Part VII
New practices for Global Competitiveness: Alternate Species, Alternate Uses, and Value-Added Aquaculture

Introduction

Aquaculture can be socially innovative irrespective of how resource intensive it is, whether it is based heavily in science and technology, and whether it is located in developing or industrialized countries. At one extreme, aquaculture is socially innovative just because it is introduced to a context unaccustomed to farming fish. For example, programs in land-locked Malawi teach people how to dig small, rainwater fed ponds in which tilapia grow on kitchen scraps and other low-cost inputs (WFC 2007; Economist 2007). The cultured fish replace declining capture fish stocks in local rivers that cannot keep pace with population growth, and in turn the dredged pond bottoms provide farmers with an excellent supply of sustainable fertilizer for crops. The WorldFish Center estimates that in regions where aquaculture has been adopted, malnutrition in children has dropped by from 45 to 15%. Meanwhile, surplus fish are being sold off-farm, generating badly needed income for some of the world’s poorest farmers. What starts as a small-scale, project-by-project, local effort to improve the lives of people through better nutrition finishes in market-driven self-regulation of aquaculture by fish farmers.

Malawian society is being transformed by a socially innovative, extensive rather than intensive aquaculture. The scientific knowledge and technologies underpinning these programs are not drawn from the leading edge of science. What matters most is application of well-established criteria for selecting of tilapia well-adapted to the available feed and grow-out conditions. At the other end of the range of aquaculture innovation are situations where market conditions supply fish farmers with incentives to adopt science and technology-based solutions to production issues in intensive aquaculture. Canada finds itself in this situation with respect to salmon aquaculture. While domestic sales of fresh farmed fish have stayed relatively stable, export markets face considerable competitive pressure from Chilean producers (Brown et al. 2007) supplying a comparable yet cheaper product. Canadian farmers are turning to science and technology to generate innovative ways of producing fish more cheaply and quickly, and to accelerate commercialization of alternative aquaculture species such as Atlantic cod.

Extensive aquaculture innovation in developing countries is directed toward food security, yet in Canada, scientific and technological innovation in intensive
Aquaculture is sought as a driver of competitiveness. This contrast appears even more pronounced once it is recognized that Canadian emphasis of scientific and technological innovation in aquaculture is not unique to aquaculture. The federal government’s science and technology framework (2007) directly connects science and technology in general with competitiveness and social and economic wealth, in industries from aquaculture to wireless technologies. Yet the goals of aquaculture innovation need not be so starkly different as those of Malawi and Canada. Nor are the options for governance of aquaculture innovation limited to the experimental, project-based approaches seen in Malawi, or the heavily centralized approach taken by the Canadian federal government. Much work remains to be done, however, to connect alternate uses, species, and practices to appropriate governance practices for sustainable aquaculture contributing to food security and competitiveness according to the capacities and needs of aquaculture countries.

Some of the work needed to match governance systems to aquaculture is undertaken in Jeremy Rayner’s contribution. Rayner identifies two obstacles to beneficial use of well-governed innovation, often overlooked in governance and management of innovation. The first is the confusion of an increase in technological intensiveness with an automatic accompanying increase in good governance. In science-dominated government agencies and departments, it is all too easy to treat growth of a science- and technology-intensive industry as the end goal, representing in itself successful governance of an innovation process. The second problem follows directly on the first. Having mistaken science and technology intensiveness for both an end goal and an instance of good governance, managers ignore or forget to explore avenues of good governance connected with the real value of science- and technology-intensive aquaculture. As the means to a well-governed, sustainable industry producing social and economic benefits for citizens, Rayner suggests that Canadian competitiveness will be best served not by higher levels of investment in the already-strong science and technology base of the aquaculture industry, but in governance innovation aimed at better better coordination of governmental decision makers and the industry enabled and regulated by them.

Rayner’s thesis runs against the common sense view that technological sophistication is the main difference between Canadian and Malawian aquaculture and their readiness for participation in competitive markets. Yet the common sense view has further detractors. Paul Lyon and Mark Burgham make Rayner’s case from the standpoint of two civil servants contributing to governance of sustainable aquaculture in Canada. Taking up the example of recent widely-discussed concerns regarding PCB contamination of the flesh of farmed fish consumed by humans, Lyon and Burgham stress the importance of coordination between government, industry and the public to identify and address concerns cutting across food production, trade and safety. Lessons can be learned from cases where coordination has been lacking, and those lessons can be incorporated into improved governance practices – even when the lessons are as simple as the PCB scare’s demonstration that coordination is just as important in communication with consumers as it is in coordinating good governance decisions across multiple departments and agencies.
While this outlook sounds encouraging, Colin Barrow expresses reservations about the extent to which conscientious attempts at good governance really meets industry and consumer needs. Barrow suggests that government may not be sufficiently nimble to adapt to market conditions as it pursues better coordination of actors. It is worth considering this criticism seriously. After all, Lyon and Burgham’s example is about improving governance after the fact of a problem in the industry. Without disputing the value of governance, Barrow emphasizes that industry, not government, has the best incentives to react quickly to market conditions. In this respect, coordination of aquaculture might better be industry based, which is to say largely self-regulated. Perhaps surprisingly, this is ultimately where the cases of Malawi and Canada converge. Otherwise worlds apart in terms of their production base, capacity and governance, self-reliance and self-regulation may be the preferred option for socially innovative aquaculture. Whether a world suspicious of aquaculture’s promises will give aquaculture a ‘social license’ to experiment in this sort of self-governance remains to be seen. Yet in an era of seemingly endless regulation, this alternative vision of the future of aquaculture governance deserves consideration as a surprising, yet serious contender.

References


