ENVIRONMENTAL EDUCATION BASED ON THE ANALYSIS OF THE SOCIAL RECOVERY MECHANISMS IMPLEMENTED POST-COVID

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ABSTRACT

Background and Objective: The followed objective of this paper is to analyze the obstacles that the Talara’s Refinery Modernization faced and the taken actions for pos Covid recuperation on as its inner population as in the surrounding society seen from a theoretical approach.

Method: The approach is qualitative since it responds to a documentary study.

Results: The results obtained in the research allude to the fact that the social recovery mechanisms implemented in the PMRT, they favor the surrounding communities and their contractors in a way that generated a better social coexistence, favoring a sustainable environmental education.

Conclusion: The environmental education can provide analysis, awareness and understanding to achieve a mature society that combines the personal change that is needed today with political and community commitment. It is clear that Petroperu with the actions carried out promoted the strengthening of social ties for the benefit of the surrounding communities, however, the pandemic still continues and transforms itself, so environmental education becomes relevant as the crisis lessens, talking about health education programs will make it possible to save the welfare of the population.

Keywords: COVID -19, Environmental Education, Social Recovery, Sustainability.

EDUCACIÓN AMBIENTAL A PARTIR DEL ANALÁISIS DE LOS MECANISMOS DE RECUPERACIÓN SOCIAL IMPLEMENTADOS POS COVID

RESUMEN

Contexto y Objetivo: El objetivo que persigue el presente trabajo es analizar los retos que se enfrentó el Proyecto de Modernización de la Refinería Talara y las acciones que se llevaron a cabo para la recuperación pos COVID ejecutadas en su población interna como poblaciones aledañas desde el abordaje teórico.

Método: El enfoque es cualitativo dado que responde a un Estudio documental.

Resultados: Los resultados obtenidos en la investigación aluden a que los mecanismos de recuperación social implementados en el caso PMRT favorecen a las comunidades aledañas y sus contratistas de manera que se generó una mejor convivencia social, favoreciendo una educación ambiental sostenible.

Conclusión: La educación ambiental puede aportar análisis, conciencia y comprensión para alcanzar una sociedad madura que combine el cambio personal que hoy se necesita con el compromiso político y comunitario. Es claro que Petroperú con las acciones realizadas fomentó el fortalecimiento de lazos sociales en beneficio de las

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1 INTRODUCTION

Petróleos del Perú S.A. is a Peruvian state company and private law dedicated to the transportation, refining, distribution and marketing of petroleum products, which has belonged to the Peruvian State since 1969. Currently it is in construction activities of the Talara Refinery Modernization Project (PMRT) which, implies a technological development that will transform the current production scheme of the Talara Refinery and Petroperú in general, through the incorporation of new refining processes and auxiliary services.

There is no doubt that a project of such magnitude is the subject of study in the current context that is the COVID-19 pandemic, and its consequent impacts on the population. Therefore, the objective of this paper is to analyze the challenges faced by the PMRT and the actions that were carried out for post-covid recovery performed both in its internal population and surrounding populations from the theoretical approach; for this purpose, the inquiry is presented as follows:

First, the methodological aspects of the project are considered, which are located in the line of environment in the epistemological field of sustainability; the methodological approach involves the collection of information through various perspectives and theoretical analysis, on the categories established in the study social sustainability and the methodological design integrates a qualitative documentary study under the guidance of the model proposed by Hoyos (2000).

Subsequently, the Talara case involving the PMRT is described considering itself as a mega engineering and construction project consisting in the installation of new process units, industrial services and facilities in the refinery, as well as its expansion and modernization with advanced technology.

In addition, it is described how the energy sector and mainly the oil sector has resented the impact of COVID, this pandemic has contributed to the decrease in fuel consumption by the immobility and closure of borders of the air and land means, coupled with the fact of the crisis on the situation of overproduction. This has led the sector to confront two major challenges in parallel, lower demand for its product and the health issue on its workers, collaborators and surrounding populations. In this case, Estudio Petroperú was forced to take mechanisms to face this contingency.

In this regard, the social recovery mechanisms implemented are actions and resources aimed at supporting both contractors and surrounding populations to face the global crisis. In this COVID-19 pandemic, the PMRT implemented a Plan for Monitoring, Prevention and Control for Contractor Companies and the Social Management System, in order to establish actions to mitigate contagion in vulnerable communities.

Finally, the results obtained in the research allude that the mechanisms of social recovery implemented in the PMRT case favor the surrounding communities and their contractors so that a better social coexistence was generated, favoring a sustainable environmental education.
2 FRAMEWORK

Referring to the environment nowadays implies the actions that humanity must take for its defense and conservation, in this respect, all economic, political and social actors in countries have adopted strategies around it contributing to technological and scientific developments, in this context, the truth is that education plays a fundamental pillar in creating awareness of environmental problems with impact on the behaviors of the various economic agents.

The Intergovernmental Conference on Environmental Education organized by UNESCO in cooperation with the United Nations Environment Program (UNEP) and held in Tbilisi City notes

Environmental education should be provided to people of all ages, at all levels and within the framework of formal and non-formal education. The media have a great responsibility to put their enormous resources at the service of this educational mission. Environmental specialists, as well as those whose actions and decisions can have a noticeable impact on the environment, need to receive the necessary knowledge and skills during their training and to fully understand their responsibilities in this regard. (UNESCO-PNUNA, 1978)

Environmental education, therefore, is an issue that must be considered permanently in educational institutions as well as in public and private organizations of the economic system, who must react to global changes with the intention of preserving life in environments of ethical performance.

In this sense, environmental education should emanate from community actions for the benefit of the community itself involving government participation in the context of specific needs as a first instance so that the promotion and sense of environmental responsibility, in a general sense, environmental education in the various nations contributes to take concrete actions of renewal of environmental behavior.

Considering a global approach to participation, it is inherent to consider the interdisciplinary basis of environmental education “requires the dialog of knowledge and the set of different knowledge from different areas of knowledge” (Romero, 2022, p.5) to the extent that the frames of reference of knowledge can be expanded.

One of the social agents with the greatest impact on the environment is the companies, both lucrative and non-lucrative, which can raise the standard of living in the environments where they operate. In this sense, corporate social responsibility becomes relevant in terms of sustainability “Corporate Social Responsibility (CSR) is a form of participation and contribution to social and other activities within and outside the company with the aim of reducing social inequalities in the environment, developing the environment, prospering people's lives, as well as improving and building the economy to make it sustainable”. (Hermawan et.al, 2023, p.3)

A case study is the Talara Refinery Modernization Project (PMRT) which is, according to Petroperú (2021) “a mega engineering and construction project consisting of the installation of new process units, industrial services and facilities in that refinery, as well as its expansion and modernization with advanced technology” (p.1). It also indicates that this will: drastically reduce the amount of sulfur in fuels, from 1,800 to 50 parts per million, which will help improve air quality and human health, boost the profitability of PETROPERÚ S.A. by processing heavier and cheaper crudes, expand refining capacity from 65,000 to 95,000 barrels per day, improve the octane rating of naphtha and decrease the production of waste.

The PMRT is carried out “in the Pariahs district, Talara province, Piura department, 1,185 km north of Lima. The industrial area covered by the Talara Refinery is 132.32 hectares, with limits, to the south with the Punta Arenas Condominium, to the west and north with the Pacific Ocean and the Talara Bay and to the east, the Av. “G” of Talara City.” (Walsh, Peru, 2009, pp.1-4).
The scope of the project according to the description of the project of the cobra group (2019) comprises:

- **Auxiliary Units:**
  - Hydrogen and nitrogen production plants.
  - Sulfuric acid production and storage plant.
  - Water collection, desalination and treatment plant.
  - Water distribution and treatment systems and evacuation.
  - Cogeneration plant.
- **Complementary Works:**
  - Caustic turbo treatment unit A1.
  - Spent soda treatment plant.
  - Construction and fitting of tanks.
  - Asphalt Dispatch System.
  - Supply of catalysts, chemicals and lubricants.
  - Implementation of the new laboratory
  - Training simulator (OTS).
  - Vibration monitoring system (System One).
  - Fire protection systems and fire-fighting works.
  - Modernization of the electrical system.
  - Integration of telecommunications systems.
  - Spring dredging.
  - Construction of logistics buildings, maintenance, technical areas, fire station and training.

The scope of the project also includes: Conversion Units, Physical Separation Units, Sulfur Reduction Units, Auxiliary Units, Storage and Dispatch, Quality Improvement and Complementary Work. Once completed, the Talara Refinery will become one of the most modern in Latin America, and in turn will become one of the main agents of development in the region.

Moreover, the COVID impacts on the energy sector (oil and gas) are revealed by the International Energy Agency (IEA) stating that this pandemic has created an unprecedented health and economic crisis, and that the energy sector, key in modern life, is particularly affected, as it is critical for future recovery efforts. Dyna, 2020

The IEA has opened what they called the COVID-19 Central Hub that aims to “explore the impacts of the pandemic on global energy markets, energy resilience and climate change.”

In this sector, there was a record of hydrocarbon alarms from extraction, shipping, refining, distribution, etc. According to Central Hub on April 1, it publishes an article about the shock it is experiencing that “will be felt throughout supply chains and spread to other parts of the energy sector.”

A rapid decrease in global demand for oil is occurring, as the pandemic increases, fuel consumption in the transport sector has been drastically reduced, especially in the air sector, affecting countless airlines, as well as oil and downstream producers a large number of different branches of the economy that as a ripple effect enter into crisis.

The transport sector accounts for about 70% of total global oil consumption. Under the guidelines of confinement by law, social distancing, and reduced mobility, transportation - both land and air - was largely immobilized by border closures. This cessation occurred suddenly once the travel ban and confinement orders had an immediate and somewhat synchronized effect in different global areas. By contrast, the supply of oil has not fallen by the same amount. Oil production is down by only 2.5%, in OECD countries, and by 5% in the United States, while the Organization of Petroleum Exporting Countries (OPEC) has reduced its production by only 2%. (Lennin, et.al.,2020)
It is worth mentioning that before the crisis there was a situation of overproduction and since 2016 OPEC countries plus others, particularly Russia (OPEC+), had agreed on production reductions to boost the rise in the price of oil. All of this is taking place against the background of a global geopolitical backdrop of renewed rivalry between the great powers and, where this is concerned, between Washington and Moscow.

Therefore, between the COVID crisis and the production constraints on the part of OPEC producers** and Russia, the need for crude oil has collapsed, thus overcoming the adjustment capacity of the oil industry.

The Energy Sector challenges two main challenges: managing the health emergency problems that all sectors face (analysis subject of this study) and, simultaneously, dealing with a scenario unseen, with low production, lower demand, as well as the need to protect revenues and manage debt obligations.

Traditional contingency plans were only considered operational after events such as natural disasters, cyber incidents and power outages, among others. However, it now faces extensive quarantines, general school closures, shopping malls, and local and international travel restrictions stemming from the COVID-19 health emergency.

The direct influence area (DIA) is determined by the area where direct impacts and/or direct changes in environmental and social components will be generated. The indirect influence area (IIA) will be defined by the areas surrounding the Project.

Petroperu is clear about the importance of the human resource that applies means and resources that promote the safety and health of its personnel on a daily basis within its facilities and outside them (See Community Action). In this pandemic of COVID-19, it implemented in the PMRT a Plan for the surveillance, prevention and control of COVID-19. This Plan is applied in all the activities carried out by the PMRT and will be mandatory for PETROPERÚ and the contracting companies and subcontractors that carry out work in the Talara Refinery keeping this Plan in force during the period of national health emergency or until the health authorities request it. Petroperú (2020).

As mentioned above, the Plan applies to its direct employees as well as to its contractors and subcontractors, in this sense, the construction of PMRT is basically carried out by two companies that are international, on the one hand, the contractor “Tecnicas Reunidas Talara” (TRT) who builds the Process Units and the contractor “Cobra” who builds the Auxiliary Units.

In addition, there are other local contractors who carry out complementary work such as the construction of the 6.6 KV power transmission line by the Transmantaro Consortium (CTM), the construction of alternative services of the Talara Refinery by Demen S.A, among others.

3 METHODOLOGY

Epistemological field: The research work is located in the line of environment in the epistemological field of sustainability, which seen from an epistemological perspective according to Jiliberto (2003) the epistemology of sustainability is subordinated by two opposites that form a single system, on the one hand representative epistemology and on the other the transitive epistemology of sustainability.

In the representative epistemology converge given aspects of reality, economic, social and environmental, but from this perspective comes to the other epistemological end because of its fruitlessness, since sustainability cannot be represented since, if there is no interpretation between the economic, environmental, social aspects, etc, sustainability is not explained.

The most relevant epistemological results of the attempt to define sustainability as an objective entity derived from summing analytical perspectives are complexity and uncertainty (Funtowicz and Ravetz 1994 citator by Jiliberto 2003), of these two concepts constitute the foundation of the transitive epistemology of sustainability. The complexity of uncertainty,
together allow us to conclude that sustainable development is not decidable and that therefore the problem of what to do cannot depend so much on the description of the object on which we want to act, but on how we decided to do (De Marchi and Ravetz 2001, O’Neill and Spash 2001 cited by Jiliberto 2003). Thus, research in environmental education is to delve into the epistemological field of sustainability.

**Focus:** The focus of this work involves the collection of information through various perspectives and theoretical analysis, concepts, definitions and contributions on the categories established in the study social sustainability, in this way mechanisms and actions of social recovery due to impacts derived from the pandemic are defined in the PMRT project.

**Design:** A qualitative documentary study was conducted under the guidance of the model proposed by Hoyos (2000) whose purpose is to achieve critical knowledge about a phenomenon, that is, it is not considered as a conclusive result that answers certain questions given that it directs current research and originates new fields of research.

It is carried out through the investigation of documentary sources through the identification, selection and organization of these to deepen the subject in question. Characterized by its methodological rigor that guides the path in the research process, which involved reviewing the background of the PMTR project and carrying out inferences and relationships.

The documentary analysis allows an approach of collection, selection, organization and review of data with databases, articles, to determine categories of analysis supported in the phases of the process of documentary research. The stages are: delimitation of the subject, search and selection of primary and secondary sources of information, preparation of summary sheets, definition of categories and subcategories, reading of articles and drafting of the final work.

For this purpose, the approaches of Hoyos (2010) are contemplated, who infers the phases that are carried out in a documentary research, indicating the phases: preparatory, descriptive and interpretative.

**Preparatory phase:** Two criteria were proposed to limit the selection of the material to be studied in the research, the first one aimed at extracting the information in scientific and technological periodicals with topics focused on social recovery actions and the second criterion delimited by time of publication of articles limited by the duration of the pandemic.

It is important to mention that the documentary review was developed in a first stage with scope in cases of COVID in the PMRT and later to specify the measures and actions of social recovery.

**Descriptive phase:** The definition of the units of analysis began a study with a group of descriptors concerning sustainability and TMWP. Therefore, the literature was reviewed considering the words in the title, abstract, keywords of the articles available in line with the technique of grouping by codes, from criteria that establish the categorical analysis: frequency and intensity, which leads to the typification by categories and subcategories.

**Interpretative phase:** The exhaustive review of the consulted documentary sources contained in the material under study is carried out, to subsequently make a selection and evaluation of the information that will support the results of the research. The classification of the data was based on the procedure that showed the documentary review of 30 sources of information with the content analysis technique.

**Data analysis:** After carrying out the review of the collected documents, the main arguments are the categories of analysis: social recovery mechanisms implemented after COVID in community support and protection of PMTR contractors.
4 DISCUSSION

The analysis of social recovery mechanisms implemented after covid involves four action plans: the Covid-19 Monitoring, Prevention and Control Plan, social programs, projects and activities, the Community Support Plan Talara and the Social Management Plan.

4.1 Covid-19 surveillance, prevention and control plan

The implementation of the COVID-19 surveillance, prevention and control plan to mitigate the spread of COVID included three main areas as follows:

The first includes measures for the prevention, control and spread of COVID-19 with the following actions being applied in a general manner:

- Disclosure of proper use of mouth covers and hand hygiene, as well as safety distancing in all work areas.
- Implement hand-washing stations or alcohol gel dispensers, as well as shoe decontamination zone at the entrance of work and rest areas.
- Frequent monitoring of health conditions of contractors. The body temperature of each worker is monitored at the beginning and end of the day and for workers whose jobs are at high risk of exposure, in which case the temperature is taken at least three times a day, at the beginning, at the middle of the day and at the end of the day.
- Physical identification of suspected cases and application of serologic tests to rule out possible COVID cases.
- Application of cleaning protocols and disinfection of work areas and tools frequently used.
- Maintain well-ventilated workplaces, through cyclical air volume renewal.
- Promote work meetings through computer tools to be virtual and avoid crowds.
- Installation of physical barriers or protective screens in customer service areas in addition to the use of masks.
- Communicate and promote the proper management of biocontaminated waste (mouth covers, gloves, masks), contaminated paper or any disposable waste, and these are collected in containers other than common waste.
- Promote contactless greeting and maintain safety distancing of at least 1.5 m, in offices, personnel carriers and common areas.

The second involves the measures for the staff of risk group that, according to the ministerial decree RM N° 128-2020-MINEM, is defined as a risk group to the "Group of people who have individual characteristics associated with increased risk of complications by COVID-19 people over sixty-five (65) years and who have comorbidities such as: hypertension, diabetes, cardiovascular disease, chronic lung disease, cancer or other immunosuppressive states (Ministry of Energy and Mines). RM No. 128-2020- MINEM, p. 7)

It is important to mention that each contractor will send Petroperú the list of personnel to carry out the work within the Talara Refinery., which cannot include risk personnel.

This section sets out the provisions to be followed for these risk groups:

- Applying remote work to personnel where their tasks so permit and in the event that contractor personnel wish to work or provide services, they must provide a voluntary affidavit of assumption of responsibility, in accordance with the provisions issued by the authorities.
- The return or reinstatement of this risk group to work in the PMRT will be carried out in accordance with the indications established by the authority and those approved by Ministerial Resolution No. 239-2020/MINSA, and according to the report.
of the health professional of the occupational safety and health service of the company, after patient evaluation.

In the third area, it focuses on specific provisions and community action with basic measures such as the amount of seating, security distancing, and basic cleaning equipment, as well as disinfection implements that must be maintained in order to avoid contagion.

With the implementation of these measures indicated in the plan described above, it was possible to mitigate the spread of Covid by allowing work to continue inside the facilities, moreover, the actions carried out with the surrounding communities also allowed control and support to the population in a timely manner with various support mechanisms.

Petroperú maintains a high commitment to conduct its operations responsibly with society. To this end, it manages its activities in line with the Social Management Policy, updated in September 2018, which stipulates the establishment of solid, constructive and mutually respectful relations with our stakeholders. (Petroperú, 2018, p.76)

In addition, other documents that dictate action in this area are the procedures for social risk analysis, identification and mapping of interest groups, attention to complaints and social claims, and the donation guidelines, which form the basis for timely management of the impacts of its operations.

Petroperú has a Social Management System, in which they evaluate their stakeholders, as well as the risks and social impacts of their activities, in order to establish mitigation actions. It is clear that, as a company at the service of the people of Peru, they consider it important to develop bonds of trust in coexistence with native communities located in areas adjacent to their operations through the recognition of the cultural and historical value of the men and women who are part of them respecting their practices.

In this sense, PETROPERÚ has a structured process of attention of contingencies, which contemplates the attention of the possible impacts and violations in the native communities, for which a series of social actions are deployed that allow mitigating them, considering the prompt cleaning of the affected areas, dissemination of the situation to the population, delivery of food and water, and medical care. It is important to emphasize that communities can access the Complaints and Grievances Mechanism, which is guided by an approach to protecting the integrity of native communities in applicable operations supported by conducting human rights workshops and talks with the aim of helping to reduce problems such as human trafficking, family violence, among others.

4.2 Social programs, projects and activities

In order to build strong, constructive and mutually respectful relationships with the community, they are given the task of listening to their needs and, to the extent possible, attending to them under an approach of creating social and responsible value. The social management program includes lines of action for its projects that include multiple actions carried out in 2018, investing to ensure that all the communities with which they have been connected to have effective social and communication development programs. The actions carried out clarified in the sustainability report 2018 are:

- **Educating for tomorrow** Educational inequity in the towns surrounding the Pipeline, Iquitos, Talara and Conchán is addressed, benefiting 70,163 people.
- **Together for the environment** It seeks to generate environmental awareness in children and adolescents to think about the planet, as well as to make transparent the environmental practices of the company, 16,680 beneficiaries.
- **For a better quality of life** Program to help improve the physical and mental health of surrounding populations, 21,463 beneficiaries
- **Making Way** Seeks to generate opportunities for economic development and
employment, 4,879 beneficiaries.

- **Taking care of our community** Seeks to contribute to reduce the problem of violence, 11,933 beneficiaries.
- **Knowing the industry.** They have the “Museum of Oil” so that children and young people know the oil process in a didactic and fun way.
- **We are in solidarity.** We channel our social support and donations towards activities and initiatives that seek to bring together the social ties of the communities, 27,688 beneficiaries.

### 4.3 Community support plan Talara

In line with the “Women in Action” program, they trained 200 female entrepreneurs in various trades, with the support of the National Industrial Labor Training Service (SENATI). Additionally, they provided seed capital and materials for seven companies, thus contributing to the closing of economic gaps between male and female talareñas. Likewise, they held the “II Literary Essay Contest”, in which seven educational institutions from Talara participated. Finally, they managed with the Tourism Training Center (CENFOTUR) the development of the Talara Tourism Plan.

Petroperú has been heavily involved in social actions with its environment on a regular basis, so in the COVID-19 pandemic, was not the exception, applying and implementing the following:

### 4.4 PMRT-COVID-19 Social Management Plan

In the framework of its Social Management Policy and PETROPERÚ’s commitment to the province of Talara, it materializes its commitment to join efforts and demonstrate its active and constant solidarity in the fight against COVID-19 through the following actions for the benefit of its inhabitants:

- The **Modular Talara Hospital**, which PETROPERÚ donated to ESSALUD has been operating at 100% of its operational capacity, becoming an important ally in the fight against COVID-19, since the infrastructure is fully equipped and has a modern Intensive Care Unit (ICU), with 15 beds for critical patient care, in addition to 30 hospital beds. Today, this modern establishment, since it was put into operation on December 16, 2020, 2,454 treatments have been carried out in this new establishment, 699 in December and 1,755 in January, as reported by the doctor Ricardo Zúñiga Vallejos, director of the Talara II Health Hospital; also, as of February 4, there were 27 patients hospitalized, 8 in ICU and 7 with assisted ventilation. Services offered include triage, hospitalization, and intensive care.

In this way, the contribution of the state oil company -through this hospital- has been giving peace of mind to the Talareña population. (Petroperú, 10 February 2021)

- PETROPERÚ handed over to DIRESA Loreto the administration of the **Plant that will produce medicinal oxygen**, to meet the demand of the Datem Health Network of Marañón and thus accompany the efforts of the health system to face the pandemic caused by COVID 19, in that part of the Peruvian Amazon has been installed in Saramiriza for being strategically located and will help them save the lives of their brothers in the Provinces. PETROPERÚ also donated 30 balloons of oxygen to reinforce the equipment of the health network. During the first days of the test, 16 oxygen balls of 10 m³ each were filled. The oxygen plant whose cost is S/. 1,565,827.00, will benefit the communities of the province, which has a population of 59,870 inhabitants. This population is served by the Health Network, based in the San Lorenzo Town Center and
has 47 health posts throughout the province. This modern plant meets international standards and requires optimal technical conditions for its 24-hour operation (Petroperú, 27 February 2021)

- In order to contribute to the fight against COVID-19 and to the protection of medical personnel as a front line group, PETROPERÚ delivered a significant supply of **biosecurity implements to health posts** in districts that are reducing the incidence of coronavirus cases and where a large percentage of the population in vulnerable situation is located. The delivery included 6,000 KN95 masks, 4,000 shoe protectors, 4,000 pairs of gloves plus 1,200 bottles of 70% alcohol and 200 bottles of alcohol gel between the two Ministry of Health (MINSA) establishments. The support of the state company also contemplated the delivery of food baskets for all medical and care personnel of the health post, which has fulfilled an important work in the fight against the spread of COVID-19 in South Lima (Petroperú, 24 November 2020)

- In order to help control the spread of the COVID-19 coronavirus in Talara, PETROPERÚ donated 5,000 **kits for rapid tests** to the “Carlos Vivanco Mauricio” Health Center II in Talara. These tests will help to cut the chain of transmission of the virus in the city and specified that they will be used mainly in targeted groups of local population that work in high-density scenarios such as supply center traders and personnel who are facing the front line fight against this pandemic. Through these diagnostic tools, health personnel will be able to quickly identify positive cases, which should be isolated and receive timely treatment, according to established protocols. (Petroperú, 28 May 2020)

- In order to help minimize the risks to which the population is exposed, due to COVID-19, PETROPERÚ began the delivery of 3,480 **biosecurity kits to native communities and health centers**, neighboring the North Peruvian Pipeline (ONP). It is worth mentioning that the proper washing of hands and the correct use of masks are also instructed, so that, with this work, it also contributes to strengthening the prevention measures implemented at the national level. The kits are being delivered to each family of 16 communities located in the area of influence. Each kit contains antibacterial bar soaps, surgical masks, a container of bleach and an information leaflet in Awajún language, detailing the preventive measures to take for your health care. The delivery of the kit will also benefit eleven Health Centers in Loreto. Preventing the spread, PETROPERÚ, in coordination with the Regional Health Directorate Loreto, has initiated a training on COVID-19 prevention measures, aimed at the population of the communities near the ONP, with the aim of supporting them in all actions that must be implemented to prevent the spread of the coronavirus. (Petroperú, 15 June 2020)

- In coordination with the Talara Provincial Municipality the city's **supply centers will be fumigated** to ensure their cleanliness and disinfection and to protect the health of merchants and neighbors who come to purchase staple food in this period of social isolation. In addition, it coordinates with the Talara Local Management Unit, UGEL, to do the same with the total of educational institutions of its jurisdiction (65 centers of study that include those that provide initial education without schooling) and the Higher Technological Institute Luciano Castillo Colonna, prior to the restart of classes. (Petroperú, 13 April 2020)

- PETROPERÚ reaffirmed its solidarity and commitment with the community of Talara, making the delivery of **thousand packages with non-perishable food** for vulnerable families in situations of poverty and extreme poverty in this city, which are facing a difficult situation, during the State of Emergency declared to prevent the spread of COVID-19 in the country. (Petroperú, 24 April 2020)

These donations are part of PETROPERÚ’s commitments in favor of the communities
in the area of influence of its operations, as dictated by its Social Management Policy.

5 CONCLUSIONS

Unarguably today are different times when talking about the environment, environmental education as a field of reflection contemplates as one of its main challenges, forging new replicas that allow transforming the different ways of interacting that we have with ourselves and with the environment. Therefore, at this time of health emergency, it is necessary to consider various aspects of the problem in order to define certain levels of approach, analysis and reflection to it, particularly with regard to the ways in which the social welfare of business practices around the environment is ensured, where it is essential to clarify what the role of the world energy sector guild should be in this process.

Pollutant emissions, the deterioration of non-renewable resources and the impact on climate change are only some of the consequences of energy consumption, all industries must take action in this regard, it is well known that the health crisis generated by COVID-19 has left behind environmental programs, today gives the impression that the urgency subordinates any other area and not sustainability, in contrast, it is said that the better known the origin and evolution of the pandemic, environmental causes such as deforestation, improper contacts between species, macrofarms, air pollution or hormonal disruptors, among others. The impact of COVID-19 on the energy sector particularly shows that it affected all levels and all physical and business entities in both health and economic terms, and for its recovery must be made a joint effort of resources and actions of the environment and not by sectors or as isolated events.

The pandemic calls for individual responsibility, in the environment, as Petroperú’s actions demonstrated, although it is true, environmental education aims to anticipate catastrophes and calamities, to prevent their arrival, however, today we have learned that emerging actions are also required in situations of health crises, currently it is required to enable all available channels for socio-environmental messages reach the population.

Although technology was a tool that helped solve part of the problem of the pandemic, it showed that even the human being is vulnerable to biological contingency issues to predict and solve in a short time.

Environmental education can provide analysis, awareness, and understanding to achieve a mature society that combines the personal change now needed with political and community engagement. It is clear that Petroperú with the actions carried out promoted the strengthening of social ties for the benefit of the surrounding communities, however, the pandemic still continues and is transformed so that environmental education becomes relevant as the crisis lessens, talk of health education programs will make it possible to save the well-being of the population.

REFERENCES


Petroperú (01 junio 2020) *Talara contará con hospital modular para pacientes covid-19 gracias a PETROPERÚ.* [file:///C:/Users/980014102/Documents/libro/TALARA/Talara%20contar%C3%A1%20con%20hospital%20modular%20para%20pacientes%20covid-19%20gracias%20a%20PETROPER%C3%9A.pdf](file:///C:/Users/980014102/Documents/libro/TALARA/Talara%20contar%C3%A1%20con%20hospital%20modular%20para%20pacientes%20covid-19%20gracias%20a%20PETROPER%C3%9A.pdf)


Petroperú (15 junio 2020) *PETROPERÚ entrega kits de bioseguridad a comunidades.* [file:///C:/Users/980014102/Documents/libro/TALARA/PETROPER%C3%9A%20entrega%20kits%20de%20bioseguridad%20a%20comunidades.pdf](file:///C:/Users/980014102/Documents/libro/TALARA/PETROPER%C3%9A%20entrega%20kits%20de%20bioseguridad%20a%20comunidades.pdf)

Petroperú (16 diciembre 2020) *Nuevo Hospital Modular Talara inicia operaciones con atención a pacientes COVID-19.* [file:///C:/Users/980014102/Documents/libro/TALARA/Nuevo%20Hospital%20Modular%20Talara%20inicia%20operaciones%20con%20atenci%C3%B3n%20a%20pacientes%20COVID-19.pdf](file:///C:/Users/980014102/Documents/libro/TALARA/Nuevo%20Hospital%20Modular%20Talara%20inicia%20operaciones%20con%20atenci%C3%B3n%20a%20pacientes%20COVID-19.pdf)
Petroperú (20 febrero 2021) *Planta de Oxígeno donada por PETROPERÚ llegó a Saramiriza.*


Petroperu (2021). *Estudio de Impacto Ambiental (EIA) del Proyecto Modernización Refinería Talara (PMRT)*

Petroperú (24 abril2020) *PETROPERÚ entrega mil paquetes con víveres para población vulnerable de Talara.*

Petroperú (24 Noviembre 2020) *PETROPERÚ abastece con implementos de bioseguridad puestos de salud de VES.*

Petroperú (27 febrero 2021) *Planta de Oxígeno contribuirá a lucha contra el COVID-19 en Loreto.*

Petroperú (28 Mayo2020) *Centro de salud de Talara recibe donación de 5 mil kits de pruebas rápidas de PETROPERÚ.*

Petroperú (29 Junio 2020) *PETROPERÚ ayuda a provisionar oxígeno para atención de pacientes covid-19 de comunidades nativas en Loreto.*


UNESCO-PNUMA Declaración Final de la Conferencia Intergubernamental sobre Educación
Walsh Perú S.A. (Diciembre 2009) *Estudio de impacto ambiental modernización de refinería talara.* Volumen I (EIA).