IMPROVING REGULATORY AND GOVERNANCE OVERSIGHT AND MANAGEMENT

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Event

Cutbacks to government funded agricultural R&D have led to the development of public-private partnerships (P3s) as a replacement source of R&D funding. These cutbacks have also created the "orphan crop", a crop that is neglected by both the public and private sectors. Pulses classify as an orphan crop. Internationally, nationally and locally a number of unique and highly individualized P3s have developed to finance and manage the pulse crop R&D process. The development and expansion of the use of P3s have facilitated the development of R&D networks centered on these P3s.

Significance

Innovation is increasingly viewed as a key determinant of economic growth. Recent research suggests that innovation occurs at the global level and the key to economic growth is developing an institutional framework that connects local capabilities to global knowledge flows to create a value-added process. Specifically, codified knowledge consisting of intellectual property rights and specialized proprietary technologies exist in global flows that are available to any entity with the requisite institutional characteristics to connect to the innumerable global network of knowledge pipelines, while tacit knowledge is "interaction and exchange dependent" and exists locally.

Analysis

There are a total of 248 independent actors in the global pulse R&D system. The global system is constructed from three regional R&D networks. The European Union (EU) system consists of 134 actors, and is centered on an intergovernmental P3, Grains Legume Integrative Project (GLIP). The Export System has 66 actors and consists of Australia, Canada, the US and a small number of international actors and is constructed on a small number of producer governed and financed R&D P3s, the Grains Research and Development Corporation (GRDC) and the Center for Legumes in a Mediterranean Area (CLIMA) of Australia and the Saskatchewan Pulse Growers (SPG) of Canada. The developing world system is centered on two developmental and capacity building P3s, the International Center for Agricultural Research in Dry Areas (ICARDA) and the International Crop Research Institute for the Semi Arid Tropics (ICRISAT), of the Consultative Group on International Agricultural Research.

Each of the three component pulse networks and the global network are characterized by the critical role P3s occupy regarding network cohesion and composition. Removing just four P3s from the Global System, GLIP, ICARDA and ICRISAT and the SPG, reduces the network coherence from 25% to 98%, depending on the measure, and leaves 60 components including a new network of 159 actors, 50 isolates and leaves Canada isolated from the global system with an independent national network of 21 actors. The same pattern exists within the three component networks as removing one to three P3s dramatically reduces the size and composition of each of the R&D networks.

Of interest is the role of policy in determining national network redundancy. Specifically, Australia's pulse R&D networks owe their origins to the development of two unique national R&D programs that have spawned a significant number of well connected and internationalized P3s, while in Canada local statutes have led to the development of a single highly connected and internationalized P3. At the global and component level the removal of a small number of P3s results in the isolation of the entire Canadian network of 21 actors, while the Australian system continues to be tightly interwoven with the reconfigured systems.

Conclusion

P3s present governments with a new policy option (the new institutional arrangement) and a new practical option (the new organizational structure) for facilitating R&D dependent economic growth in an environment where innovation is dependent upon connecting to global flows of knowledge. Each pulse R&D network and sub-network is characterized by the location, number of and the function of the P3s in use.