

PERU 2021

**PRIVATE SECTOR AND TECHNOLOGICAL TRANSFER
IN PERU**

Aldo Vallejo

INTRODUCTION

Environmental conservation awareness is growing in Peru.

Since 1992, the implementation of measures to open and strengthen the Peruvian economy resulted in an integration of the country in the world economy. Globalization process and market pressures, added to the Peruvian government actions and the growing awareness in society contributed to a change in the business community: business community has begun to understand the need to include clean technologies in the productive process to lower pollution and negative environmental externalities. Nevertheless, firms do not have professionals trained on these issues.

In the other hand, as a result of this awareness process, some organizations and associations have implemented environmental boards or programs to foster relations with the public sector to help the environmental adaptation process.

This is just the beginning of the process, and, in many cases, there is little knowledge about that theme and a lack of trained professionals.

In this paper, we will try to analyze the way to foster the role of both private companies and NGO's, private sector associations and environmental consulting firms, to develop a more active private sector role in the technological transfer process. We will first discuss the main training needs and then present a framework for private sector participation to brake the barriers in the technological transfer process.

I. Needs in technology and training for a better interaction between private sector and NGO's in the technological transfer mechanisms.

1. Awareness raising, institutional strengthening and training.

One of the main challenges that sustainable development faces, is to be able to base itself in a population that not only knows about the environmental issues but is also able to face them, with specific actions, regionally and locally.

To reach this goal, we need to make the different social agents aware of the environmental issues. We need to strengthen both public and private institutions, to manage environmental concerns in all its dimensions. We need also to train professionals: from those who will be in charge of research, consultation and evaluation to those who will operate industrial processes, energy generation or services (transportation), which are the most polluting activities.

From the private sector point of view, we can define two levels in training needs to establish effective mechanisms of technological transfer:

- 1) Private sector business that need qualified staff in specific environmental issues
- 2) NGO's, business associations or environment consulting firms that can back up businesses.

1.1 Dissemination and information

- Private firms:

Mainly, the business community attitude towards environment consists in just a concern to avoid bad publicity, sanctions, community complaints, and, in more critical issues, plant closing due to pollution or accidents. Environmental management tends to be reactive and to be oriented only to reach the minimal requirements. We do not find very often an environmental policy included at the strategic management level.

From this “traditional” perspective, environmental control is only an additional cost. Obviously, this perspective focuses on the basic norms to be respected; there is no incentive to identify solutions that can be translated into a value for the consumer or the risk prevention towards employees, community or environment in general.

Nevertheless, the private sector role is essential for two reasons. It is responsible for the majority of pollution and environmental damages, and, at the same time, it is the right platform for a technological transfer (both in developed countries and in developing countries). We need to establish the right mechanisms to redirect action in technological transfer process through the right training process.

The role that the private sector can play in the sustainable development is huge. It must be a comprehensive strategy more than just the function of a single institution. Private sector organizations, NGO's, and consulting firms must be able to manage this transfer optimally, in a close relation with the public sector.

We can differentiate two technological levels in the private sector: big firms who have financial capacity to invest directly in technology and know-how, and less important businesses, for whom the access cost to this technologies is too high.

Alliances between the small and big business are a crucial element in the mechanisms for technology transfer and its dissemination.

- NGO's, Business Organizations and Environmental consulting firms

In this context of ignorance of the economic advantages of being environmentally responsible, the role of private sector organizations and NGOs is hard. It is necessary to articulate a change of attitude through information's campaigns in order to raise awareness about environmental issues.

PERU 2021 is leading a private sector campaign oriented to change "traditional" conceptions of productivity and efficiency towards a more social responsible-oriented way of thinking through the "ecoefficiency" concept.

This is the first step for an investment in new technologies that allows a better environmental performance, a reduction in waste and raw material consumption, in energy consumption and in greenhouse effect emissions.

Consequently, the first need in a strategy to position the private sector as an agent able to generate technologic transfer, is to inform and raise awareness about the advantages of being ecoefficient and environmentally friendly.

In the Peruvian case, information and awareness raising for the private sector can be provided through public institutions like the Ministry of Industry, the Ministry of Energy and Mining, the CONAM (Environment National Council), through NGO's or private sector associations. However, this work is rather small compared to the needs of the country.

In order to raise and reinforce the stage of information and awareness raise, we need to satisfy the following needs:

- promote studies and diagnostics about the environmental performance of firms.
- Create information networks between Latin America countries to compare experiences and specific cases.
- Transfer the know-how coming from developed countries

We must train NGO's and business associations' professional to create agents that will perform the mentality change among businessmen. This goal can be reached through promoting participation of these professionals in seminars, exchange programs, research teams and specialization programs, etc...The aim is to obtain a team of specialists that can effectively manage the different environmental issues, knowing at the same time business culture.

1.2 Training and Institutional Strengthening

- Private sector

Once companies are informed about the needs and economic advantage of being environmentally responsible operating a technological change, they must receive the technical assistance required to strengthen its institution.

To initiate a sustainable and internal process of training in the business world, we need to create a local consultancy market and skilled professionals consulting and training methodology to transfer technical knowledge.

The first step for the private sector to become a technology transfer agent is to strength its own institutions on the basic aspects of environmental performance. Without an Environmental Management System (EMS), for instance, it would be extremely difficult to monitor the impact of a technological transfer in environmental practices. EMS permits to rely on trained staff to manage environmental issues and to foster internal awareness campaigns.

Advantages of being ecoefficient and advantages of the EMS.

Ecoefficiency and EMS are a great business opportunity.

Being ecoefficient means to reach a sustainable competitive advantage through the constant improvement of productivity of raw materials and energy, the reduction of the environmental negative impact and the integral development of the human resources and community.

The ecoefficiency is an active approach, systematic and integrated to the environmental logic. It does not focus on how to minimize costs to reach basic goals rather it focus on how exploit resources to enhance internal efficiency.

An ecoefficient company is on a permanent search for new managerial practices to optimize their production process. A lot of companies reorient their expenses on environmental issues by passing from a “correction” approach to a “preventive” approach.

Talking in quality language, external failures can often be avoided almost by completely transforming “cost” points in “value added” points into the production process.

Some of the most successful companies in Latin America have already discovered that an comprehensive managerial system oriented towards environmental responsibility facilitates a better productive process, a better access to external financing and a more receptive export markets and consumers.

Ecoefficient companies understand the importance of trained and specialized human resources to be competitive, and it requires a constant investment in training. Being competitive through ecoefficiency means to be innovative in all the company dimensions. By being ecoefficient, companies find “a better way to do things” than the competitors. Innovation in a broad sense includes not only new technologies but new management methods, new productive processes and even new strategic vision of the business.

Once the competitive advantages are created, companies should get onto a more important step that it is to make these advantages sustainable. To reach that goal, organizations must turn innovation into a permanent process, taking into account the three basic elements of ecoefficiency: productivity and profitability, development of the human resources and the community, and a good use of natural resources.

The ISO 14001 system is an excellent tool to build an ecoefficient company. The Environmental Management System described in the ISO 14001 norm is based on these environmental “best practices” and introduces a “system” conception. EMS requires an environmental policy to: (1) to comply with regulations, (2) to prevent contamination, (3) to improve constantly.

This norm also requires the systematic identification of its environmental aspects and the determination of the “significant” ones. Then, the company must implement operative documented controls for each “significant environmental aspect”. ISO 14001 contemplates that employees whose work is associated with “significant environment aspects” are those in a better position to minimize significant environmental impacts in their tasks. These “key” employees are those who require special training in order to assume their environmental responsibility.

The central element that impulse the constant improvement in ISO 14001 is the requirement to establish and document one or more environmental goals. One specific example can be a significant reduction of air polluting emissions. When the goals are reached, high management is required to fix new environmental objectives. Each organization defines its own objectives set by taking into consideration its resources. It is here where a company decides about the constant technological improvements to implement.

ISO 140001 requires a company to document its EMS and comply with the specific requirements of its implementation, such as training, internal and external communication, and operational control procedures.

In conclusion, to implement a EMS in a company can become an essential requirement before the implementation of technological innovations. It allows the company to have the institutional strength and the internal capacities required to make the technological information effective.

Peruvian private sector lacks consistent information to allowing it to reach these objectives. However, once aware of the need to implement technological improvements in this sense, private sector can become the ideal platform to attract technologies and to retransfer this technology to smaller companies.

- NGO's, private sector associations, environmental consultancy firms.

Peruvian internal capacities to systematize environmental performances of companies still very limited. There are only a few consultancy firms that give ISO 14001 implementation services, partly because the number of skilled Peruvian professionals is low. This fact contributes to the high cost of the certification process, therefore, in many cases Peruvian companies need to work with foreign consultants.

Apart from an effort initiated by CONAM and Indecopi (Consumer Rights and Intellectual Propriety Rights Defense Institute) – both public institutions – and continued by PERU 2021 (from the private sector), there is not a local offer for these kind of services. (The aim of the project is to train Peruvian professionals in EMS implementation and raise awareness in environmental issues among the business community)

It is crucial to create mechanisms to form Peruvian specialists in EMS implementation in order to develop a local market for these services. This offer can be delivered through NGO's, associations, or environmental consulting firms.

Therefore, an important step in a technological transfer process to improve the environmental performance of Peruvian companies is the “import” of knowledge on environmental matters.

After all, we require to train professionals from all organizations cited above in identification of technological needs and its implementation, to reach the objectives of the Kyoto Protocol.

Consequently, we need information about existing technologies, its costs and benefits, technical requirements for its operation and its respective monitoring tools.

II. - Initiatives to break barriers for technical transfer through a private sector participation.

Latin America countries – with the other developing countries – must be able to reach mechanisms of technological transfer, to allow a better national environmental performance.

Technological transfer must be adapted to the country needs and must be a combination of technological innovation and technical and theoretic training that can be spread to the smaller productive units.

We must focus on energetic efficiency, in the use of renewable sources of energy, in the implementation of improvements in the reduction of gas emissions that damage the atmosphere, and in the improvement of the local capacities of monitoring and evaluation.

1. Technologic transfer scheme through market mechanisms

The following table illustrates benefits of an active participation of the private sector for the technological transfer mechanisms in a globalized economic context. We take the case of a local company that exports finished products. Exports constitutes a “bridge” between developing countries and developed ones.

First of all, we must differentiate companies from developed countries from the developing ones. One of the major concepts to enhance participation of the private sector in technological transfer is to start from the demand side.

The table indicates that a “pressure” exists from the final consumer side who demands products originated from a clean productive process. This demand will grow progressively, due to the raising awareness among people throughout the globe, on environmental issues.

This demand “forces” companies to satisfy it, thereby integrating ecoefficiency concepts, implementing EMS's and incorporating clean technologies on the production process. In a globalized economy, production can be developed all around the world, without limits. Consequently, demand of “clean products” will be traduced in a pressure for suppliers.

Therefore, a company from a developed country or a multinational company, that is environmentally aware, with a EMS and clean technologies in its production plant, will demand to its suppliers (that in many cases are located in developing countries) to adopt these systems and technologies to grant its consumers a environmentally friendly product.

We start from the assumption that access to technology is easier for a multinational firm, that has already adopted up-to-date clean technology. Therefore, this requirement can mean an investment in which the multinational firm transfers its know-how and technology with training plans for its suppliers, with good financial conditions, allowing them to reach environmental objectives.

An exporting company from a developing country can “break” the access barriers to accede to required technology through market mechanisms.

Supplier company must rely on local incentives to invest and acquire new technologies. Thus, the role of NGO’s and associations is twofold:

On one hand, they must channel private funds to allow investment through interesting credit mechanisms and establish alliances with the public sector, to obtain conditions that foster this kind of investment, through subsidies or tax incentives.

On the other hand, they must become a “technical team”, able to attract knowledge, and train people to operate new technologies. For example, we can incentive local industry by training a team of local professionals in technologies to generate internal capacities, lowering prices of this kind of services to allow a broad transfer to all the local suppliers of that company.

This is a second step, in which the local firm has implemented new clean technologies. That firm will need its local suppliers to adopt technical changes in order to ensure a clean process as a whole. Here, NGO’s and private sector associations, relying in a team of trained professionals, must be able to assist technically the supplier companies, directing multilateral or technical cooperation funding to back up direct investment.

Consequently, companies that are underprivileged due to the high barriers to the technological transfer can accede to a low-cost technology.

To make that framework operational, developing countries companies must rely on government incentives, to foster a technological transfer directed to its suppliers in developing countries.

TABLE 1

2. Actions and initiatives to foster a technological transfer process. The case of the Cadena Project.

In Peru, through an alliance between the public sector (CONAM) and a private sector association (PERU 2021), we are developing a innovative project that facilitates to brake of the barriers to implement environmental management systems, and, at the same time, raise awareness among the private sector about the advantages of ecoefficiency.

Since May 1999, the Project Cadena Productiva Sostenible (Sustainable Productive Chain Project) aims to raise efficiency levels on the environmental performance of industry in Peru through productive chains in which big and small supplier businesses implement EMS ISO 14001, following with the technology transfer scheme mentioned above.

With 14 companies participating in the process, we acceded to a attractive fee “importing” the required knowledge from a American consulting firm; consequently, each company was able to invest in training its own staff to implement the EMS.

The first step in the project was to train a group of 12 local professionals. They were in charge of monitoring the implementation in each company. This experience created a small market for environmental management consulting specialists and for ISO 14001. It settled basis for the creation of specialized consulting firms.

This first group of companies is quite close to the ISO 14001 certification process. They are aware that environmental management must be promoted to they suppliers to enhance the global environmental performance in the production of their products and services.

Two supplier of each large company will also implement EMS pursuing the same training process and without initial investment, due to the intermediation of PERU 2021 to direct an international fund coming from a multilateral institution.

This experience constitutes a first step to implement a process of transfer of clean technologies. Companies will be environmentally aware and empowered with the background provided by a EMS.

TABLE 2

TABLE 3

TABLE 4

CONCLUSION

The analysis made on this document tries to show one of the possible ways to effective actions for the enhancing implementation of Article 4.5 of the Convention for Climate Change.

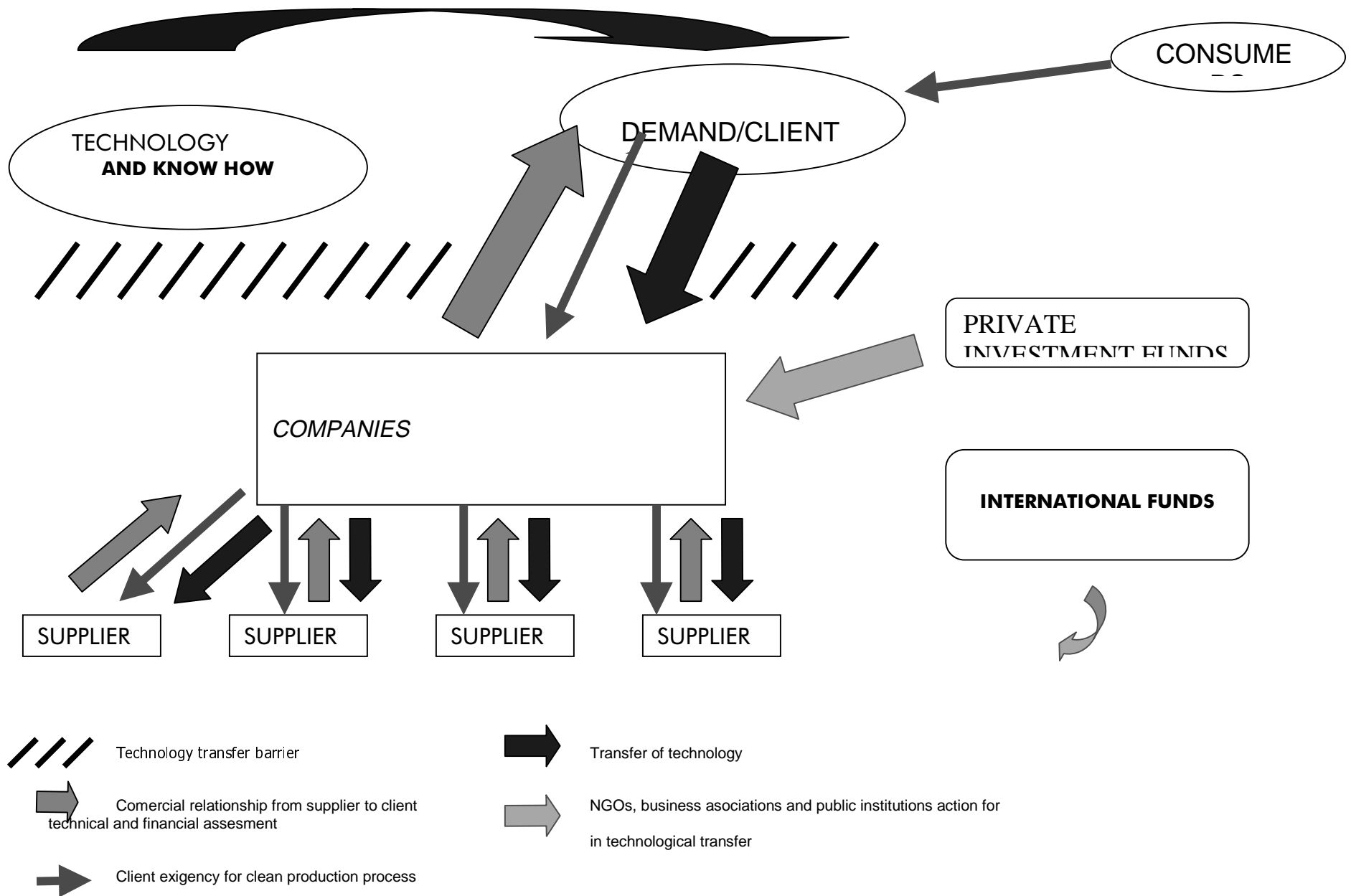
Both private sector from developed and developing countries are involved with actions totally framed within the market system. Governments have to implement mechanisms to incentive companies in different ways.

In the case of companies from developed countries, Governments may give tax facilities to those companies which invests or promotes training and clean technologies implementation within their suppliers in developing countries.

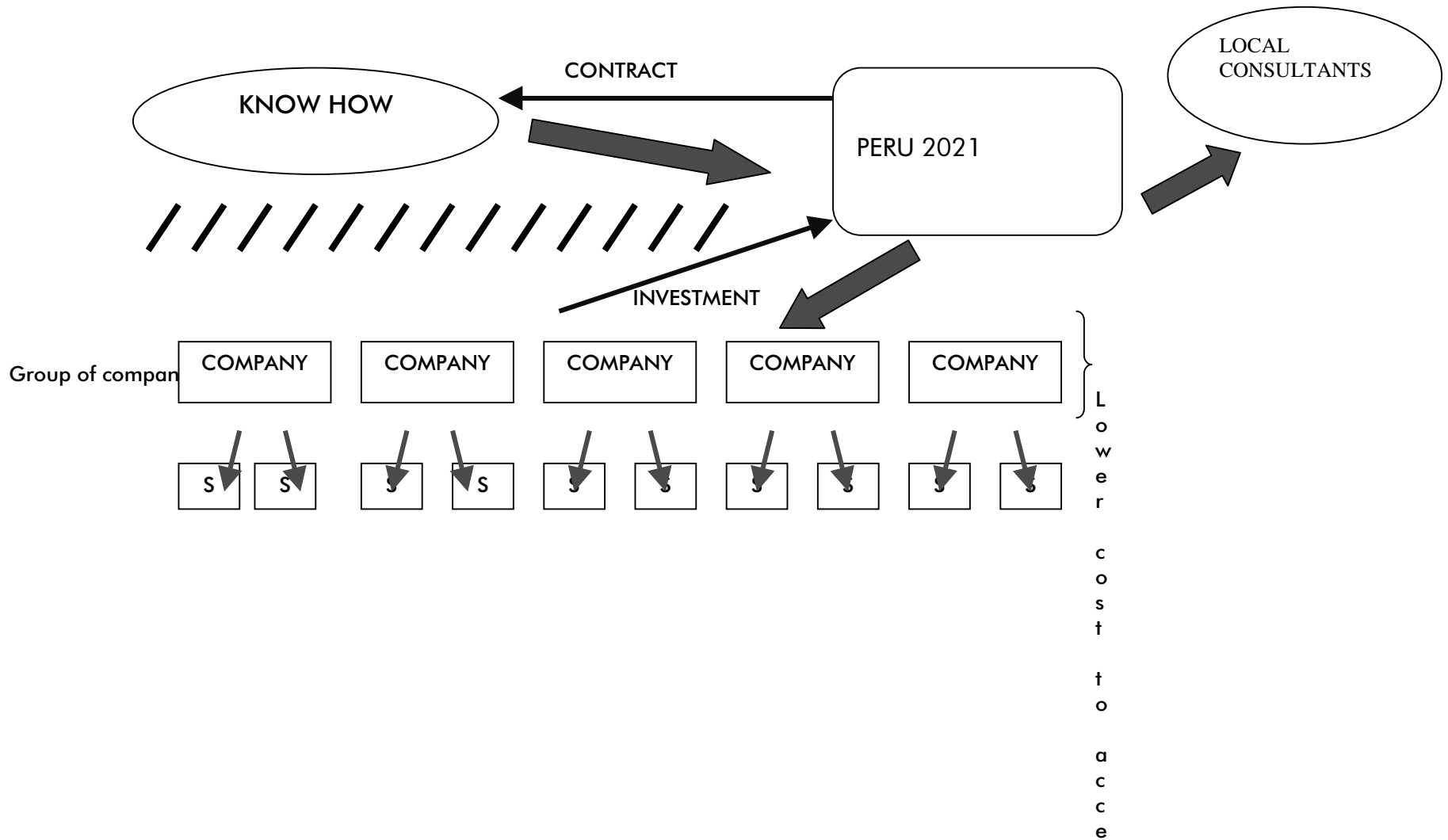
In the other case, developing countries governments should take measures to strengthen companies capacities encouraging them -with subsidies or tax facilities- to receive training and to implement clean technologies within their productive processes.

NGOs, business associations and private consulting firms can play the role of canalizing training, technologies and complementary financing. These institutions need to receive a very solid training in all the theoretic and practical issues of Climate Change mitigation goals. So far, they could be platforms for an intern know how and technology transfer from big companies to their suppliers.

Government and international agencies should be aware of the proposed framework in order to enhance it and to contribute with its implementation.

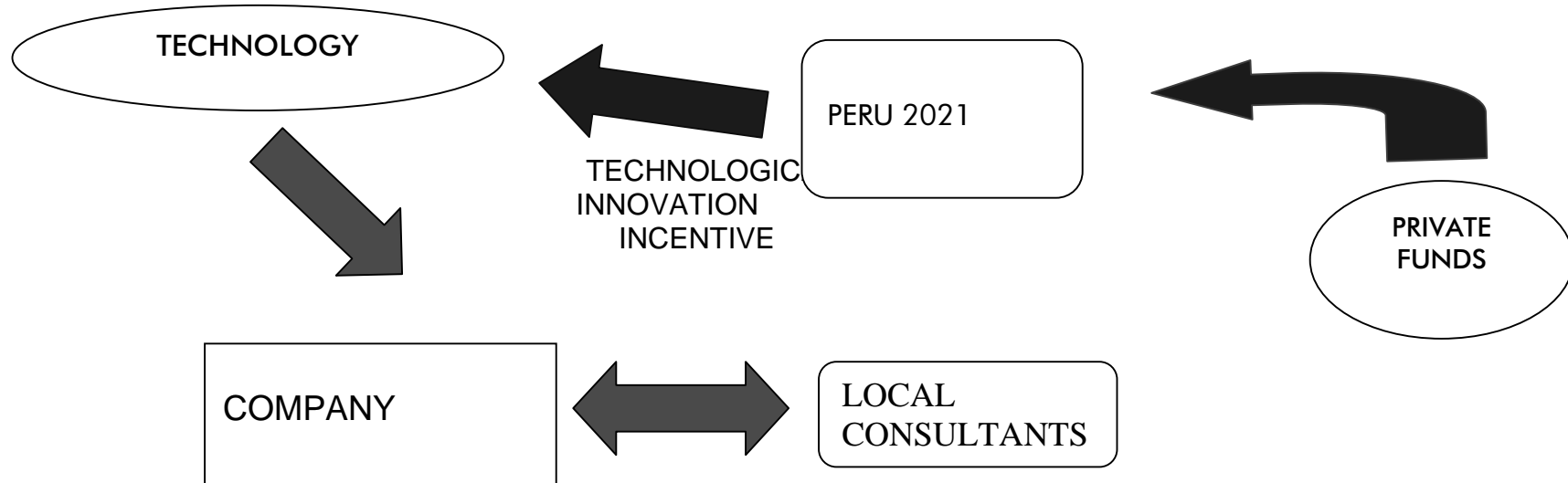


CADENA PRODUCTIVA SOSTENIBLE PERU 2021



s
t
o
k
n
o
w
h
o
w
f
o
r
e
a
c
h
c
o
m
p
a
n
y

TRANSFER OF CLEAN TECHNOLOGIES – 1st Phase



TRANSFER OF CLEAN TECHNOLOGIES – 2nd Phase

