



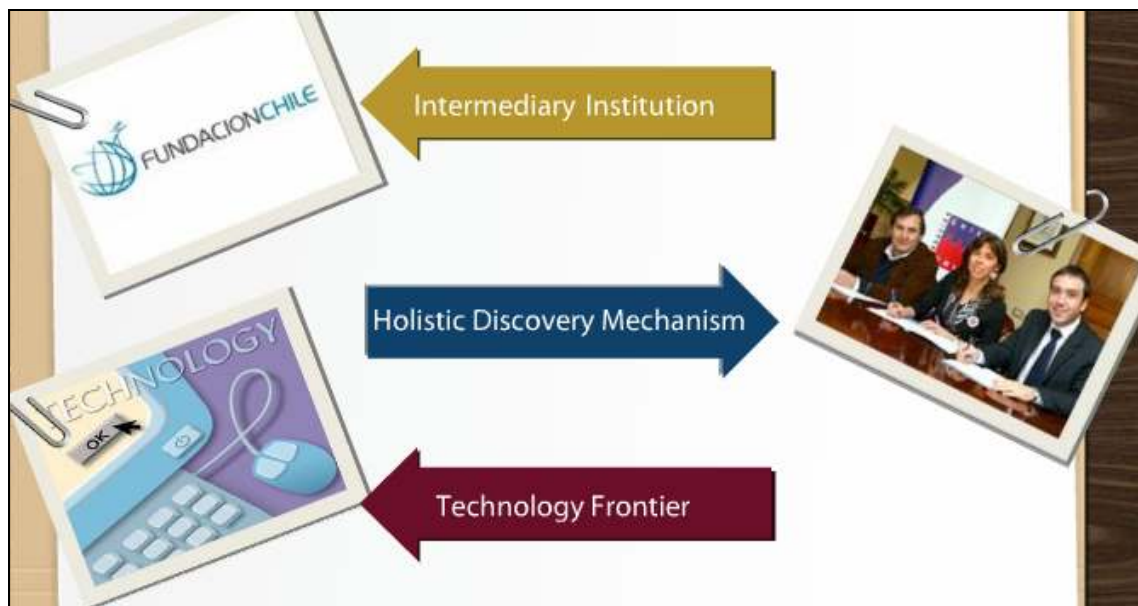
# Introduction to Innovation Policy for Developing Countries

## Module 04: Case Study Fundacion Chile Experience



## Fundacion Chile Experience

In this Study Case we'll examine Fundacion Chile as an example of an intermediary institution working on the ground. Fundacion Chile's innovation promotion system has a holistic discovery mechanism which exploit individuals superior local knowledge and provide powerful incentives to solve their own problems, and this is especially important as countries approach the technology frontier and must handle an increasing degree of uncertainty about what works.



### Fundacion Chile: What is it?

Fundacion Chile is a privately owned non-profit organization, founded in 1976 through a partnership between the Chilean government and the ITT Corporation. In 2005 BHP Billiton became a co founder. Its mission is to add value to Chile's products and services by supporting innovation and technology transfer so that Chile can better exploit its comparative advantage in natural resources.



From an economic point of view, Fundación Chile can be understood in terms of the various market failures that characterize innovation. Fundación has largely acted in those areas where market failures are more commonplace, where important investments were necessary, and where risks were high and the returns are not immediate. It is able to take strategic gambles, thereby eliciting information about the underlying costs and opportunities of entrepreneurial activity in different sectors. Through this discovery process, new industrial niches can be developed at low enough cost to be profitable.





### Issues of Market Failures for Business Innovation in Developing Countries

The market failure arises from the fact that entrepreneur is poorly rewarded for his efforts. If he fails, he must alone shoulder the costs; if he succeeds, he must share the innovation with other entrepreneurs who can follow and imitate his example.



Obviously, where activities involve new-to-the-world products and processes, they may be patentable and therefore monopolizable; but in developing countries where much activity centres around adapting foreign technology to domestic conditions, such protection is rarely available.





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Adapting foreign technology to domestic conditions.

### Fundacion Chile Business Model

Fundacion Chile provides firms with a wide array of services and support. These can be broken down into four distinctive areas:

First, it attempts to identify, acquire and assimilate suitable technologies wherever they are located in the world.

Second, it seeks to provide venture capital and research funding to help firms cross the so-called valley of death, the severe financial risks faced by start-ups at the pre-commercial stage as they strive to grow from small teams to profitable ventures.

Third, it carries out collaborative research with other participants in the innovation system, including multinationals, domestic firms and research agencies.

Finally, it participates in knowledge exchange programs and is a source of management consultancy, financial planning, and strategic advice.



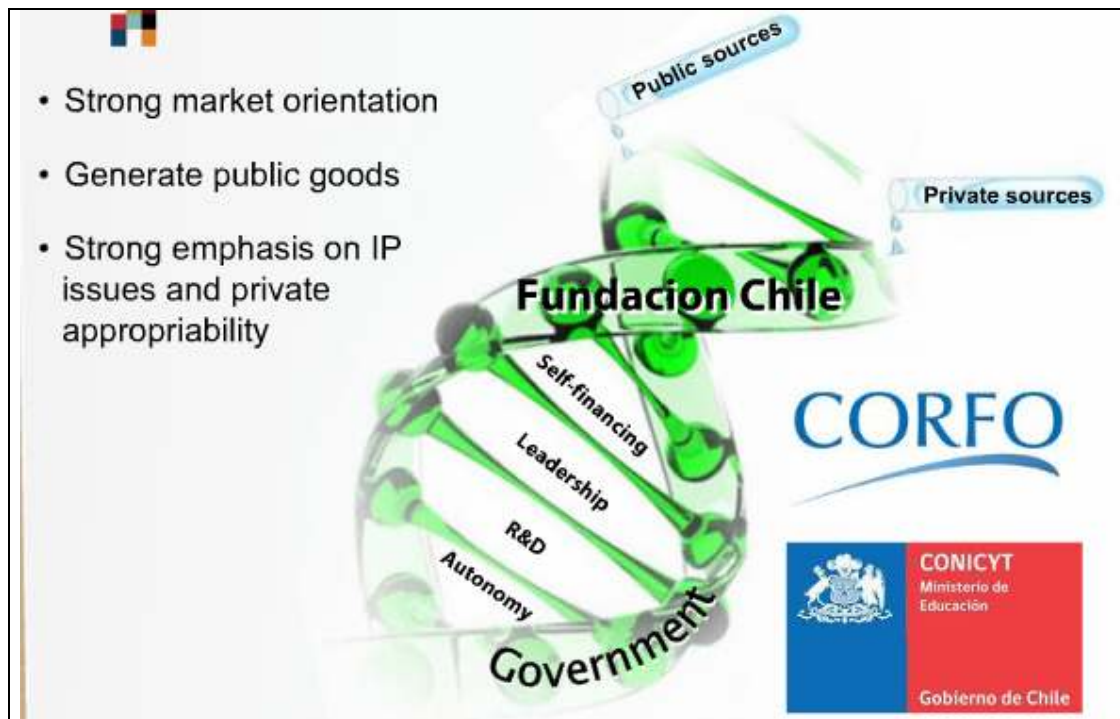
### Fundacion Chile: Unique Institution

Fundación Chile is a rather unique institution. On the one hand, it has close relations with government. From Fundacion's inception, part of its management was named by the government, with government representatives appointed directly by the President and it has had close links with agencies such as Chile's national development agency (CORFO) and its national science and technology research board (CONICYT). On the other, it has managed to enjoy an enormous degree of autonomy: its by-laws ensure that the institution is not subject to any of the regulations governing the public service, ensuring a great deal of flexibility over human resource practices and day-to-day operations. This independence was built into its DNA as a result of the ITT's involvement. One of ITT's most important contributions during this time was to transfer its R&D management systems and provide key leadership personnel.



Funding has followed a similar pattern: after its initial endowment ran out, it has had to rely on diverse sources of financing. Public subsidies such as competitive grants have been used, especially for the initial phases of project development; it has also drawn on private sector financing, including contributions from a new seed capital fund.

The task of straddling the interface between public and private financing, however, has not been easy. The need to maintain a strong market orientation on the one hand and generate public goods on the other hand has sometimes created tensions over what counts as an appropriate investment or project. Specifically, attracting financial support from, and participating in joint activities with private entities has resulted in a strong emphasis on IP issues and private appropriability; however, this potentially cuts against the agenda of promoting the diffusion and replicability of innovations for the wider public benefit.



### Fundacion Chile: Examples of Success

Fundacion has recorded a number of successes. These include:

1. Creation of pioneering salmon firms and provision of technological services that were fundamental for the take-off of the industry in Chile;
2. Abalone and turbot farming;
3. Development of the technological concept of vacuum-packed meat and other innovations;
4. Quality control and certification of fruit for export;
5. Introduction of new berry species and varieties in Chile;
6. Associative development in the forestry industry, which led to the implementation of new forestry management models;
7. High-quality wine production;
8. Furniture for export;
9. Lota tourist circuit.





### Fundacion Chile: Salmon Farm Case

A very good example is the case of the salmon farms in Chile which was transformed under the guidance of Fundacion Chile from a quasi-artisan, family-based industry to a world class export-oriented industry within the space of just two decades. Today the industry boast an impressive US\$ 1.7 billion in exports.





Fundacion's pivotal role in the Chile's salmon industry was underlined by its acquisition of Domesa Farms in 1981 and the creation of Salmones Antartica, one of the world's largest industrial firms which it eventually sold to the Japanese company, Nippon Suisan Kaisha.

Fundacion often sent personnel on international missions, visited different salmon operations and participated seminars to plug into global networks and procure suitable technology.

- Sent personnel on international missions
- Visited different salmon operations
- Participated seminars

CORFO and Fundacion were also key to building up production capacity and disseminating know-how. It played a significant role in a upgrading of a number of intermediate inputs -enhanced tanks, nets, processing machines, veterinarian services, packaging materials, veterinarian services and transportation boats that laid the foundations for a large, capital intensive, technologically complex and sophisticated industry.



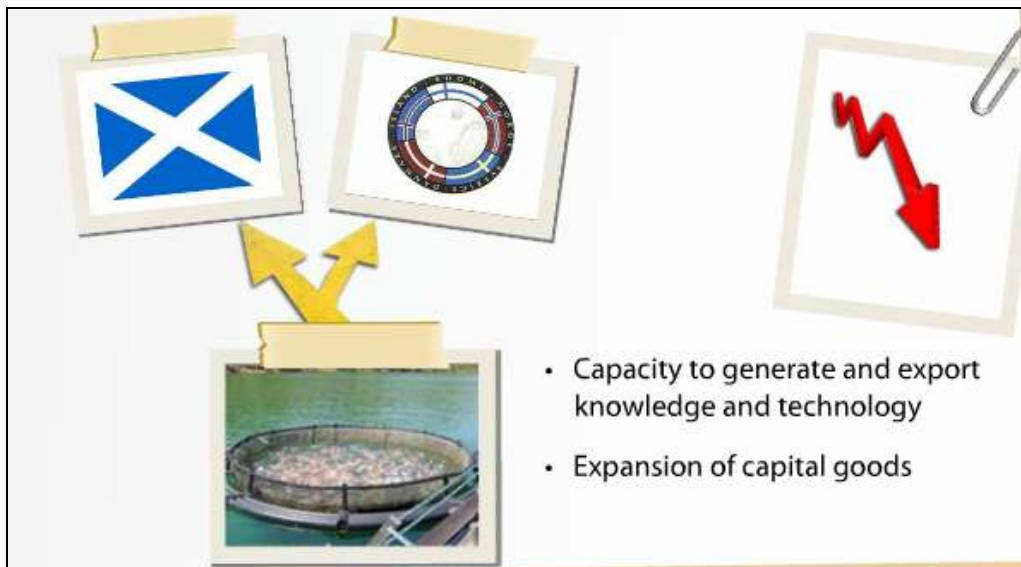
### Salmon Farm Case Lessons: Positive Spillovers

A flourishing innovation system -in addition to its favourable natural conditions - pristine, fresh-water lakes and temperate ocean temperatures suited to the metabolism and growth rates of salmon- not only enabled Chile to shape its own destiny by migrating into new activity (traditional export products had been in copper mining, forestry and fruit production); but it also showed that it was possible for developing countries to move up the value chain without following the Asian model of penetrating mass markets on the basis of cheap labour. Exports stimulated myriad positive backward linkages, supporting the development local industries such as construction, distribution and retail trade in the region and boosting the demand for knowledge workers such as biologists and aquaculture specialists.



### Salmon Farm Case Lessons: Missed Opportunities

On the other hand, the Chilean salmon industry has not gone down the same road as industry in Scotland and Scandinavia. It has not produced a strong capacity to generate and export knowledge and technology, nor has it stimulated the expansion of the capital goods industry serving the salmon industry. Indeed in 2008, the salmon industry in Chile suffered from quality problems associated with the health of its fish.



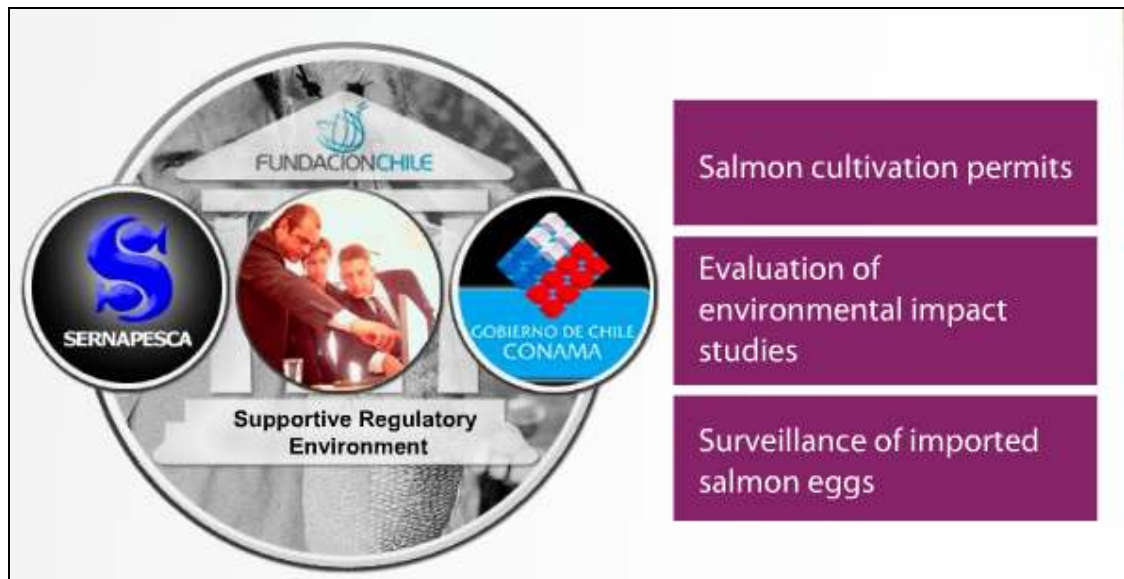




### Salmon Farm Case Lessons: Role of Other Entities

Moreover, the role of the Fundacion in these developments should not be overstated: its efforts would have been futile in absence of Chilean entrepreneurs to enter and drive forward the industry. Likewise, other government agencies such as SERNAPESCA and Conama provided a supportive regulatory environment necessary for the issuance of salmon cultivation permits, evaluation of environmental impact studies, surveillance of imported salmon eggs, and so forth.

The required legal infrastructure supporting these functions was in place in the 1980s and capacity to generate and export knowledge and technology was considerably improved thereafter to meet standards (Show standard text) coming from the U.S. Food and Drug Administration, the UN Food and Agriculture Organization (FAO), and the WTO. (Show logo). However impressive business services may be on paper, they work only in an ecosystem, not in isolation.



### New Developments & Future Challenges

A key strength of the Fundacion has been its ability to respond to changing needs and priorities. In recent years, it has branched out into new strategic areas, including to biotechnology, ecotourism and skills. It has also become a champion for institutional innovation-supplier-development programs, insurance for tree plantations, the agricultural management centers network, technology transfer groups in forestry and the administration of seed and venture capital insurance – all



of which are aimed at influencing and improving the wider regulatory framework in order to maximize the payoffs from its programs.



Following the merger with the technology institute, INTEC in 2002, Fundacion has assumed a more complex set responsibilities. As such, it has become aware of the importance strategic partners and expert managerial capabilities –many of which lie outside the organization. Strong management skills are especially important as it balances the task of shutting down failures quickly and cheaply with the need to give projects sufficient time to demonstrate their worth. These skills are also important as it juggles the various –and sometimes conflicting roles it plays –the scientist, the entrepreneur, the financier and the salesman – under one roof. These challenges face intermediary organizations of all kinds; how well they are dealt with will have a large bearing on Fundacion’s continued success in supporting entrepreneurs in the future.

