



## Case Study No. 39: Ingenimed and The Lemelson Foundation – Overcoming Early Stage Challenges through Incubation

### Introduction

Prolific US inventor Jerome Lemelson and his wife, Dorothy, founded The Lemelson Foundation in the early 1990's under the belief that invention and invention-based enterprises have the power to improve people's lives. In developing countries, the Foundation leverages invention's ability to address the problems of the poorest populations, by supporting inventors and entrepreneurs whose invention-based businesses create products that address basic human needs. To date, the Foundation has donated or committed more than \$175 million in grants and Program Related Investments in support of its mission.

The Foundation began its developing country work with partnerships in India (2004), Indonesia (2006), and Peru (2007), working to promote, support and launch invention-based enterprises that serve the poor and that are on a clear path to scale. NESsT leads a partnership implementing upon this work in Peru that has led to the development of several high-impact social enterprises including Ingenimed, whose story demonstrates the impact that a small but strategic foundation can have in addressing a very basic needs in the Andean regions of South America.

### Ingenimed

In a rural clinic in southern Peru, a newborn is being treated by Neoled phototherapy that will assure rapid treatment and have him safely home with his family within 24 hours. There are hundreds of others like her that are being treated by the same equipment both in this clinic as well as neighboring ones. Neonatal jaundice is highly prevalent in the rural regions of Peru. The condition, which affects newborn babies, occurs when there are high levels of bilirubin within the blood that can become toxic and lead to other complications if left untreated or treated poorly. Given the expense of imported equipment, many rural clinics in Peru opt for hand-made solutions, which are not affective and are often not well-maintained. In the coming year, this highly transportable technology will be sold throughout the southern region of the country by Ingenimed, an invention based social enterprise

Early stage support provided by NESsT Peru with funds provided by The Lemelson Foundation and other philanthropists

**Capacity: USD 48,000**

#### Financial

**Grant: USD 8,000**

**Loan: USD 15,000**

**Equity: USD 70,000 projected for 2013**

**Total: USD 141,000**



created four years ago in Cusco by a group of engineer students. Within the next four years, it will reach over 70,000 newborns, and eventually hundreds of thousands more not only in Peru but throughout the Andean region. The enterprise is the first ever biomedical company incorporated in Peru. Prior to its creation, there were no other Peruvian companies addressing the needs of jaundiced newborns in the country.

How did this innovative and cost effective technology come to be? Sandro, the engineer student who leads the team, and his colleagues were selected to be part of The Lemelson Foundation-NESsT partnership early stage incubation process that supported and guided them from a simple idea, to the creation of a prototype, to its testing in the market, to product improvement, to the development of a business plan, the launch of the enterprise, a three year incubation, and now, in its fourth year, the beginning of a scaling process. This team has slowly, and with a great deal of capacity support, gained the leadership and entrepreneurial skills needed to grow their enterprise.



*NEO Led equipment designed by Ingenimed, used for neonatal jaundice treatment. (Cusco, 2011)*

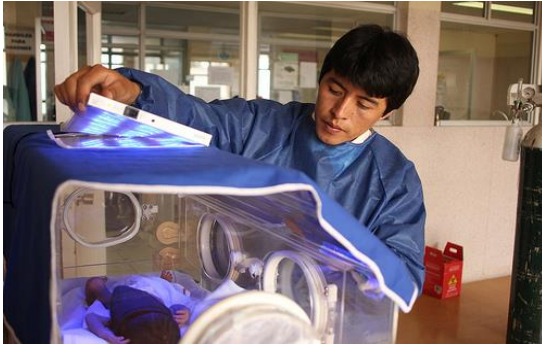
Also with ongoing support, Ingenimed was certified to legally manufacture and sell the technology, a process that took over a year as the enterprise worked to have the first law for biomedical certification enacted in Peru-

The additional challenge for a startup such as Ingenimed was the lack of legislation and a regulatory process for bio-medical companies in the country, a sector dominated by foreign imports. Once this occurred, it began a second tedious process of complying with the certification procedures, including manufacturing the technology and preparing to fully enter the market. Although initially situated in a small production workshop, Ingenimed will soon set up a laboratory and begin manufacturing the neoled equipment en masse. Given that the technology does not require adaptation, Ingenimed plans to quickly respond to the large demand for low cost and efficient care of jaundice newborns in rural communities, manufacturing and selling over 150 machines in the next four years.

During the course of this three year incubation process, Ingenimed has participated in a series of NESsT led business planning workshops specifically designed for inventor-based entrepreneurs. The team has also received tailored, one on one entrepreneurial capacity and mentoring support from NESsT, as well as a wide range of expert advice and training in science and technology, manufacturing, legal procedures, human resources, governance, and



leadership development- all of which have been essential to their social enterprise development process.



*Sandro Gamarra, testing NEO Led equipment (Cusco, 2011)*

*“This NEO Led technology has a lower cost, requires less energy consumption and is more efficient in the treatment of newborns.”*

*Sandro Gamarra, Ingenimed*

In terms of financial support, the company received a venture planning grant during the business planning process that provided the team with resources to conduct market research and develop a prototype. At incubation, Ingenimed received both startup grant funding as well as soft loans. The grant support allowed the enterprise to pay for equipping the workshop, and to cover part of the personnel, training and operational costs until breaking even. The fact that the certification process took over a year, increased the start-up and incubation costs of the enterprise. The soft loans were provided by Popular Safi, the entity that managed the loan fund established by NESsT with Lemelson Foundation grant support. The loans were provided to Ingenimed as working capital to cover manufacturing costs. Had this funding not existed, it is unlikely that Ingenimed would have been eligible for commercial lending, given its lack of credit history and what would have been perceived as an altogether too risky invention-based business. The loan fund was set up especially for this type of investment, and was a way to recycle the Foundation’s philanthropic capital.

*“This equipment cures babies quicker and provides an opportunity to upgrade the ineffective therapy equipment currently in use in regional clinics throughout the country.”*

*Sandro Villafuerte, Antonio Lorena Hospital (Cusco)*



*Sandro Villafuerte MD, from Antonio Lorena Hospital, sharing his views on the benefits of the Ingenimed equipment (Cusco, 2012)*



Currently, as there is proof of concept and consolidation of the model, the enterprise has begun its scaling phase. It will receive its first equity investment, to pay for the establishment of the laboratory and the strengthening of the production process. NESsT will most likely be one of its principle investors. With this infusion of capital, the enterprise will have the needed financing for its first phase of rapid growth. During the scaling phase, Ingenimed will continue to need additional capacity support to further improve its governance and leadership structures, to access and obtain additional permits for the distribution of the technology, to conduct research and development as it moves to diversify its health technology products (ie. cushioned and “kangaroo” portable versions of the Neoled phototherapy technology), and to establish alliances and conduct market research needed for eventual export of its products to other countries in the Andean region. The company realizes that central to scaling is the capacity to continue to strengthen its team, invent new products and leverage resources and expertise.

### The Lemelson Foundation

the Lemelson foundation



*“It is clear that the Peruvian entrepreneurs value NESsT’s support that validates their work in the eyes of their communities and other potential supporters.”*

*Abigail Sarmac, The Lemelson Foundation*

Why is The Lemelson Foundation interested and willing to support the incubation process of invention-based enterprises such as Ingenimed? The simple answer is that its 20 year history has shown the Foundation that inventions like Ingenimed’s have the potential to have a profound impact, but that they need the kind of nurturing and support — provided with the NESsT partnership — to turn their ideas into products that reach the people who need them most. The Foundation believes that the path to scale for inventions that address needs of the poor — and building the invention and entrepreneurship ecosystem in developing countries where technical capacity support is often lacking — can take 10, 20, or even 30 years of development and sustained efforts. .

The Ingenimed story reflects this situation; where it has taken the enterprise four years to begin its scaling phase. Given its moderate size, The Lemelson Foundation believes it can



tackle the early-stage challenges more effectively, since often large foundations and governments are not able to adapt the size of their investment to the needs of the early stage enterprise. The \$72,000 investment so far provided to Ingenimed is an amount that is currently not available from impact investors whose investments usually begin with proof of scaling concept and minimally at the \$500,000 levels.

The Foundation views the availability of mixed financial instruments as vital for early stage support to allow greater flexibility in working capital. In the case of Ingenimed, the combined use of grants, loans and equity, each for specific purposes and managed by a well-thought process, allowed and is allowing the enterprise to grow. It sees an evolution taking place in the sector, and it knows that a point of inflection, where a large number of donors and social investors use tailored financial instruments, has not yet been reached. It is the Foundation's hope that its tolerance for risk and willingness to explore new types of financial instruments will help to inform the path forward for the sector.

The Foundation is also supportive of the creative use of grants to explore what works best. There are advantages, for example, to partnering with 501(c)3 organizations, such as NESsT, which can enter emerging market countries and create funding vehicles such as the one created with Popular Safi to re-package philanthropic capital into investments. Strategic partnerships can help to deepen impact through creative use of financial instruments.

The Lemelson Foundation sees capacity support as a critical part of getting organizations to reach self-sustainability. With capacity support, organizations and social enterprises can exist permanently as “agents of change” in the ecosystem in which they operate, becoming role models for both public and private sectors. Therefore, capacity support is linked to developing local competencies and the ecosystem. The Ingenimed team has become a model for other students and grassroots inventors who aspire to solve problems in their communities through invention.

The Foundation recognizes that the programs it supports will help provide evidence to inform policy in the future. The Foundation hopes that by disseminating case studies and highlighting lessons learned we can effectively provide evidence that can help inform decision of others with respect to new programs and resources. Foundation grantees (including NESsT) are increasing their efforts to strengthen the local environment for social enterprise development, including building the capacity of local partners and local service providers. The ecosystem now includes not only national and regional governments, but universities as well, in a move to improve the capacity for innovation.



The Lemelson Foundation believes strongly in validating investible portfolio enterprises that can then be taken to scale with the support and investment of others. Early stage does not necessarily mean small; rather early-stage simply means early on the pathway of developing a business. However, big-scale opportunities should be envisioned from the very beginning of the development process. When asked if it sees itself as a “pioneer,” the Foundation responds that very practically it sees itself as having a comparative advantage given its size, as well as its dedication to providing flexible and patient capital to others – intermediaries like NESsT - who will support and mentor early stage invention-based enterprises that show the potential to become self-sufficient and scale.

The Foundation realizes its entrance in a particular region or field is highly dependent upon the existence of an ecosystem for innovation and technological advancement, and the presence of capable partners, like NESsT, who are locally-based.