

FINAL REPORT
ENERGY

COORDINATED AUDIT ABOUT THE OVERSIGHT OF THE PUBLIC REVENUES

**FROM THE OIL AND NATURAL GAS
EXPLORATION AND PRODUCTION IN
BRAZIL, COLOMBIA, AND PERU**

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

OLACEFS

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FINAL REPORT OF THE COORDINATED AUDIT ABOUT THE OVERSIGHT OF THE PUBLIC REVENUES FROM THE OIL AND NATURAL GAS EXPLORATION AND PRODUCTION

Period of audit conduction: planning from January/2013 to May/2013, execution from June/2013 to November/2013 and report from December/2013 to May/2014.

Participating teams: Federal Court of Accounts (Brazil - coordinator), Comptroller General of the Republic of Colombia and Comptroller General of the Republic of Peru.

General purpose: Coordinated audit about the oversight of public revenues from the oil and natural gas exploration and production in the following countries: Brazil, Colombia, and Peru.

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PRESENTATION

THE COORDINATED audit on the effectiveness of control mechanisms used to ensure public revenues from oil and gas production, supported by GIZ and carried out by the Supreme Audit Institutions of Brazil, Colombia and Peru, fits into a context of international cooperation and capacity building among OLACEFS member countries.

The main outputs of this collaborative work are institutional integration, knowledge and experience sharing, methodological development and the accomplishment of coordinated audits on objects of common interest.

The publication of this executive summary in three languages – Portuguese, Spanish and English – is a key mechanism to a broad disclosure and dissemination of the audit's experiences and achievements.

The audit sought, within the chosen theme, to identify:

- a)** risks and weaknesses in the supervision process;
- b)** procedural measures to improve oversight;
- c)** mechanisms to improve the disclosure of the supervision process.

This audit represents an innovative path in OLACEFS way of acting, as it promotes the role of coordinated audits as an important tool for technical cooperation and institutional improvement.

Minister João Augusto Ribeiro Nardes
President of the Federal Court of Accounts

1

INTRODUCTION

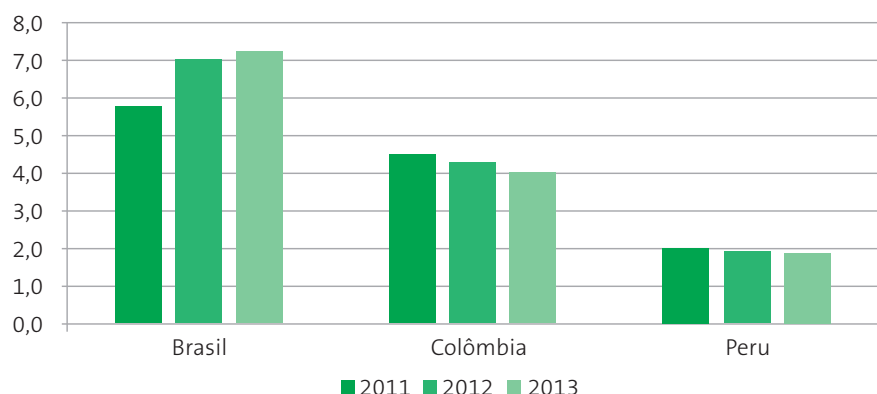
THE ORGANIZATION of Latin America and Caribbean Supreme Audit Institutions (Olacefs) has signed a partnership with GIZ, German Agency for International Cooperation, to support the achievement of the goals set in the Strategic Plan of this organization for the 2011-2015 period. Among the strategic goals, the search of the development of institutional capabilities in its own member countries can be pointed out.

In this sense, one of the initiatives proposed is the promotion and exchange of knowledge and best practices among the Supreme Audit Institutions (SAIs), in order for new experiences related to the exercise of the external control to be included in their routines, in an ongoing effort to improve their actions and performance.

This coordinated audit is part of this cooperation project between Olacefs and GIZ. The topic of the oversight of public revenues from the oil and natural gas exploration and production was defined as a priority by the Olacefs Regional Training Committee (CCC).

The hydrocarbon production is a relevant economic activity for many Latin American countries because, besides its strategic energy importance, it generates significant impacts on public revenues, mainly by collecting government takes. As a result, the appropriate oversight of these resources, by the State, is a sensible issue, mainly considering the involved amounts – only in Brazil almost US\$ 13 billion were collected in 2013.

Figure 1 – Total royalties received as a result of hydrocarbon production (in millions of US\$)*



Source: Own creation, based on data of EnerRio, ANP, Perupetro S.A. and Comptroller General of Colombia.
 *In Brazil, there is also the special take, another materially relevant remunerative type. In 2011, 2012, and 2013 US\$ 5.6; US\$ 7.0 and US\$ 6.9 were collected, respectively.

The institutional model set for the hydrocarbon exploration and production, as well as how the oversight of these activities is performed, differs a lot among countries. The Federal Court of Accounts (TCU), through the Department of Electricity and Telecommunications Privatization and Regulation Audit (SefidEnergia) and the Department of International Relations (Serint) and with the consulting assistance provided by EnerRio, carried out a study on the institutional conditions related to the control of public revenues from the oil and natural gas exploration and production activities in some of the Olacefs countries. The study was funded by the GIZ and included the following countries: Argentina, Bolivia, Brazil, Colombia, Ecuador, Mexico, Peru, and Venezuela.

Based on this institutional analysis, it was possible, therefore, to identify common challenges and potential topics of interest for the conduction of co-ordinated audits among these SAIs.

Thus, the topic selected for this audit was the question related to the integrity, reliability and transparency of the processes in oil and natural gas production measurement and in the calculation and payment of government takes as a result of this production.

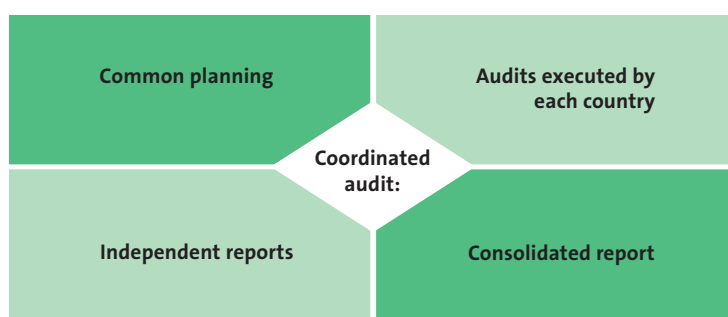
The selection was done considering that this topic is a starting and comprehensive point, capable of providing a wide analysis based on which new questions, sometimes specific for each country, become visible.

2

METHODOLOGY

EACH PARTICIPATING SAI carried out an audit in its own country, based on common guidelines. The TCU was responsible for the general planning, coordination of tasks and consolidation of the final obtained results.

Figure 2 – Coordinated audit methodology



Source: TCU.

The preparation for the implementation of this coordinated audit began in 2012, through a 60-hour long distance training on performance audit. This course was promoted by the TCU and it dealt with the technical training of the SAI auditors, members of the Olacefs that would potentially participate in the project.

In addition to this, prior to the coordinated audit planning stage itself, a study was carried out, by hiring a specialized consulting company – EnerRio – to analyze the different institutional models related to the oil and natural gas exploration and production, including their oversight, the financial compensation regimes, and the regulatory framework in selected Latin America countries. The study was funded by the GIZ, within the cooperation project with Olacefs, based on the reference term designed by the TCU.

The first part of the study was conducted through queries to public information, mainly available on the Internet, regarding eight hydrocarbon producers in the region, namely, Argentina, Bolivia, Brazil, Colombia, Ecuador, Mexico, Peru, and Venezuela. In the second part of the job, interviews with

governmental entity managers, included in the hydrocarbon exploration and production oversight and regulation activities, were carried out, as well as with representatives from the respective SAIs.

The purpose of this study was to gather relevant information in order to identify common challenges and topics of interest to perform the coordinated audits among SAIs members of the Olacefs. As a result of this work, relevant topics were defined, among which the topic related to the integrity, reliability and transparency of the processes in the production measurement and in the calculation and payment of government takes, which was considered a priority for the EnerRio, was suggested as a topic for the conduction of this first coordinated audit.

The validation of the topic selection was made in a meeting, via video-conference, among SAI teams involved at that time, namely, Argentina, Brazil, Colombia, and Peru. Based on that selection, the coordinated audit planning phase was effectively started. The TCU created, then, a preliminary planning matrix, which defined the problem, the general purpose and the audit questions that should guide the conduction of the work that would be individually performed by each SAI.

Such planning matrix was discussed and validated by the aforementioned SAIs during the technical training seminar performed in Brasilia, from May 20 to May 24, 2013, during which a schedule of the following coordinated audit stages was also agreed upon.

After the seminar, only the SAIs from Brazil, Colombia, and Peru began their audits.

During the planning and execution stages, between June and September, 2013, the coordinated audit teams held meetings, via videoconference, in order to facilitate the work follow-up and allow for the clarification of possible doubts.

In addition, in October, a meeting between the participating teams was performed in the city of Rio de Janeiro, Brazil. On the first day, a technical visit to an oil and natural gas facility was organized under the TCU coordination. The purpose was to follow up in situ the oversight actions of the ANP of the measurement systems used in the registration and counting of the hydrocarbon volumes produced by the unit. The visited facility was a floating production storage offloading (FPSO) in the City of Angra dos Reis, located in Santos Basin, Lula field, and chartered to Petróleo Brasileiro S.A. (Petrobras).

The second day was dedicated to the discussion about the progress of each audit. On 10/3/2013, the TCU coordinated a reference panel to present its findings matrix to the National Agency for Petroleum, Natural Gas and Biofuels (ANP), in order to discuss the preliminary results of its audit and validate the findings. The Comptroller teams in Colombia and Peru partici-

pated in the panel as listeners, as part of the knowledge exchange on the best practices for the conduction of performance audits.

Figure 3 – Technical visit to the FPSO City of Angra dos Reis, on 10/1/2013.



Source: Petrobras.

By the end of the coordinated audit execution, a technical meeting was held from December 2 to 4, 2013, in Bogotá, Colombia, during which the main obtained results were presented and discussed, including the different found situations, the challenges and the opportunities for improvement.

Likewise, the TCU also presented to the rest of the teams the guidelines for the creation of the reports that should be submitted by the SAIs for the consolidation of the results, under the coordinating SAI responsibility.

3

PURPOSE AND SCOPE OF THE COORDINATED AUDIT

The purpose of this coordinated audit is to evaluate the regulatory, institutional and operational conditions of the governmental agencies and entities in charge of the control of the oil and natural gas production measurement and of the calculation and payment of the government takes from this production, identifying eventual bottlenecks and opportunities for improvement, as well as the good practices for management optimization.

Based on this general purpose, three analysis focus were defined: (1) to what extent the control of oil and natural gas production measurement performed by the regulatory entity has the required principles to reasonably ensure reliability and integrity of the produced volumes; (2) to what extent the control of the calculation and payment of the government takes from the oil and natural gas exploration and production performed by the regulatory entity has the required principles to reasonably ensure reliability, integrity and timing of the values; and (3) to what extent the data and the information related to the oil and natural gas production measurement and the calculation and payment of the due government takes are officially made available, in a transparent, accessible and friendly manner, in order to allow for its replicability by a third party, outside the process.

Figure 4 – Coordinated audit scope

Production measurement	Does the production measurement control have the required principles to reasonably ensure reliability and integrity of the produced volumes?
Calculation and payment of the government takes	Does the control of the government takes from the oil and gas exploration and production have the required principles to reasonably ensure reliability, integrity and timing of the owed values?
Transparency	Are the data and information on the production measurement and the calculation and payment of government takes officially made available in a transparent, accessible and friendly manner in order to allow their replicability by an interested third party?

Source: Own creation.

Thus, based on those guidelines stated by the audit questions, each participating SAI (Brazil, Colombia, and Peru) defined its scope in line with its own institutional reality.

In Brazil, the audit included the National Agency for Petroleum, Natural Gas and Biofuels (ANP), which is the governmental entity responsible for promoting the regulation, hiring and oversight of the economic activities of the oil, natural gas and biofuel industry in the Country, being also its responsibility, among other attributions, to sign concession contracts for hydrocarbon exploration and production and oversee their execution.

In Colombia, the main governmental entities responsible for overseeing the activities and the public revenues related to hydrocarbon production are the Ministry of Mines and Energy (MinMinas) and the National Hydrocarbons Agency (ANH). Besides these entities, the following ones were analyzed: Secretariat of Finance and Public Credit, National Planning Department, Ecopetrol S.A. and other companies.

In Peru, the scope of the audit included the activities performed by Perupetro S.A., governmental company responsible for the promotion, negotiation, hiring and oversight of the oil and natural gas contractual adjustments.

4

CRITERIA

Alongside with the regulatory framework of each country involved in this coordinated audit, which defines and regulates aspects related to the contract model for the execution of hydrocarbon exploration and production in their respective territories, and sets the due government takes, the criteria taken as reference for the performance of this work are related, above all, to the best control practices identified during the preliminary study performed by EnerRio.

In the matter of the hydrocarbon production measurement, it was considered that the control process should have the required principles to reasonably ensure the integrity and accuracy of the accounted volumes, mainly by means of:

- a)** the registration of the volumes produced based on meters that meet the minimum technical requirements, without the risk of manipulation by third parties, so that this registration can be reliable and be checked by the audit institutions;
- b)** the verification of the measurement system compliance used by the production companies against the defined technical standards;
- c)** a verification routine of non-compliance related to the registered volumes;
- d)** the scopes of the oversight actions, sufficient to create a reasonable control expectation in the audited agents;
- e)** the timing of the control conduction; and
- f)** the treatment of non-compliances, including corrective and penalty measures.

In the matter of the calculation and payment of the government takes, it was assumed that the control process should have the required principles to reasonably ensure the integrity of the involved values, considering, particularly:

- a)** the possibility of checking the calculated values based on the data related to the produced hydrocarbon volumes, preferably in an automatic manner;

- b)** the possibility to timely check the payments performed by the operators;
- c)** the verification routine of non-compliances related to the calculation and payment of the government takes;
- d)** the scope of the oversight actions, sufficient to create a reasonable control expectation in the processes and audited agents;
- e)** the timing of the control conduction; and
- f)** the treatment of non-compliances, including corrective and penalty measures.

As for the transparency in the official publication of the data related to the production measurement and the government takes, the need of public access to the following information was considered a criteria:

- a)** hydrocarbons volumes produced in a given period of time;
- b)** government takes amount, with the respective formulas and calculation logs;
- c)** other variables required for the replicability of the values for the produced volumes and, above all, the total amount of the government takes;
- d)** dateness and timing of the available information; and
- e)** eventual explanatory notes and supplementary information.

5

THE OVERSIGHT OF THE PUBLIC REVENUES FROM THE OIL AND NATURAL GAS EXPLORATION AND PRODUCTION ACTIVITIES

Based on the information collected by the preliminary study, it can be confirmed that the oversight of the public revenues from the hydrocarbons exploration and production involves the control over a set of activities related to two basic processes: the production measurement and the calculation and the payment of the government takes.

Such are the processes that are related and complete the State tax collection cycle, since the measurement of the produced volume is the base to calculate the government takes, primary source of the public revenues.

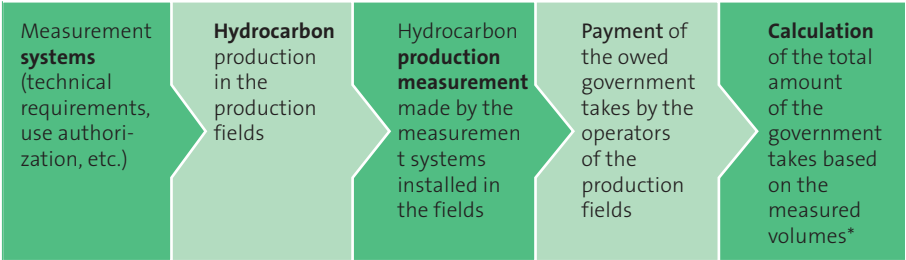
In general, the production measurement is directly processed in the fields and production platforms, where measuring devices are installed to count the quantity of the extracted hydrocarbons. This measurement can be performed in several ways such as, measurement in tanks (static) or in line, or even, through the collection of data on volume, mass or density. The option to use different measurement systems is subject to the laws of each country and is based on the practices accepted and consecrated by the oil and natural gas industry.

The next stage of the process is to calculate the total amount of the government takes owed by the hydrocarbon production companies. Each country has a differentiated tax regime, which defines the types of applicable governmental participations, as well as its calculation method.

As for how such calculation is processed, it can be made directly by the production companies, based on the data extracted by the meters installed in the fields, being the State responsible only to check and ratify the amounts and the payments, refining potential differences. Brazil and Colombia are examples of this. There are cases, for example in Peru, where the oversight entity itself performs this calculation, reporting the value to the operator so it can proceed with the payment.

Figure 5 below represents a summary of the interrelation between the processes in measurement production and in the calculation and payment of government takes.

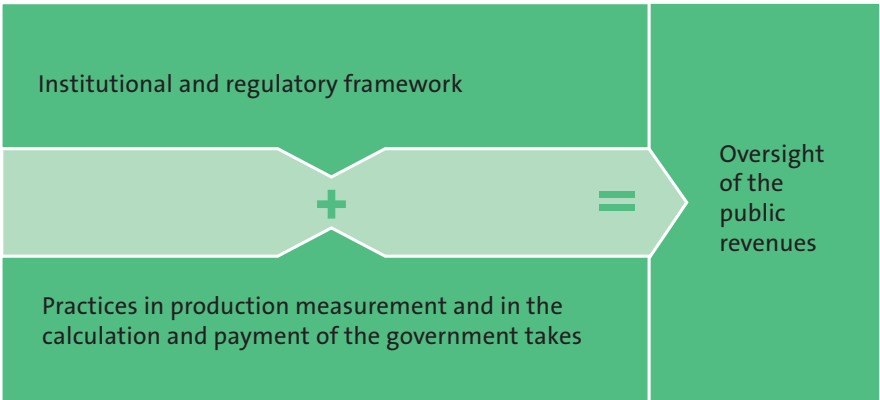
Figure 5 – Processes of production measurement and calculation and payment of government takes



Source: Own creation.
*The calculations may be performed by the operators, for later checking and ratification by the regulatory agency/ institution or directly by this entity, which will inform the owed amount to the operator.

The oversight of the public revenues from the oil and natural gas exploration and production depends, on one side, on the institutional and regulatory framework of each country and, on the other, on the practices adopted for the processes in production measurement and in the calculation and payment of the government takes.

Figure 6 – The oversight of the public revenues from the hydrocarbon production



Source: Own creation.

The institutional framework defines the applicable tax regime for the hydrocarbon exploration and production activities, which include the types and the percentage, related to the government, which may include, for example, the application of a single rate or rate groups on the production gross or net value. Depending on the characteristics, the tax regimes may facilitate or turn the state actions more complex.

One of the issues that may pose a challenge for oversight is stating a reference price for the calculation of the oil and natural gas production value, on which the royalty rates are applied, for example¹. The reference price is defined based on international standards, varying as per the type of oil, but it can be also influenced by sales prices in the market. Thus, it is important to keep control over the veracity of the data regarding the production company sales. In the case of natural gas, this question is even more complex, since the export prices present a wide variation, even at a regional level.

Another question that may also turn state actions more complex are government whose calculation considers production costs. In this case, the rates are applied on the net production value, instead of the gross value, thus allowing producers to discount certain costs from the calculation base, such as investments and operational costs, in order to calculate the total amount to be paid. An example may be the special take in Brazil, and the calculation of the R factor, used for the definition of the applicable percentage of royalties in Peru. Since there is a chance to deduct certain expenses from the calculation base, it is supposed that the State should oversee such deductions. However, the problem, in that case, is the large asymmetry of the information between the production companies and the governmental entities.

The regulatory institutional framework of each country also determines the competences of the governmental entities in charge of the oversight activity and their respective power and level of independence in relation to the audited agents. In this sense, based on the preliminary study, a relevant characteristic is the existence of specific governmental entities in charge of overseeing the hydrocarbons exploration and production related activities, as verified in Brazil, in Colombia, and in Peru, among other studied countries. This is important because a more specialized and focalized action of the regulator is allowed, above all considering its interface with production companies, generally with extensive knowledge and technical expertise. Furthermore, the idea is to create an entity to act with political neutrality in order to provide a good market operation, although, in practice, variations in the autonomy levels of those institutions have been actually checked.

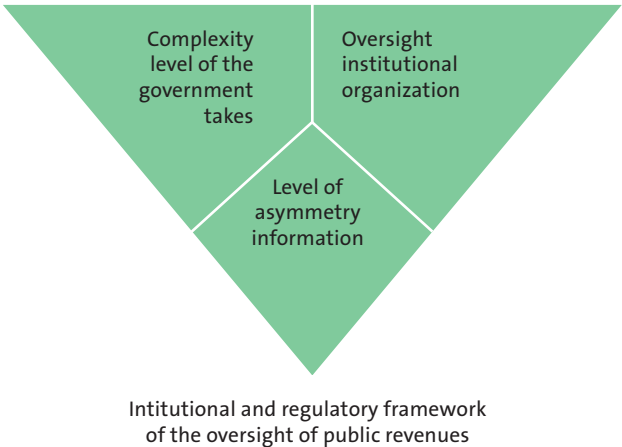
Thus, it can be said that the institutional and regulatory framework of the oversight of public revenues from the hydrocarbons exploration and production defines three aspects:

- a)** oversight institutional organization;
- b)** complexity level of the government takes and

1 In general, the production value is calculated by multiplying the quantity produced by the reference price. Such reference price usually considers the mean value quoted in the international market of types of oils with similar physical-chemical aspects, such as sulfur content and API level. Sometimes, the reference price also considers the sales values of internally produced oils, quoting this value with those quoted in the international market.

- c) level of asymmetry information between the production companies and the supervision institution.

Figure 7 – Institutional and regulatory framework of the oversight of public revenues from hydrocarbon production.



Source: Own creation.

In compliance with the preliminary study and in the specific context of this coordinated audit, under the institutional point of view, the exercise of the oversight activity in Brazil, Colombia and Peru is the responsibility of a single governmental entity, the ANP, the ANH and Perupetro S.A., respectively, which are responsible for all the oversight cycle – production measurement and calculation and payment of government takes.

As for the level of complexity of government takes, in Brazil and in Peru there is the need to oversee production costs, since they influence the calculation of the total owed amount in relation to certain revenues – the special take, in Brazil, and the “R Factor”, which influences the royalty percentage in Peru. In Colombia, in turn, royalties are calculated, as a rule, applying a rate to the production value, without considering cost deductions.

In relation to the level of asymmetry information among production companies and the supervision institution, the study indicated that this is more relevant when there is a need to oversee production costs, as in the cases of Brazil and Peru.

Besides the regulatory institutional framework, the oversight of the public revenues from the oil and natural gas exploration and production depends also on the practices adopted regarding production measurement and of calculation and payment of government takes process.

From the oversight perspective, the production measurement brings up big challenges. That is because such activity involves the use of expensive technology content and demands complex processes, which implies the need of technical knowledge and the use of specialized labor.

Due to this, there are cases in which the legally imbued entity of this competence does not detain the required technical skill and, therefore, the activity is performed by contracted third parties. This situation, while fulfills the technical need, it can bring eventual conflicts of interests and compromise the quality of the oversight process as a whole, if there is no proper independence of the contracted staff.

Still in compliance as per the study, it is assumed that the best oversight practices of the production measurement have, in general, the following characteristics:

- a) technical quality of the measurement system used to account the produced volumes, including meters and means for data transmission and storage;
- b) use of information systems in the processes for veracity and consistency verification of the performed measurements, and
- c) in situ actions for authorization and supervision of the use of measurement systems.

Besides these aspects, it is also considered important the adoption, by the supervision institutions, of computer systems with a direct interface to or communication with the measurement systems used by the production companies. The purpose is that the information flows without the need of interference from producers or third parties, therefore ensuring the security of the information related to the performed measurements. However, such oversight process demands investment in technology and qualification by the supervision institution, which may hinder its implementation.

The calculation and payment process of government takes is the second basic process of control of public revenues from the oil and natural gas exploration and production.

Considering that each country has a specific compensation scheme, which varies as per the laws and the types of existing contracts, the control over the calculation and payment of government takes depends on the complexity of this tax regime. In this sense, it has been settled that government takes calculated from a rate application over the production net value, i.e., the gross value deducted from certain costs, such as investments, operational costs and depreciation, presents a higher level of complexity.

Notwithstanding the above, the study identified as good control practices over government takes:

- a) the use of computer systems, integrated with the production measurement databases, for standardization and automation purposes of the involved calculations;
- b) standardization and automation of the ratifying systems, in those cases in which the calculation is performed by the production companies;
- c) standardization and integration of the processes for confirmation of payments, and
- d) development of cost audit practices, in the cases in which the calculation of the government takes involves net values, with cost and expense deduction.

In line with those good practices, it is also highlighted that the quality of an oversight process, whether of production measurement or calculation and payment of government takes, depends also on other factors, such as timing, transparency and controlled levels of discretion in the decisions made by the supervision institution.

The importance of timing resides in the fact that one of the goals of the oversight activity is to identify and correct deviations. Thus, the delay while identifying any non-conformity implies, subsequently, a delay in the correction of the identified problems, which can increase the economic and political costs of the control actions and, many times, even undermine such actions. Moreover, delays in the oversight process compromise its effectiveness, which will eventually create a low expectation of control among audited agents and encourage, therefore, the maintenance of irregular practices.

As for transparency, one of its benefits, above all for the oversight of government takes, is to allow interested third parties, outside the process, to replicate data and check the veracity of the calculation and values received by the State, thus benefiting and stimulating the participation of the society in this control. It is the case, for example, of the beneficiaries of royalty distribution and other compensation types, for example, regional and local governments or institutions, such as public universities. In addition, transparency also provides higher legitimacy and political force to the oversight process, since it makes the supervision institution actions clear to the external audience, thus strengthening its institutional role. This factor may be particularly relevant in contexts where a large asymmetry of the political power among supervision institutions and the state production company is verified.

As a way to increase the transparency level of the control process, the main measures indicated are the publication of procedure manuals and other relevant information, such as production amounts and calculation formulas and logs of the total amounts for the government takes.

Likewise, it is settled that the reduction of the discretion level in the actions and in the decisions of the state supervision institution should be sought. To this end, it is understood that the rules of the process and the procedures involved therein should be, as much as possible, made formal and standardized, in order to be smoothly applied to the specific cases. In this sense, the creation and the due publication of procedure manuals are important means which supervision institutions may use to increase transparency in their processes and be more objective in their actions. Also, the use of information technology contributes to automate standardizable procedures and reduce the discretion margin of involved agents.

6

MAIN RESULTS OF THE COORDINATED AUDIT

As it has been already stated, this coordinated audit was done by means of a common planning process, with a general planning matrix. The purpose was to provide the guidelines for the individual audits to be performed by each participating SAI, in order to limit its execution and enable the achievement of results that may be compared among them.

However, although the audits refer to the same control object, which are reflected on the audit issues, their results show differences as per the characteristics of each audited reality, as well as the approach selected by each team during the performance of their work.

6.1 Production Measurement

The oversight of the oil and natural gas production measurement, despite following the same logical sequence of events and procedures, it is processed differently in the three analyzed countries.

As it has been already stated, this process is done by means of meter devices installed directly in the fields and the option by measurement system subject to the specific regulation in each country, in accordance with the practices accepted by the industry.

The most important issue for the oversight of production measurement is how the data registered by these meters is accessed by the governmental entity in charge, considering the need that such data is complete and reliable.

In this sense, it was verified that the supervision institutions in Brazil and Colombia directly perform this oversight, whether it is by means of a systematic remote follow up or by means of in situ inspections on a regular basis. Thus, field operators inform the auditor, unilaterally and within the set period, the data for the measurements performed in that period.

In Peru, the systematic follow up of the production measurement is performed through third parties, which are contracted by Perupetro S.A. using a public selection process for a three-year period, being the supervision institution responsible for overseeing the execution and compliance of those contracts. In addition to that contract supervision, the institution also

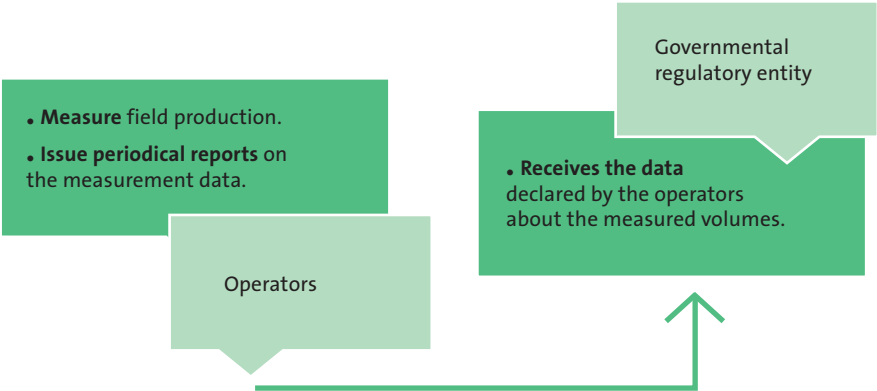
executes directly regular inspection procedures in situ, as per the annually performed planning.

In Colombia, there are still cases in which the measurement process may have third party participation, acting as external auditors. Nevertheless, in these cases, such third parties are directly contracted by operators and their actions are strictly done within such contractual relation, without any interaction with the ANH. Moreover, even in these cases the regulatory entity continues to have access to the measurement data only through the reports sent by the operators.

In Brazil, in order to improve the control over the production measurement, a computer system was projected, which is still in the development and implementation phase, and which directly accesses the data stored in the out-flow computers installed in each production field. The purpose of this system is to allow for the automatic verification of the information declared by the operators in the monthly reports, thus enabling a simultaneous follow up of the national hydrocarbons production by the governmental entity in charge. The development of this system was indicated as a good practice by the preliminary study made by EnerRio.

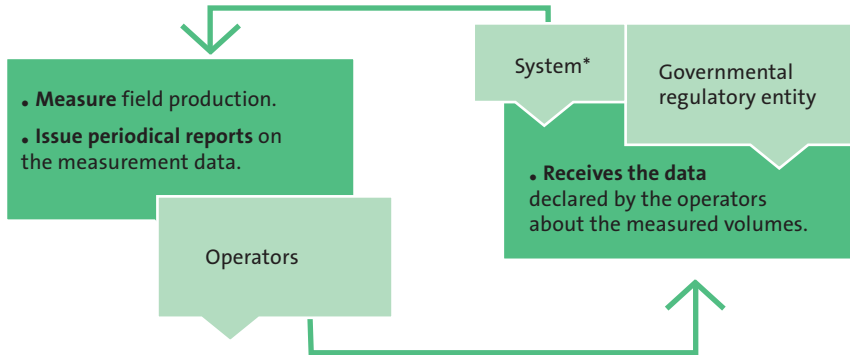
Figures 8, 9, and 10 below, show, in a simple manner, the oversight scheme of the production measurement in Colombia, Brazil, and Peru, respectively.

Figure 8 – Oversight of the production measurement in Colombia



Source: Own creation.

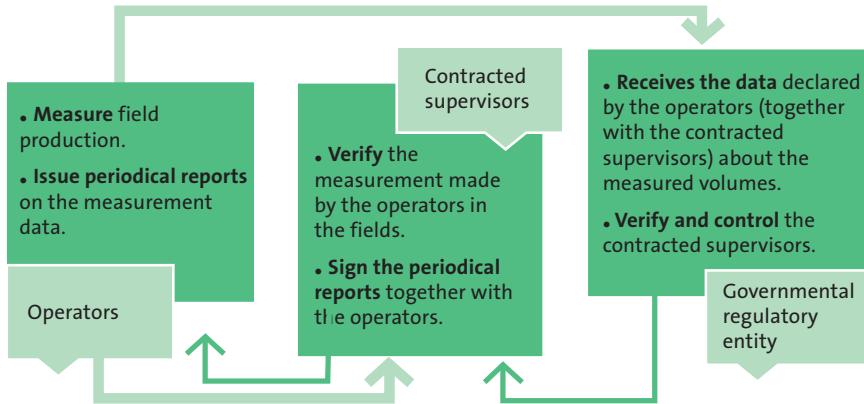
Figure 9 – Oversight of the production measurement in Brazil



Source: Own creation.

*The system allows ANP to directly access the measurement data on a regular basis. Such mechanism does not substitute the reports sent by the operators, but it serves as a checking tool.

Figure 10 – Oversight of the production measurement in Peru



Source: Own creation.

In general, in each specific audit, it was concluded that the oil and natural gas production measurement processes in Brazil, Colombia, and Peru have the necessary requirements to ensure, with a reasonable level of certainty, the reliability and integrity of the produced volumes.

Apart from this, audit findings that provide clarifications on potential weaknesses or improvement opportunities of this process in different countries were verified. Such findings includes general aspects, such as the selection of the measurement model, work processes and procedures, in situ inspection actions planning and performance, data conciliation routines, and use of information technology, including even more specific questions related to the measurement systems and instruments, such as technical requirements and equipment operation.

The audit performed in Brazil highlighted the development initiative of the abovementioned computer system for the production measurement oversight, stressing also the need of the implementation of all its functionality in order to achieve its goals, such as the checking and automatic validation of the information stated by the operators about the produced amounts.

The ANP also carries out in situ inspection actions of the measurement systems, whether they are for previous authorization of use or regular verification routine, which it is also a good control practice. However, it was stated the need of improving the planning process of those oversights, as well as their correct delivery and treatment, above all, in cases in which non-compliances have been found, so as to increase their effectiveness and, therefore, the control expectation.

In Colombia, in turn, the audit highlighted that the control on hydrocarbon production measurement uses technological resources, such as tank measurements (static) and manual collections of samples, which, even though accepted by the industry, they can be optimized in order to increase the quality and reduce the level of errors, uncertainty and vulnerability of this type of measurement. In addition, the audit stressed the inexistence of a computer system, similar to the one being developed in Brazil, which will allow ANH to check, independently, the data accounted and declared periodically by field operators. To this end, available technologies and tools may be used in the fields and used by the operators as internal control mechanisms, thus facilitating their development and implementation.

On the other hand, the audit also mentioned as a positive aspect, that, despite those found weaknesses, the adherence level regarding the existing rules and technical manuals, both among operators and by the Agency itself, is high. Another good practice indicated was the data conciliation systems used by some operators, for information crossing and checking. However, since there is no standardization for the installation and use of those systems, there is, in practice, a large variation in the quality and scope requirements among operators. In addition, such systems are only for internal use, so there is no information sharing with the state supervision institution.

The audit in Peru indicated that the production measurement oversight is conducted permanently and under the same conditions, through third parties contracted by Perupetro S.A. which work directly in the production facilities. Such agents follow the oversight procedures set by the governmental entity and sign, together with the operators, the daily submitted reports about the production amount and quality. In this sense, the audit verified that these auditors, in fact, act in accordance with the guidelines issued by Perupetro S.A., which contributed to the reliability of the entire process. Besides such working method, Perupetro S.A. executes in situ inspection routines of the measurement systems, as per the annual planning.

However, the audit also found a delay in the contracting of third parties that execute in situ supervision services of production measurements, which did not consider the contract effectiveness term and resulted in the exemption of the public selection process due to risk of service continuity. Furthermore, the audit mentioned specific faults in the calibration of some measurement equipment and instruments of one of the analyzed fields.

Thus, in general, even though the oil and natural gas production measurement processes in Brazil, Colombia, and Peru have the necessary requirements to ensure, with a reasonable level of certainty, the reliability and integrity of the produced volumes, the audit findings show situations that may affect, at several levels, the efficacy, efficiency and effectiveness of the hydrocarbon production oversight process in the analyzed countries. Such findings may compromise the performance of the governmental entity in charge of such activity, due to, for example, the limitation of technological resources, faults or deficiencies in the oversight action planning or, even, in the information asymmetry among the operators that declare the data on the produced amounts and the agencies that do not have means capable of obtaining this information efficiently and independently.

The proposals indicated in the reports of each audit were based on the relevant findings and aim at improving the control capacity of the state supervision institutions and entities.

6.2 Calculation and Payment of Government Takes

The control over the calculation and payment of government takes, as in the case of the production measurement, it is also processed differently in Brazil, Colombia, and Peru.

Colombia has a simpler compensation scheme than the other countries, considering that it is made up above all by royalties, calculated based on the application of certain rate on the production gross value. One particularity is that there are cases in which the payment is made in kind. In such circumstances, the agreement signed in 2013 with Ecopetrol S.A., a Colombian production company, sets forth that it is the company responsibility to sell the product and deliver the collected amount to the ANH.

In Brazil, in turn, there are two main types of government takes: the royalties and the special take. Royalties are also calculated based on the rate application on the gross value of the production in each field. The special take, which consist of an extraordinary financial compensation owed only by specific fields, uses as calculation base the production net revenues, including then cost deductions.

In Peru, the royalties may be calculated by four different methods, which can be freely selected by the operators to be applied during the contract effec-

tive term. One of those methods is called “R Factor”, which is similar to the calculation based on the production net value, resulting from the deduction of certain production costs defined in specific laws.

As for the oversight of government takes, both in Colombia and Brazil, it is the operators’ responsibility the calculation and payment of the owed total amounts, being the governmental supervision institutions responsible for their ratification, timely refining potential differences. Unlike Brazil and Colombia, in Peru, the calculation of the total amounts is performed directly by Perupetro S.A., which informs operators so they can proceed with the payment.

Furthermore, it is worthwhile indicating that Colombia developed a software application to automatically oversee the calculation made by the operators, considering each contract and field. Said situation certainly frees ANH to guide its working efforts to other types of activities.

Particularly the payment of government takes, in Brazil, is made directly in the single account of the National Treasury, so no amount transfer is done through the ANP. In turn, both in Colombia and Peru, the governmental supervision institutions themselves receive those deposits and transfer them later to the finance entities.

In the case of the oversight of the calculation and payment of government takes, the audits performed by the SAIs also concluded that, in general, the oversight processes carried out by the governmental entities have the required principles to ensure, with a reasonable level of certainty, the reliability and timing of the calculated amounts received by the State.

However, the verified audit findings warn about potential weaknesses or improvement opportunities of that activity, referring to institutional questions, work processes and procedures, and even the involved calculations and values.

In Brazil, the findings are related to the work processes and procedures carried out by the ANP. In this sense, it was verified that the control over the total amount calculation of the special take lacks more robust mechanisms to check and confirm data and information declared by the operators, which can compromise the quality of the oversight action over the special take. That is important above all because there is a large asymmetry of information among operators and the supervision institution on the incurred costs, which are deducted from the used calculation base.

In addition to this, considering that the Brazilian law sets forth that a portion of the royalties from the hydrocarbon production is for the municipalities affected or involved in these activities, the audit verified that the criteria in effect is vague and allow the Agency to take considerable subjective decisions about including or not these municipalities as beneficiaries. This is a relevant question, since such inclusion determines the reception or not of the portion of the royalties.

On the other hand, the audit positively found that the ANP performs regular inspection actions in situ to verify the maintenance of the inclusion conditions of these beneficiary municipalities.

Finally, it was also highlighted that a computer system is being developed in order to automate some procedures, such as calculation verification, and streamline the registration and treatment of different involved information. Currently, this work routine is executed through the use of electronic sheets, increasing the risk of errors and data manipulation.

The audit in Colombia stated that no calculation errors in royalties and other government takes were found. In addition, it clarified that the oversight process is largely computerized, but however such computerization, there is still margin for human errors.

Likewise, from the institutional point of view, it was verified that the recent competence transfer from the MME to ANH as for the oversight on the calculation and payment of the government takes was made without the Agency being fully prepared to execute the new attributions, which can compromise the quality of its performance. Still, the audit highlighted that the ANH team is making efforts to streamline its processes and improve the quality of the oversight actions.

In Peru, it was highlighted that the control procedure for the calculation of the total amounts owed in royalties used in the “R Factor” method, which consider net values and includes deductions of costs incurred by the operators, fails because it enables constant readjustments, reworks, and recalculations, facilitated by the inherent complexity of the control over deductions. Such fact certainly compromises the reception timing by the State of the values for such government takes.

Another question verified by the audit was some inconsistencies in the values transferred by Perupetro S.A., which collects payments made by the operators, to the Treasury. The reason for these differences is the deductions to compensate the expenses with the production measurement supervision by the supervision institution itself, a situation that does not have a place in the law and other regulations related to the royalties. In this sense, it was also highlighted that a part of the law ruling the governmental participations in the country shows itself, in some points, ambiguous and outdated, considering that some rules are prior to Perupetro S.A. creation.

Thus, in general, even though the oversight processes carried out by the governmental entities have the required principles to ensure, with a reasonable level of certainty, the reliability and timing of the total amount calculated and received by the State, the findings of the audits show situations that may compromise, at several levels, the efficacy, efficiency and effectiveness of the oversight process of the calculation and payment of government takes from

the hydrocarbon production. It was also verified that these difficulties may be common among countries, for example, the oversight of the revenues that depends on cost deductions, in the case of Brazil and Peru, or even the challenges to automate procedures by means of computer systems and tools, as sought by Brazil and Colombia.

Considering this situation, proposals were created aimed at improving this process management in the supervision institutions.

6.3 Transparency

The transparency in the public administration does not assume only that the administrative actions have the due publicity, but also, and above all, that the information provided by the public manager is easily understood, in the sense that the stakeholders are capable of understanding their decisions and, therefore, exercise their control capacity.

Specifically in the transparency area for the data and information related to the oil and natural gas production measurement, and the calculation and payment of government takes, it should also be considered that the inherent technicality in the question turn this into a more complex issue.

That is because, as it can be concluded from the information gathered by the preliminary study and the audits, the subject is the objective of numberless rules and technical manuals which complement each other not always in a smooth or clear manner. In addition to this, they have a high level of technical and specific content, which hinders their understanding and comprehension by third parties outside this context.

Thus, the main challenge of the supervision institutions, since they are, as a rule, responsible for this activity, is to make this process as transparent as possible, in order to enable its replicability by a third party outside the process.

The main question surveyed in the three audits is the fact that the currently available information lacks a more friendly interface for the external user, that is, the information, in general, is available and can be accessed, but the manner in which it is distributed does not allow for a full visualization for control purposes. In other words, it can be perceived the commitment and effort to provide publicity and transparency to the information, but the interested users face some difficulties to use it.

In this sense, for example, sheets with only unit prices can be mentioned, without any reference to formulas or calculation logs, .pdf format files, which hinder their manipulation or even data presented separately, which does not group or link itself to cover the sequence of production cycle stages and the government takes, which, in practice, compromises the full traceability of the information.

It is worthwhile mentioning also that Peru has, since 2012, the certification of “country that has met the obligations” in terms of transparency in the areas of extractive industries, of which the oil and natural gas industry is a part, as a result of the grant given by the international secretariat of the Extractive Industries Transparency Initiative (EITI). Therefore, the country had to meet a series of requirements in order to provide transparency to the public revenues from the companies involved in the extractive activities, including their distribution to the regional and local governments and universities.

The goals and benefits of the country participation in the EITI are the creation of a higher level of confidence and governability, increase of transparency in the provision of accounts on the government takes received from the oil and natural gas exploration and production in its territory and, therefore, improve the investments received by the sector, thus contributing even more to the development of these activities in the Country.

The audit performed in Brazil indicated that the ANP has in its electronic site all the procedure manuals related to the oversight of the government takes. So, if, on the one hand, this measure contributed to rationalize the understanding of this activity, on the other, it still does not fully meet the criteria of providing a friendlier user interface.

The Colombian team stated also that due to the fact that the calculations of the governmental takes cannot be replicated, there are cases in which interested third parties have to resort to requests to the ANH, MinMinas or the Comptroller itself for obtaining the required information, which, sometimes, ends up burdening these entities.

Thus, it is concluded that the countries take measures to distribute data and information related to the hydrocarbon productions measurement and the government takes. Still, even though they are, in general, available and accessible, there is still the need of mechanisms to provide a friendlier use by the interested third parties.

As a part of the audit reports, proposals were created which, above all, reinforce that need and, therefore, aim at improving public management.

7

ANALYSIS OF THE COORDINATED AUDIT EXPERIENCE

As it was already stated, this coordinated audit was performed within the cooperation project between the Olacefs and the GIZ for the development of institutional abilities among the SAIs members of this organization, in accordance with the strategic goals set forth for the 2011-2015 period.

In this sense and since it is a pilot project, it is important to express, from the participating SAI point of view, the vision on this work, from three perspectives:

- a) perspectives and main results of the audit for the countries;
- b) perspectives and main results of the audit for the SAIs, and
- c) opinion on the coordinated audit experience.

7.1 Perspectives and main results for the countries

One of the most pressing results from the audit is the creation and the provision of information to the leaders of the external control and, ultimately, to the citizens themselves, regarding the management quality related to the control of public revenues from the oil and natural gas exploration and production activities.

Such fact becomes even more relevant considering that it is being evaluated not only the State oversight function, but also, even though indirectly, if the resources from these activities are being, in fact, properly paid and audited by the State in accordance with the current rules.

Another relevant question is the contribution to the improvement of the hydrocarbon exploration and production control management by the state entities. In fact, as a result of this audit, some supervision entities have already set down a mark in the sense of improving processes and procedures, including initiatives for changing regulations in order to increase efficacy, efficiency, and effectiveness of their oversight function on the production measurement and the calculation and payment of government takes.

It can be also mentioned the strengthening of the relation with the involved governmental managers, a fact that contributes to legitimate the ac-

tions of the external control entities in the search of an ongoing improvement of the public administration.

Peru stated that this audit, in particular, contributed to strengthen its condition of “country that has met its obligations” in relation to the transparency requirements and standards set forth by the Extractive Industries Transparency Initiative (EITI), a certification awarded in 2012.

Moreover, from Brazil perspective, it was verified that the study performed previously to the audit planning indicated some of the processes adopted or in development by the ANP as good practices, a fact that provides higher reliability on the Agency management. This is particularly relevant when considering the beginning of the hydrocarbon exploration in the pre-salt polygon², which increases even more the importance of such acquired expertise.

Finally, Colombia stated that this audit contributed to show, before the public opinion, the Comptroller role as reference, nationwide, in the evaluation of public policies related to the sector.

7.2 Perspectives and main results for the SAIs

From the SAI standpoint, it can be confirmed, first of all, that one of the results is the acquired knowledge on the reliability, integrity and transparency of the control over the hydrocarbon production measurement and the calculation and payment of government takes, both in their own country and a compared perspective against the others, thus allowing a debate about common challenges and good practices.

Likewise, there is the benefit of the exchange of experiences and knowledge among SAI auditors that participated in the project, which, in fact, contributes to the knowledge management and the improvement of audit techniques, above all performance audits. Therefore, it contributes to the improvement of the SAI performance as a whole in the exercise of their function as external control entity, and to the achievement of their purpose to contribute to the management and performance improvement in different public administration areas.

The Comptroller in Colombia highlighted that this audit was created in the first successful exercise to execute a performance audit on an issue that is so significant for the country and directly affects the public revenues received by

2 As per available definition in Petróleo Brasileiro S.A. (Petrobras) electronic site, the term pre-salt refers to a set of localized rocks in high deep waters in the Brazilian coast, with a large potential for the creation and accumulation of a large volume of high quality oil and a higher market value. Thus, as a convention pre-salt polygon was the name given to the geographic area that includes such oil fields, as per the definitions of the Brazilian law. Due to the large exploration potential, projections indicate a significant increase in the hydrocarbon volume produced in Brazil, when these fields begin production.

the State. It even stressed that there even was an interest by the supervision entities to be informed about how the other countries are performing their duties.

Furthermore, the positive results from the experience and the acquired knowledge on performance audit practices generated an interest in different SAI areas to replicate them to other issues. Finally, it highlighted also that this audit brought a new work perspective for the Comptroller, in which the local and specific transcends in order to search a wider analysis vision.

Peru Comptroller also stressed that this audit enabled team training in performance and coordinated audit practice, besides the knowledge on the extractive industry sector, thus enabling this knowledge to be replicated in other areas, as well as improving the integrated treatment of mutual interest topics.

As for the TCU in particular, it can be highlighted, besides the experience of this joint work with other countries, the experience of coordinating the conduction of this audit, specifically during the exercise of the Olacefs Presidency by this Federal Court. Moreover, this audit provided a wider information exchange and relation with other superior audit institutions.

7.3 SAI opinion on the coordinated audit experience

This coordinated audit consisted in a pilot project among the Olacefs members.

First of all, its conduction enabled the approach of relevant topics in the national environments and with similarities and common interest topics with other countries, which allowed for the creation of a wider and more complete vision regarding the faced problems and the different solutions applied in each situation.

In addition, although the audits individually developed by each SAI have been carried out in accordance with each country characteristics, the success of this coordinated audit showed that it is possible to analyze the issue based on common interest points and under perspectives not restricted to the SAIs themselves, which, subsequently, enables external control entities to extrapolate their traditional line of thought and try new points of view.

In this sense, it is highlighted the knowledge acquired by the teams involved in the work regarding the oil and natural gas production measurement and the government takes processes, including the technical visits made, whether individually or in group. Particularly, in the case of the visits, the SAI in Peru mentioned that this was the first time in which the Comptroller audit team did this type of visits.

In addition, it is worth mentioning that the treated topic was chosen based on a wide analysis made by the TCU, with the assistance of external consulting. In this sense, it is seen that the performance of the previous study has been es-

essential for an appropriate work planning, since the gathered information served as guidelines for the modeling of the subsequent work.

Moreover, in line with the results strictly related to the audited issue and considering that this audit is part of the project for the development of institutional capabilities among the SAI members of the Olacefs, it can also be mentioned the contributions to achieve this goal.

The coordinated audit proved to be relevant for the development, in the participating SAIs, although at differentiated levels, of capabilities related to their own performance audit practices, a fact that contributed to the institutional development and, therefore, to its performance as a control entity.

Such question was especially mentioned by the Comptroller in Peru, which highlighted the preliminary actions carried out by the TCU, namely, the course on performance audit given as a long distance course and the technical training seminar, in Brasilia. The purpose of the former was to present a performance audit application method, working with basic concepts, cycle, and stages. The latter, in turn, dealt specifically with the study performed on the oil and natural gas exploration and production and its institutional framework in Latin America selected countries.

In addition, it is worth mentioning the importance of Colombia and Peru audit teams participation in the reference panel for the presentation and debate with the ANP about the audit findings made by the TCU, since it enabled teams with less experience in performance audit execution to be part of that practice. In this sense, the Comptroller in Peru declared that successfully replicated the experience when conducting its own audit.

It should be noted also that the technical meeting for the presentation and debate of the coordinated audit findings, in Bogota, allowed the achieved results for each work to be effectively compared among them. Furthermore, in that occasion, there was a discussion on the challenges faced by each team during the performance of its work, which contributed to building lessons that may be applied in future experiences.

In conclusion, as indicated by the SAI in Peru, the conduction of this coordinated audit allowed the Comptroller to learn on the theoretical and practical aspects of performance audits, considering that the SAI executes, mainly, compliance audits.

Finally, it is stressed that initially eight countries expressed their interest in this audit, but only three carried out this work.

8

NEXT STEPS

Based on the performance of this coordinated audit and its successful results, there are perspectives for future works.

In the first place, it is suggested that this experience should be available to other representative international instances of superior external control institutions, such as Intosai, in order to generate interest in other countries to carry out similar initiatives.

Also, it is proposed the creation of an audit network, from different SAIs, specialized and trained for the conduction of performance audits, in order to benefit the conduction of coordinated audits in case of common interest issues.

As for the topic suggestion, the teams showed interest in the conduction of a coordinated audit in the mining area, since it has a significant importance for the economy of several countries in the region and it poses important challenges to its effective oversight.

9

CONCLUSION

The coordinated audit regarding the control exercised over the oil and natural gas production measurement and the government takes was included in the cooperation project between the Olacefs and GIZ, whose purpose is to create opportunities to develop institutional capabilities among their members.

This is a pilot project under the Olacefs and that proved relevant to the achievement of strategic goals that intend to induce the expansion and improvement of strategic information exchange with other institutions.

In this sense, the results of this audit also proved to be successful for the development, in the participating SAIs, of capabilities related to performance audit practices, which contribute to their institutional development and, therefore, to their performance as an external control entity.

Thus, it is understood that this is an experience that may be replicated in other interest areas, and not only in the Olacefs, but also jointly with other countries outside this organization.