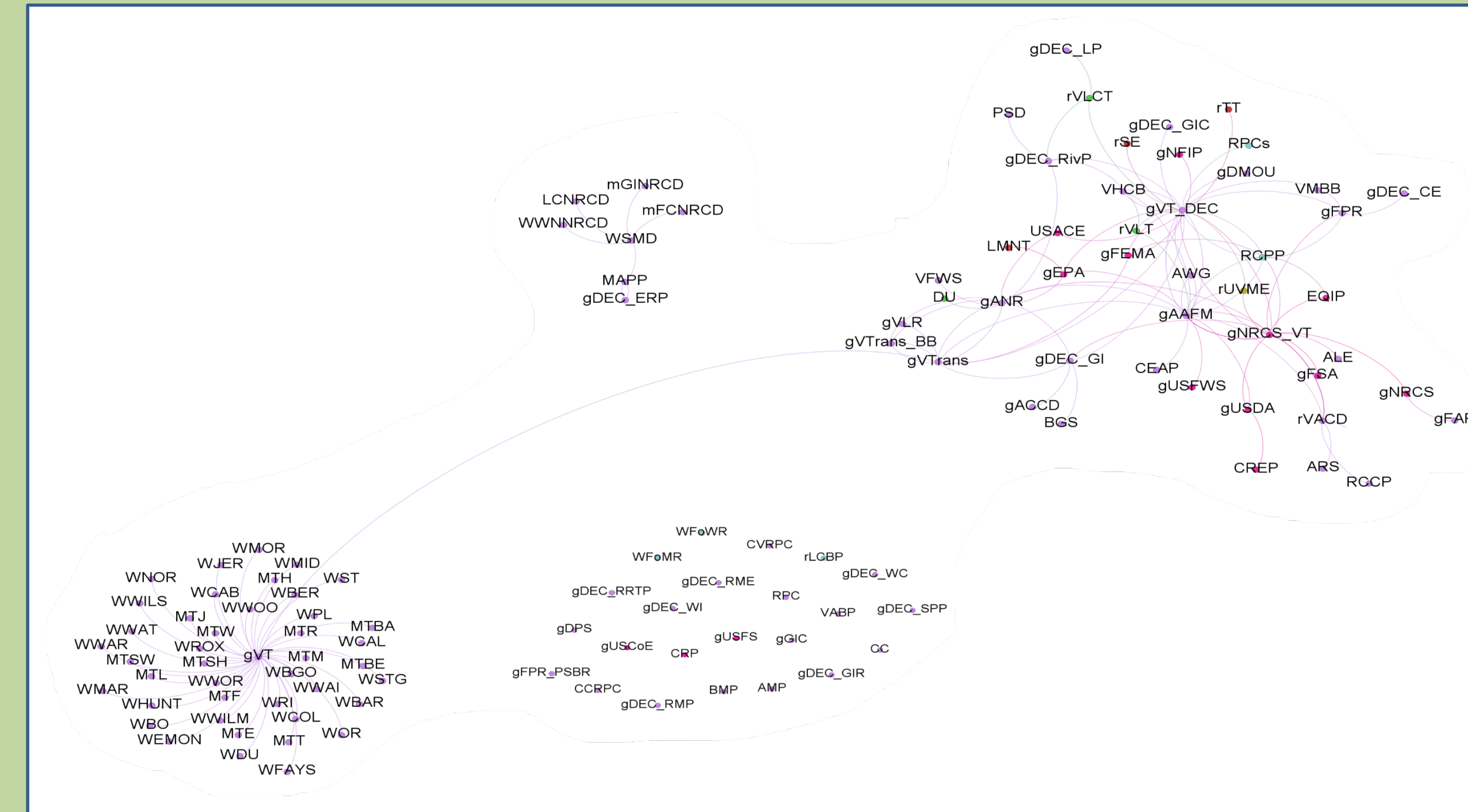


Figure 2: Organization coordination network

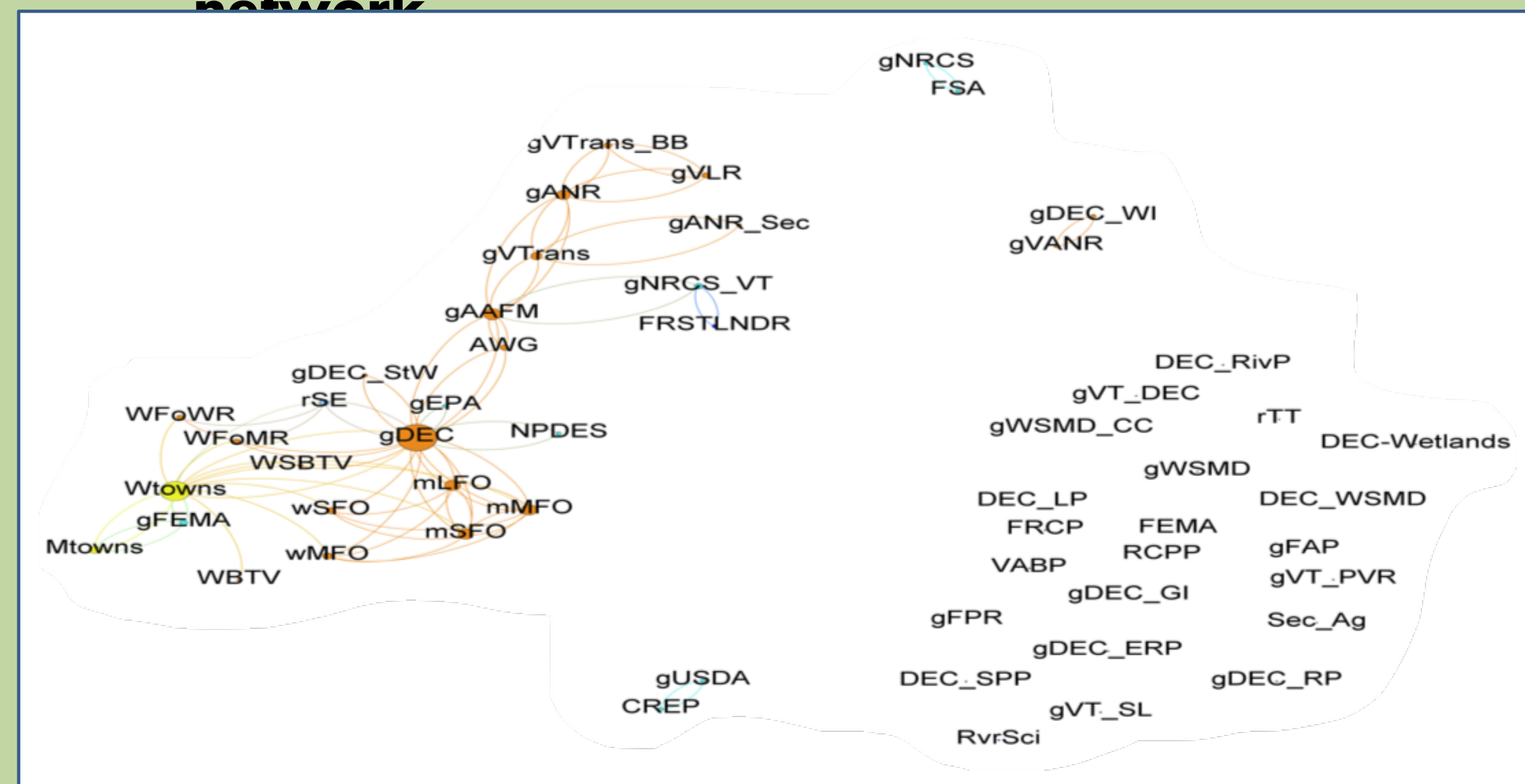


Figure 3: Common Task Network

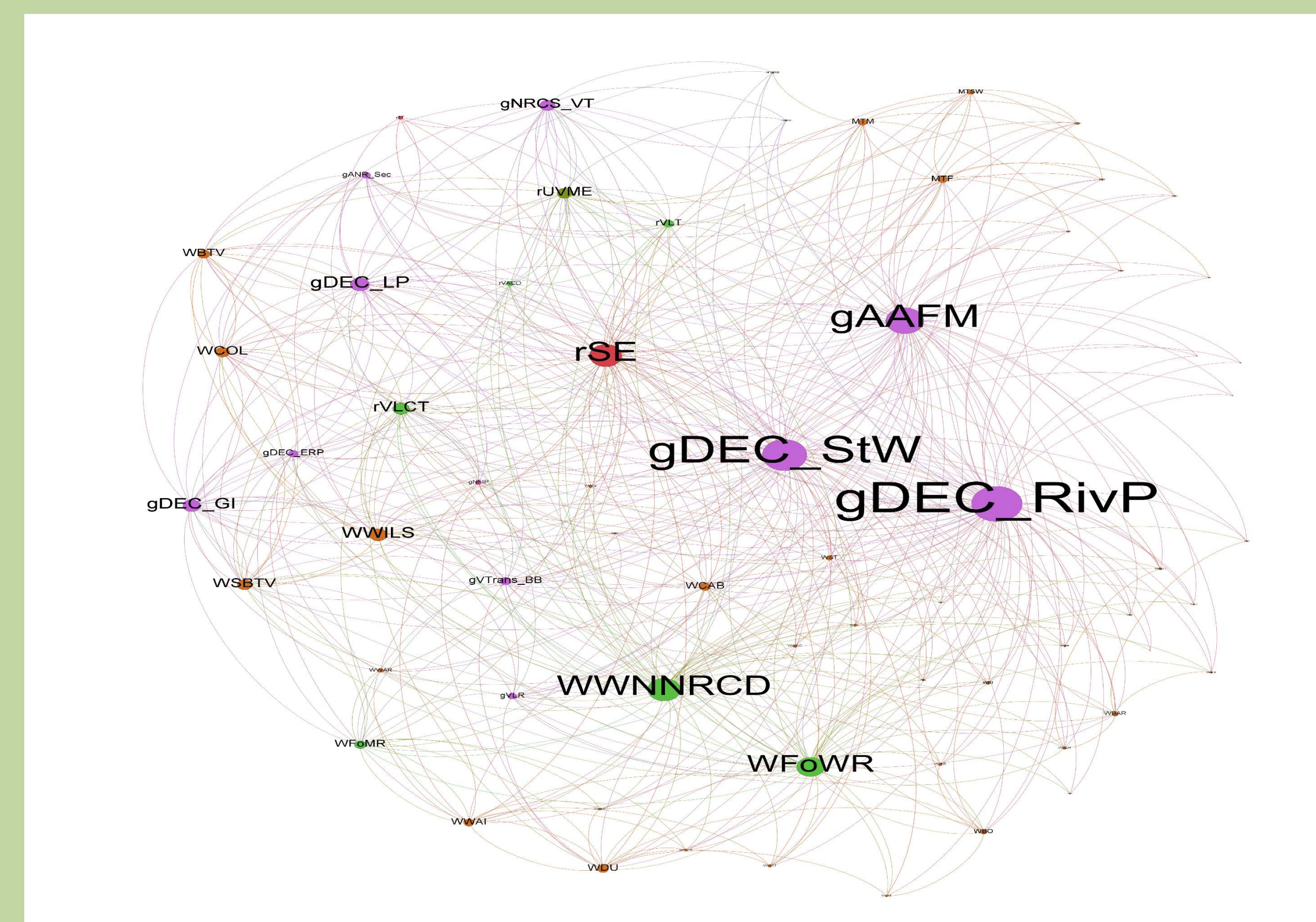
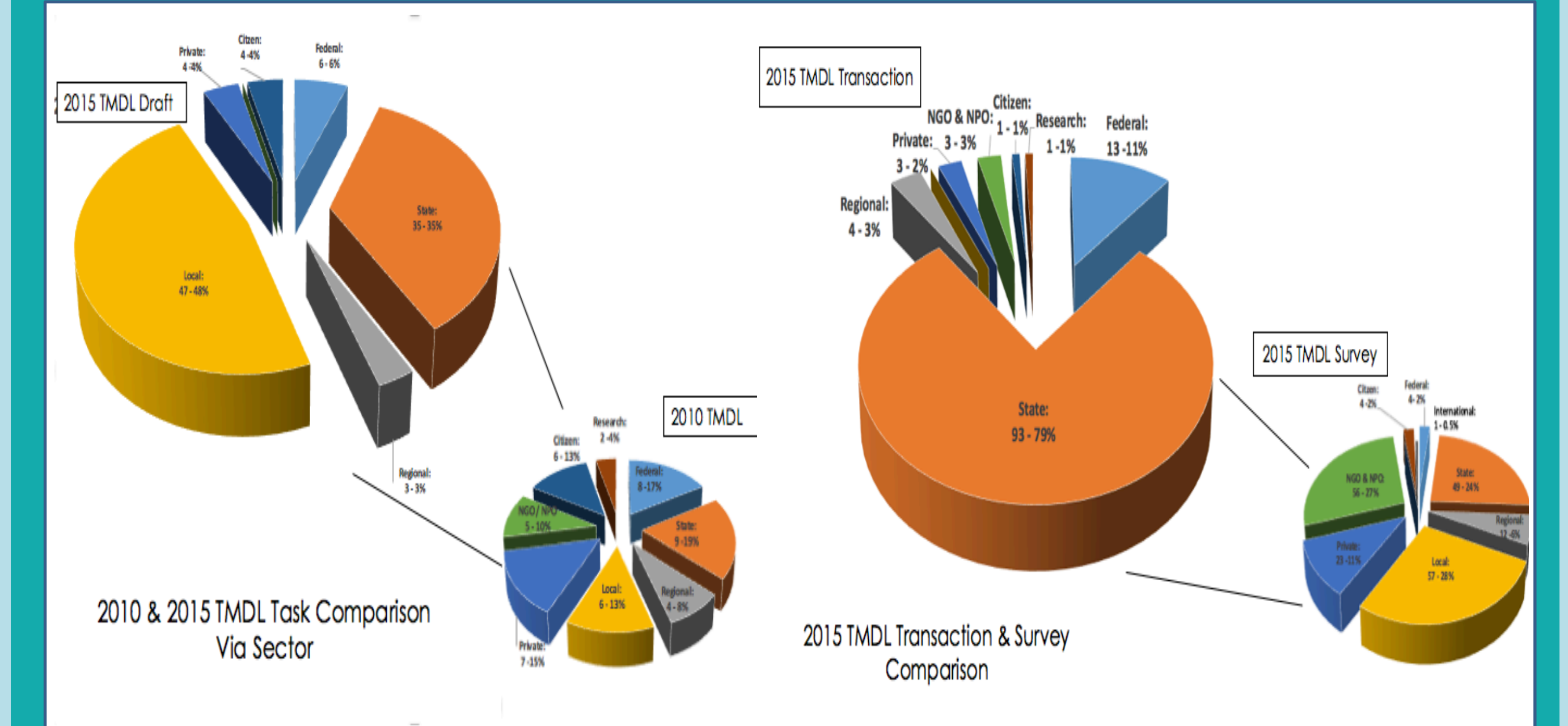


Figure 4: Actual organizational coordination network



Analysis:

Major players in this research were important to extract from the implementation plan, in order to map out the networks. From understanding the “parent” organizations, we were then able to draw out who the sub-networks were. The “parent” organizations were as follows: Department of Environmental Conservation, Vermont Transportation, U.S Department of Agriculture, Agency of Agriculture Food & Markets, Natural Resources Conservation Service, Agency of Natural Resources, Vermont State Office

Conclusions:

The data showed changes between the two TMDL implementation plans. The main focus changed from stormwater run-off, which was the main sectors in the 2010 version, to agriculture run-off in the 2015 plan. There is also more involvement from the state in coordination with other actors in the agriculture sector. In addition, there are webs of links between various actions within sectors opposed to the 2010 implementation plan which showed single links between individual actors.

Acknowledgements:

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