Harmonisation of Gas and Oil Technical Standards and Practices in Eastern Europe and the Caucasus, with identification number EuropeAid/123259/C/SER/MULTI

Project Summary Report

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Report date: 10 May, 2011
INTRODUCTION

The Technical Assistance project "Harmonisation of gas and oil technical standards and practices in Eastern Europe and the Caucasus" financed by the EU was implemented in the years 2008 - 2010 in the countries Belarus, Moldova, Ukraine, Armenia, Azerbaijan, Georgia. The project was a component of the INOGATE programme.

The purpose of this Summary Report is to present a concise description of the objectives, approach, activities and results of the project.

The project’s overall objective was to support the project countries to adopt international standards and practices (those applied in the EU) for design, construction, operation and maintenance of gas and oil production, transmission and storage facilities.

The specific objectives of the project were
- to achieve common understanding of the rationale and need to shift to use international standards in the gas and oil sector
- to develop a strategy for harmonisation of standards and practices in the gas and oil sector
- to prepare medium-term action plans for harmonisation of standards and practices
- to analyse what kind of legal measures should be initiated to support adoption of international standards
- to increase awareness of EU standards, rules, certification and accreditation practices in the gas and oil sector

The main stakeholders in the project countries included: Ministries of Energy, National Standards Bodies, leading national gas and oil companies, and others. The Contractor implemented the tasks to reach the objectives of the project in intensive and effective cooperation with these stakeholders.

The outputs of the project included reports on
- technical standards and practices
- legal, regulatory and institutional framework
- harmonisation strategy
- harmonisation action plans
- training and promotion of standards harmonisation

The most relevant content of the mentioned reports is included in a short form in this Summary Report.
ACKNOWLEDGMENTS

The Consultant wishes to express its sincere appreciation of the contribution and support given by the European Commission during the course of this project.

The Consultant also wishes to sincerely thank each of the countries participating in the project, whose individual enthusiasm, expertise and contributions were crucial in the effectiveness of the work and achieving the results achieved.
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ACRONYMS, SHORT NAMES OF ORGANISATIONS, ABBREVIATIONS

The following acronyms, short names of organisations, and abbreviations are used in this re-
port:
API  American Petroleum Institute
CEN  European Committee for Standardization
CENELEC  European Committee for Electrotechnical Standardization
CIS  Commonwealth of Independent States
COOMET  Euro-Asian co-operation of state metrology institutions
DG  Directorate General (EC)
DIN  Deutsches Institut für Normung
DIS  Draft Inter-state Standard
EA  European Co-operation for Accreditation
EASC  Euro-Asian Interstate Council for Standardization, Metrology and Certification of the Commonwealth of Independent States
EC  European Commission
EU  European Union
EURAMET  European Association of National Metrology Institutes
GOST  set of regional technical standards maintained by EASC
GOST-R  Federal Agency on Technical Regulating and Metrology of Russia
ICS  International Classification for Standards
IEC  International Electrotechnical Commission
IPR  Intellectual Property Rights
ISO  International Organization for Standardization
ITS  INOGATE Technical Secretariat
MoE  Ministry of Energy
MoU  Memorandum of Understanding
NAB  National Accreditation Body
NMI  National Metrology Institute
NSB  National Standards Body
OGP  International Association of Oil & Gas Producers
OIML  International Organisation of Legal Metrology
O & G  Oil and Gas
QI  Quality Infrastructure
SoE  Statement of Endorsement
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA</td>
<td>Technical Assistance</td>
</tr>
<tr>
<td>TC</td>
<td>Technical Committee</td>
</tr>
<tr>
<td>ToR</td>
<td>Terms of Reference</td>
</tr>
<tr>
<td>WELMEC</td>
<td>European Co-operation in Legal Metrology</td>
</tr>
<tr>
<td>WG</td>
<td>Working Group</td>
</tr>
<tr>
<td>WTO</td>
<td>World Trade Organisation</td>
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</table>
1 PROJECT DATA

Project title: Harmonisation of Gas and Oil Technical Standards & Practices in Eastern Europe and the Caucasus

Countries: Ukraine, Belarus, Moldova, Azerbaijan, Georgia, Armenia

Project schedule: December 2007 to November 2010

Contractor: Fichtner GmbH & Co.KG (Germany)

Consortium: The members in addition to Fichtner GmbH & Co.KG of the project implementing consortium were:
SWECO Industry Oy (Finland),
BSI British Standards Institution (UK), and
DIN Deutsches Institut für Normung (Germany)

Project financing: The project was financed by the EU through its Tacis technical assistance programme

Contracting Authority: European Commission; DG EuropeAid Cooperation Office

Main stakeholders: Ministries of Energy (beneficiaries of the project)
National Standards Bodies and other national bodies of the Quality Infrastructure (metrology, certification, accreditation)
Oil and gas sector companies

Project offices: Kiev
Tbilisi (satellite office)
2 SCOPE OF THE SUMMARY REPORT

The overall objective of the project was defined as follows:

“The project aims to support the countries' uptake of international standards, rules and practices for design, construction, manufacturing, testing, certification, accreditation, operation, storage and maintenance applied for all components of gas and oil production/transmission/storage”

The specific objectives of the project were defined as follows:

1. To achieve a common understanding on the rationale and need to jointly shift to international standards in both oil and gas sectors
2. To develop and adopt a strategy for the harmonisation of technical standards and practices in the gas and oil sectors beyond national policies
3. To identify a medium-term action plan for achieving harmonised technical standards and practices
4. To propose the set of legal measures to be initiated by the national authorities for the adoption of harmonised technical standards
5. To create awareness of EU standards, rules, certification and accreditation in the gas and oil sectors

Harmonisation of standards in the context of this Project means adoption of European (CEN/CENELEC) or International Standards (ISO/IEC) as national standards of the project countries. “Adoption of standards” means that a standard has been approved and registered as a national standard by the National Standards Body. The word “adoption” shall be distinguished from “implementation” of standards, which is normally understood to mean that enterprises really start to use the standards in their operations.

Standards harmonisation can be approached as an independent issue. However, it is useful to understand the structure of all Quality Infrastructure (including in addition to standardisation also accreditation, certification/conformity assessment, metrology, market surveillance) and how standardisation constitutes part of it. Therefore the other components of quality infrastructure were also reviewed in the project.

In general the quality infrastructure model developed by the EU is flexible and allows market and economic operators to thrive in a competitive national, regional and international market. This was the intent of the EU model and it is proving a success. The same model can be recommended to the project countries as is used as the reference in this work.

This report describes the approach used, activities, and results of the work under the titles of the above specific objectives.
3 DESCRIPTION OF ACTIVITIES

3.1 RATIONALE AND NEED TO SHIFT TO INTERNATIONAL STANDARDS

Under this group of activities especially the following items were included:

- Analysis of existing standards in the project countries
- Analysis of gas and oil industry in the project countries
- Prioritising of EU standards for harmonisation
- Promotion of standards harmonisation
- Organisation of inter-regional meetings
- Translation of EU standards

Analysis of existing standards in project countries

A review, based on publicly available information of the NSBs, was made of the existing gas and oil sector (ICS 75, Petroleum and related technologies) standards in force in the project countries. The review covered the national standards (comparable to EN or ISO standards). In addition, in the countries a large number of other standards (branch standards etc) are used, which in practice in many cases are still mandatory.

The review showed that the number of already harmonised standards is quite low.

Analysis of gas and oil industry in the project countries

An analysis of the gas and oil industry and its development trends in the project countries was needed to determine what are objectively looking the priority areas of standards harmonisation efforts.

The project countries are very different in terms of gas and oil industry, both concerning the volumes and fields of industry. From the regional point of view there are a few fields that all countries share:

- gas transmission (and in most cases gas transit)
- transportation and use of oil products

Volume and flow metering as well as quality of products are an essential issue related to the above.

Other fields, such as gas and oil production and oil refining are important in some of the countries.

The conclusion is that both regional and national approaches should be applied in standards harmonisation. The regional approach is preferable in the fields that are relevant for all the countries and the national approach can be applied in cases when a country has special interest in some fields of standardisation.

Short-listing of EU standards for harmonisation
“EU Standards” in this context means standards used in the EU in the oil and gas sector. These may include European standards (CEN/CENELEC), International Standards (ISO/IEC), American standards (API etc), national standards, company standards. For the purpose of the project the two first groups were considered to be the most relevant. Note: International Standards (with capital initial letters) refers to standards of ISO and IEC; international standards (with small capital letters) to standards adopted by any international standards organisation.

The total number of potentially applicable standards is several thousands, and therefore their prioritisation was a key task.

The project used several criteria to prioritise standards

- the project experts’ own perception of priorities based on the status of the oil and gas sector of the project countries
- giving priority to such standards, which can be applied widely, in all or most countries (such as gas infrastructure, gas and oil metering, oil products) thus facilitating joint shifting to international standards
- giving priority to the standards of the main oil and gas sector TCs of CEN (such as TC 234, TC12, TC 19) and ISO (TC 28, TC 67, TC 193)
- priority lists prepared earlier by NSBs or companies of the project countries
- priority lists of organisations which have been already involved in standards harmonisation in the project countries (such as CEN TC 12 AH08)
- standards, harmonisation of which is supported by such industry associations as Marcogaz and OGP

A list of 228 standards was prepared, including standards from the following fields:

- vocabulary and terminology
- gas infrastructure
- oil measurements, sampling and testing
- gas quality
- metering
- pipelines
- oil and gas production
- electrical (potentially explosive atmospheres)
- quality management
- safety

There are not many oil and gas sector specific technical EC Directives. The Directives typically concern any sector of industry (such as Machine Directive, Measuring Instruments). However, 34 EC Directives were listed for potential adoption. They are either oil and gas sector specific or (in most cases) more general but applicable in the oil and gas industry.
The priority lists of standards and directives can be found on the project’s website [www.ogsp.info](http://www.ogsp.info).

**Promotion of standards harmonisation**

The Project has promoted regional harmonisation in many ways; in addition to promoting it in inter-regional meetings, presentations, training seminars and other similar events especially by developing the regional approach to translate and adopt standards (through EASC). The main reason to promote regional harmonisation is to use available resources rationally: most individual project countries do not have sufficient resources to maintain such speed of harmonisation as is considered desirable.

In all countries it has become clear that the countries support harmonisation of standards with those used in the EU, and in many countries the process has already gained momentum. The project emphasised that the rationale for shifting to international standards is based on such grounds (objectives of harmonisation) as:

- reduction of costs of new investments, rehabilitation, modernization or upgrade projects, or operation and/or maintenance
- making specification of equipment easier particularly for international procurement
- improvement of safety, security and environmental status
- extension of lifetime of facilities
- increased attractiveness of countries for foreign investors
- elimination of technical barriers to trade (re: Agreement on Technical Barriers to Trade, WTO)
- elimination of potential conflicts in cross-border operations (metering, quality etc)
- enhancing of competitiveness of local companies both in domestic and in international markets
- protection of consumers’ rights
- harnessing the large amount of international expertise contained in international standards, including new concepts and focuses
- speeding-up and lowering costs of standards preparation
- support to general international co-operation and convergence with the EU

A separate cost/benefit analysis on standards harmonisation was also undertaken by the project showing that adoption of international standards is a cost-effective way compared to development of standards on a country level.

**Organization of inter-regional meetings**

The project organised four inter-regional meetings, attended by the contact persons within the Partner Country governments, the Baku Initiative country co-ordinators and WG1 members (the last two refer to the INOGATE programme), as well as the Contractor’s project experts and EU based standards bodies. These meetings were one of the main forums for coordination of efforts in the countries.

The inter-regional meetings were arranged
Meeting # 1  22 – 23 October, 2008
Meeting # 2  1 – 2 April, 2009
Meeting # 3  15 – 17 September, 2009
Meeting # 4  22- 23 November, 2010

In addition to coordination purposes, these meetings were used to disseminate information about different project topics, such as standardisation, metrology, accreditation, oil and gas industry practices.

In addition to inter-regional meetings, the Contractor considered continuous communication with the Stakeholders important for reasons of information sharing, planning, follow-up and promotion of harmonisation. Altogether, about 130 meetings were arranged with Stakeholders in the project countries: the Ministries, National Standards Bodies, National Metrology Institutes, oil & gas companies and others.

Translation of EU standards

The Contractor was to translate the most important EU technical codes and standards as well as directives into Russian.

Despite Russian not being the official national language in the project countries, translation of standards into Russian was considered as being of value in the context of the project as:

- Russian is the language of regional standards (inter-state standards, GOST), adopted by EASC
- it is possible for some countries to adopt standards in the Russian language
- the end users of standards still quite commonly use Russian in course of their work
- Russian is generally better understood than, for example, English in the project countries

During the project it became clear that stakeholders were really very keen to get the Russian translations of standards. Without Russian translations of relevant standards it would have been difficult for many of them to recognise the value of and analyse such standards and to conclude which are the most important and applicable to the needs of the country and industry. The stakeholders also expressed their wish to have translated as many relevant standards as possible.

The Contractor considered the following issues to be of particular concern:

- translation of standards into Russian without violating the principle of "only one official translation"; without entering the field of Rosstandart (Russia); assurance of quality of translations; restrictions to use of translations
- IPRs related to standards (all standards are protected by copyright; National Standards Bodies have only exploitation rights)
- implied adoption of liability associated with translated standards

All CEN/CENELEC and ISO/IEC publications are protected by copyright. Therefore and unless otherwise specified, no part of such publications may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, microfilm, scanning, without permission in writing from the publisher. Infringement of copyright (or any intellectual property right)
may result in legal action against the infringer leading to possible damages and legal costs. The Contractor had to find a solution, which provided reasonable protection against possible claims of breach of copyright.

Translation of standards can also raise serious issues of liability. It should be stressed that the translation of standards is a highly specialised process dealing with intricate technical issues and nuances of both intention and expression and involves use of agreed terminology. Risks are considerable in case of mistranslations or lack of clarity of translations.

The Contractor considered the following principal approaches (which were not necessarily exclusive)

1. Special agreement with CEN (and CENELEC, ISO, IEC)
2. Translations made by the Partner Countries (their NSBs) themselves
3. A licensing agreement with an EU NSB
4. Co-operation with EASC which has a special agreement with CEN/CENELEC on adoption of standards

Options 1 -3 were ruled out for various reasons and as the final option, the Contractor developed principles for co-operation with EASC (Euro-Asian Interstate Council for Standardization, Metrology and Certification of the Commonwealth of Independent States), which was adopted as the best suited approach.

While translation of standards was considered very relevant, translation of codes or directives into Russian was not. They are usually mandatory legal documents and they should preferably be translated into the national language. They are also publicly available on the internet, many of them have been translated and even adopted, and they are often technically easier to translate. In addition, most of the standards of the prepared priority list are not based on directives (they are not “harmonised standards” based on the New Approach directives). A list of 34 EC directives and regulations was prepared. Otherwise principal emphasis was attributed to standards.

The Project allocated substantial resources to processing of standards in co-operation with stakeholders in all project countries (reviewing of translated standards, commenting on them and assessment of their applicability in the countries). This has served the purposes of information dissemination in addition to the actual standards adoption process.

The EASC is not merely translating standards. Indeed, the translated standards become draft inter-state standards. If after processing the translations, there is enough interest in the member countries of the EASC, the standard can be submitted to electronic voting in accordance with the EASC practices. If a draft standard gets enough support, it can be adopted as an inter-state (EASC) standard after which any member country can adopt it as a national standard. This national adoption is entirely voluntary (compared to, for example CEN, the standards of which all members are required to adopt).

At the completion of the Project

- 118 international and European oil and gas standards translated;
- One standard (GOST CEN/TC 15173:2010) was adopted at the 38th EASC meeting;
- 7 draft interstate standards are in voting;
• 13 final draft interstate standards are being prepared for electronic voting by the Bureau of Standards of the EASC;

The status of all standards that are in voting can be followed-up on EASC's website www.easc.org.by.

Processing of standards continues in the Project countries and submission of draft inter-state standards to electronic voting will still be ongoing after completion of the Project.

3.2 DEVELOPMENT OF HARMONISATION STRATEGIES AND ACTION PLANS

Introduction

Standards harmonisation in the oil & gas sector of the project countries has been going-on for some time, but the progress has been fairly slow, inconsistent and there has been little regional or country to country co-ordination.

All project countries have expressed; some of them even in their standardisation laws, that European and International standards have the highest priority when standards are adopted. This concerns all fields, including the oil and gas sector.

A general harmonisation strategy was developed by the project considering all the six project countries together, with the aim at finding common regional interests. In addition, national action plans based on this strategy and special national considerations were prepared.

All actions to harmonise standards should aim at one ultimate long-term goal: adoption of all necessary European (CEN/CENELEC) and ISO/IEC oil and gas sector related standards, up to a few thousand standards.

Such objective can be considered challenging, but for example new EU member countries have shown that adoption of all standards is possible within a reasonable period of time.

Adoption of just a few standards can be justified from the point of view of increasing of awareness of the European/International way of preparing standards. Such objective does not lead to other results and especially not to the wide implementation of standards. Another well-grounded reason to adopt just a few standards is a very specific need to have exactly those standards available.

The ultimate objectives thus, albeit unrealistic in the short or middle term so far, would be

• adopt all European and selectively all the necessary International standards
• abolish all existing conflicting national standards
• abolish or at least make voluntary all other standards (branch standards etc), which are effective in the oil and gas sector

The project emphasises that there must be some strong driving forces to implement standards harmonisation. Such forces may include

• political will
• strong O&G sector TC (preferably with strong representation of the industry)
• benefits of the industry
international trade (including WTO)
convergence with the EU

Standards harmonisation is sometimes considered to require enormous efforts. However, new EU members can be used for benchmarking: they have adopted thousands of EU standards a year.

In elaborating a strategy for harmonisation of standards, the following issues should be addressed:

- sources of European/International standards
- prioritisation of standards
- technical means to facilitate standards adoption
- regional vs national procedures
- participation of national organisations in national harmonisation work
- international co-operation
- financing and capacity building
- implementation of standards

Harmonisation of codes, directives and practices shall also be addressed.

Sources of European/International standards

To adopt standards the National Standards Bodies shall receive the original standards from the owners of the standards.

The prioritisation of oil and gas sector standards showed that following standards will be needed:

- EN (European standard, CEN/CENELEC)
- EN ISO (European standard based on an ISO standard)
- ISO/IEC (International Standards)

Countries through their National Standards Bodies have free of charge access to standards of CEN/CENELEC (EN and EN ISO) for adoption, if they are affiliate members. All project countries are affiliates of CEN and Ukraine also of CENELEC.

It is also possible for any country to purchase standards from any member of CEN/CENELEC for adoption purposes.

All six countries are members or correspondent members of ISO and thus have access to ISO standards through their national standardization bodies as well. Belarus and Ukraine are members of IEC.

If the regional approach is applied, the translated standards will be received from EASC.

The above shows that the project countries have good access to necessary standards. Wider affiliation in CENELEC and membership in IEC would even improve such access.

Prioritisation of standards
Even if the best theoretical option may be to adopt all CEN and ISO oil and gas sector standards, it is not realistic in the foreseeable future. A prioritisation of standards is necessary. The list of priority standards prepared by the project (see “Short-listing of EU standards for harmonisation under 3.1 of this report) is a starting point for prioritisation.

The main Technical Committees for the highest priority standards include:

- CEN TC 234  gas infrastructure
- ISO TC 193  natural gas
- CEN TC 237, ISO TC 30  gas metering
- CEN TC 12, ISO TC 67  petroleum and natural gas industry
- CEN TC 19  oil products

**Technical means to facilitate standards adoption**

The adoption and implementation of European/International Standards shall be made technically as easy as possible. Ways to do it include:

- adoption of a standard as identical (not modified)
- adoption in the original language when possible
- adoption without adoption or translation of all normative references
- adoption of packages of standards
- use of standards without their adoption

**Adoption of a standard as identical**

There are three levels of conformity for determining interrelation of interstate (national) standards with the corresponding international standards:

- identical
- modified
- non-equivalent


Being the easiest way, the project always recommends adoption of standards as identical. If for some reasons a modification is necessary, then the best way is to adopt the standard as a regional standard to avoid non-compliance between the countries.

A non-equivalent adoption is not recommended.

**Adoption in the original language**

Translation of standards into national languages is a task that makes their adoption slower and more expensive. Also it may be difficult even to find resources to make good translations.
In the regional adoption option the situation is easier as one translation into Russian is only needed for all participating countries.

It is no more a practice, for example in EU countries, to translate all standards when they are adopted as national standards.

The project recommends the countries to gradually shift to adoption of standards in the original language (English). Those standards that are used in mandatory regulations shall be translated, as well as those that are used by large numbers of people.

Use of standards in English in the oil and gas sector is especially well justified, the oil and gas industry being very international and English being the most used language in all communication and documentation.

In most of the project countries (excluding Azerbaijan and Armenia) it is a practice already to adopt many standards in English.

As demonstrated, the cover page method is a possible way of accelerated adoption of International and European Standards as national standards (in the original language). At the same time users of such standards shall have sufficient language skills to read and understand provisions of the document. This might for the time being hinder their wide implementation.

**Adoption without adoption of all normative references**

A standard may have dozens of normative references (also called cross-references), typically to other standards.

A standard may have references and all those references have their own references and so on. This cascade effect means that translation and adoption of one standard may seem to require the translation and adoption of a large number of referenced standards.

The countries should accept that not all references are translated and adopted at the same time with a main standard. In each particular case the decision shall be made what references are included in the adoption. If adoption of standards is possible – as recommended – in English, adoption of the normative references is much simpler.

**Adoption of packages of standards**

It is recommended that, instead of individual standards, packages of interconnected standards be adopted. Such packages could be, for example, all relevant standards related to gas infrastructure, gas metering, gas quality, oil products. This approach will make the processing of such standards more effective and their acceptance easier as a wider view is possible.

**Use of standards without their adoption**

As standards are voluntary, the countries should allow use of in principle any foreign standards, provided of course that the mandatory regulatory requirements (safety) are complied with.

This is especially important in case of foreign investments or for import of foreign equipment.

As an example, Azerbaijan and Georgia have successfully applied this approach when new oil and gas pipelines were constructed by foreign investors.

**Regional vs national procedures**

There are two main ways for the countries to adopt European/International standards

- regional adoption (by EASC according to its procedures)
• national adoption (of ISO/IEC and CEN/CENELEC standards)

Both ways are necessary, and complement each other, to achieve the objective of extensive standards harmonisation in the oil and gas sector.

Regional adoption

Harmonization via EASC is regulated by the interstate standard GOST1.3-2008 «Rules and methods of international and regional standards adoption as the interstate standards». The standard corresponds to the international documents ISO/IEC Guide 21-1:2005 mentioned above.

EASC has agreements with CEN/CENELEC and ISO/IEC and it is recognized as a regional standards body.

The Contractor developed the concept of cooperation with EASC to draft interregional standards identical to original ones, which involves obtaining of the originals from CEN/ISO, translating into Russian, making them available in Russian to the Project Stakeholders for reviewing, and preparing final drafts for voting through the EASC electronic system.

EASC will organise electronic balloting. If a draft standard gets enough votes, it will be adopted as an inter-state standard, which any member country can adopt as a national standard.

The regional approach to standards harmonization via the EASC ensures substantial savings of costs for harmonization, since instead of preparing a great number of national standards in different languages only one standard in Russian will be prepared. Besides, cooperation with EASC makes it possible to simultaneously achieve one more objective – to jointly shift to international standards in oil & gas sector. The EASC approach will provide a coordinated, synchronised adoption of standards.

The regional approach is recommended by the project.

Fundamental restriction of standards adoption procedure according to GOST 1.3-2008 lies in the mandatory availability of an official translation of the international standard into Russian. The contractor proposes that this clause be abolished in the longer term.

National adoption

The Project countries are members in European and International standards bodies as follows:

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<thead>
<tr>
<th>Country</th>
<th>ISO</th>
<th>IEC</th>
<th>CEN</th>
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<tbody>
<tr>
<td>Armenia</td>
<td>Member</td>
<td>No</td>
<td>Affiliate</td>
</tr>
<tr>
<td>Azerbaijan</td>
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<td>No</td>
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</tr>
<tr>
<td>Ukraine</td>
<td>Member</td>
<td>Member</td>
<td>Affiliate</td>
</tr>
</tbody>
</table>

All countries are recommended to become full members of ISO and IEC as well as affiliates of CENELEC (affiliation in CEN is complete already).

Such memberships make it possible for any country to adopt European and International Standards as national ones. The adoption can be either in the original language (in practice English) or in the national language.
Accordingly, there is a mechanism available for any project countries to adopt any oil & gas sector standards as national standards.

By national approach there is a danger that in the process of modified standards adoption by each country the diversities may be accumulated; this may hamper application of the standards at the interstate level. Therefore, adoption of national standards identical to international standards should be preferred.

If the possibility to adopt international standards by endorsement method (ISO Guide 21-1 item 5.2) in the original language is provided for by the national legislation, then this way seems to be the quickest and most efficient.

When it is necessary to have a standard translated into the national language (for regulatory reasons, or for reasons of wide use of the standard), the national adoption scheme is the only possible. The translation shall be made from the original language, not from a standard that has been translated already into another language. Russian is an official language of ISO standards, but Russia has not actively translated standards into Russian. Therefore official ISO standards in the Russian language are normally not available.

Participation of national organisations in standards harmonisation process

The three key organisations for standards harmonisation include

- National Standards Body
- Technical Committees
- Oil and gas sector companies

National Standards Body

The National Standards Body should lead, plan, control and supervise the standards harmonisation process.

The NSBs should

- participate actively in development of new oil and gas sector standards
- be involved in development of European/International standards
- be involved in development of regional (EASC GOST) standards
- establish well represented national Technical Committees (when considered necessary) and control their work

National Technical Committees

There are currently four gas and oil sector Technical Committees in Ukraine, one in Belarus, one in Armenia. It seems that the traditional approaches to standards harmonization based on the translations of international standards and their adoption via national TCs do not guarantee the desired rate of international standards adoption.

Role of national TCs in development of new international standards should be strengthened.

The strategic recommendations include

- to check the composition of the existing TCs; if necessary engage new representatives from other stakeholders (especially industry)
• to strengthen TCs by engaging experts who have capacity to international co-operation
• to improve co-operation between NSBs and TCs
• to include plans of standards harmonisation in each TC’s programme; such activities should be the main field of the TCs
• actions to improve the financial position of the TCs (state budget and other sources)
The project does not consider necessary to have TCs of oil and gas sector established in those countries where they do not exist. An exception is Azerbaijan, which due to its large O&G sector, should establish at least one TC.

Oil and gas sector companies
The national oil and gas companies are among the main end-users of standards. The companies should support the harmonisation process for the own benefit, by participating in all phases of the harmonisation process by providing experts and maybe as financiers.

International co-operation

European/International TCs
Memberships in International and European standards organisations provide the general framework for international co-operation (in addition to making standards adoption possible). The second part of international co-operation is participation in the work of European and International TCs.

Passive participation in the international TCs may result in:
• systematic delay in the adoption of new standards
• lag in technology and isolation from international markets
• incapability to defend national interests

Project countries are members in several TCs. However, in most cases they are Observers, and generally participation is quite passive.

The total number of TCs is very high and it is impossible for the countries to participate in the work of even nearly all.

To simplify interaction with international TCs it is in some cases useful to reorganize national TCs to mirror International or European TCs. On the other hand this is not always possible for reasons of insufficient resources. National mirror committee is the most useful to have, when the country is participating in the work of an international committee.

The project recommends the countries to review their participation in International and European TCs; it is better to participate in just a few of them, but at the same time participate more actively than today.

Inter-state TCs
One more group of TCs is those on the EASC level. There are several relevant oil and gas sector TCs, and participation in their work is recommended.

EASC should consider establishment of one more general-purpose inter-state TC; one that would fully focus on the issues of oil and gas sector standards harmonisation. Participation in
the work of such TC would benefit all project countries, especially also those that do not have national O&G sector TCs.

**Funding and capacity building**

The costs of standards harmonisation depend on the selected scheme: translations or not, national or regional translation etc. However in any case such work increases costs of National Standards Bodies, which often report not having sufficient financial resources even for other necessary activities.

NSBs shall consider such sources as

- government funding (will probably remain the most important component)
- contributions from industry
- sale of publications
- sale of services
- support in the form of Technical Assistance

**Implementation of standards**

Implementation of standards shall be understood as the actual use of harmonised standards in the companies. The NSBs adopt and register standards, and they should promote their use but the decisions of application of standards are made in companies and other organisations.

Harmonisation of standards leads to harmonised national standards. In addition to them, however, there are a lot of other standards, such as standards issued by ministries, branch standards, company standards etc. In addition, there are technical regulations and requirements and other normative documents defined by various organisations.

An obstacle to implementation of harmonised standards is all activities, which require permits, licences or other similar approvals. Involved authorities may require application of old standards, rules, regulations etc which they know best and which they may even have issued themselves.

Wide-scale implementation of harmonised standards is a long process and requires – in addition to revision and preferably extensive abolishment of many existing rules, regulations and other than national standards – simplification of permit and licensing procedures, training of responsible authorities staff and other actions.

**Harmonisation of codes, directives and practices**

**Codes**

"Code" is normally understood to mean a collection of laws or regulations pertaining to a specific activity or subject.

In the context of this project the most relevant European "code" would obviously be Eurocodes. Eurocodes are a set of pan-European building codes, forming a common European set of structural design codes for civil engineering work.

Eurocodes will be mandatory for European public works and likely to become de-facto standards for the private sector. Its adoption is recommended also in the Project countries.
Many countries (for example Belarus among the project countries) have already adopted Euro-codes.

Eurocodes are in practice on the level of mandatory documents and shall be used by a large number of experts (all designers of structures first of all). Therefore they should preferably be translated into the national languages. Adoption of these codes is a national decision and shall be implemented on the national level.

Directives

A large number of European standards are based on EU directives. The directives are typically not oil and gas specific, but horizontal applicable in any field of industry. For example in the case of a gas pipeline such directives as pressure equipment directive, machine directive, directive on electrical equipment in explosive environments, and others apply, but there is no "directive on gas pipelines". A number of technical standards are connected with each directive. Use of such standards (which, however, is not compulsory) is supposed to ensure compliance with the directive’s essential requirements. Accordingly, adoption of a directive should preferably be accompanied by the adoption of the related standards.

It is recommendable that the project countries continue adoption of EU directives by issuing them as national laws or regulations. As such they should be translated into the national language.

In the EU the directives are binding as to result but states may choose method of implementation also issues regulations, which are binding as such in all member states. For the directives it is typical that they give the essential requirements, with which all shall comply.

From the point of view of oil and gas sector standards harmonisation systematic adoption of EU directives or regulations is not absolutely necessary. However, it will form a basis for harmonisation of the regulatory framework and as such supports standards harmonisation as well.

Practices

The most common meaning to “practices” is the "good" or "best" practices applied in the industry. Such practices are applied by industry enterprises and detailed information about them is seldom publicly available, being factors of competition between enterprises. There are industry associations, which are preparing "best practice" guidelines, but typically such guidelines are available only to the members, or they may be sold on the commercial basis. It is clear that harmonisation of such practices is only possible when the rights of the authors and copyright holders are respected.

In order to harmonise practices, oil and gas sector companies may

- purchase guidelines, best practice handbooks
- become members of associations and have access to the necessary information

Oil and gas sector associations

- Marcogaz
- OGP

are organisations which very well represent the industry. In addition they are both actively involved in standardisation work. Membership in both of them is recommendable to the project countries (to the national O&G companies).
“Practice” guidelines can also be purchased from such sources as

- API (www.api.org)
- Energy Institute (www.energyinst.org)

Another way to get information about practices of European oil and gas industry is co-operation with some leading European companies of the sector. Such approach has been applied successfully by companies of some CIS countries.

### 3.3 LEGAL, REGULATORY AND INSTITUTIONAL FRAMEWORK

This part of the project included

- analysis of legislative, regulatory and institutional framework
- identification of potential barriers for harmonisation of standards
- proposal of legal measures and acts to be taken

**Analysis of legislative and institutional framework**

The Contractor carried out the review of the institutional framework of quality infrastructure of the project countries. The review covered to the extent necessary for the scope of the project in the oil and gas sector:

- primary and secondary legislation, such as
  - laws on technical regulation, standardisation, conformity assessment, accreditation, certification, metrology
  - decrees, resolutions
  - regulations
- organisation of standardisation
- organisation of conformity assessment, accreditation, certification
- organisation of metrology
- organisation of market surveillance

In addition to the above, the work included an in-depth analysis of the corresponding European and international legislation, organisations, and QI systems. That was used for information dissemination and can be used by the countries to compare their systems with the international counterparts and to develop them to be more compliant with the European/international ones.

**Identification of potential barriers for harmonisation of standards**

One of the purposes of the analysis of the legislative and institutional framework was to identify potential barriers for harmonising standards.

A general conclusion is that the legal framework does not pose a barrier for harmonisation of standards; that harmonisation of standards has already started in the countries is an indication of this too. Laws and institutions can be developed to make harmonisation faster and easier.

**Drafting of legal measures and acts**
The purpose of the project was standards harmonisation, and the conclusion was that standards can be harmonised without modifications to the existing legislation. It was also shown concretely in the project as it succeeded to harmonise the first standard on the regional level. In addition, during the project some countries adopted proposed standards on the national level. Accordingly drafting of legal measures and acts proved to be unnecessary.

The project extended the legal, regulatory and institutional review from standardisation to cover other sectors of Quality Infrastructure (accreditation, certification/conformity assessment, metrology, market surveillance). The analysis showed that, if the target in the countries will be to develop a national Quality Infrastructure (QI) compliant with the European model, a wide and long-term development work is ahead, requiring also modifications to legislation, not to energy legislation but to QI related legislation.

In addition, it should be noted that the legal framework of Quality Infrastructure shall be basically the same for all sectors of industry: there need not be any oil & gas sector specific legislation of QI. Accordingly, any development of the legal framework of QI should be based on general objectives, not on specific issues of the oil & gas sector.

The basic structure of the QI if compliance with the European system is aspired should include such independent functions/organisations as:

- technical regulations (mandatory, governmental level)
- standardisation (voluntary, national standards body, NSB)
- metrology (national metrology institute, NMI)
- accreditation (national accreditation body, NAB)
- conformity assessment (private or Governmental bodies)

This structure is not fully developed in the project countries but steps into this EU’s QI direction have been taken and indications are that this continues. Some of the main issues include:

- recognition that technical regulations belong to the mandate of the Government, as they are part of mandatory legislation
- standardisation, metrology and accreditation are separate functions
- in the organisation of accreditation, the new “EC regulation 765/2008 of the European Parliament and of the Council setting the requirements for accreditation and market surveillance relating to the marketing of products…” should be used as a guideline
- in conformity assessment development of private service providers (inspection, testing, certification etc) should be supported and state involvement should be correspondingly reduced

3.4 TRAINING AND PROMOTION

The project paid plenty of attention to training of representatives of stakeholder organisations and to dissemination of information on issues relevant to the project. The project organised four training seminars, one study tour and established a website.

Training seminars

The project organised four training events
1. training on general topics of standardisation 16 – 19 November 2009
2. training on safety and security of gas infrastructure 15 – 17 September 2009
3. training on management systems in oil and gas industry 24 – 28 May 2010
4. training on gas and oil metrology 5 – 8 October 2010

The total number of participants in the training events was approx. 180.
The total number of speakers was approx. 50.

Study tour
The Project organised a study tour to EU standards bodies and oil and gas sector enterprises and associations on 19 – 25 September, 2010.

During the study tour visits were organised to CEN/CENELEC, CEN TC19, Marcogaz, OGP (all these in Brussels), DIN (Germany), SUTN/SOSMT (Slovakia Standards Body) and to several oil and gas sector companies in the same countries. Altogether 15 companies/organisations/facilities were visited. The number of participants was 26.

These countries were chosen for the following reasons. Germany is an old EU country, well-known for its DIN standards, and its experience in the gas and oil industry. Slovakia is a new EU country and it was considered interesting to see how such a country has adopted EU standards. Slovakia is also an important gas and oil transit country.

By visiting standard bodies it was possible to obtain in-depth knowledge of the operation of the standards system in the study tour countries and in the EU more generally. However, the Contractor and the stakeholders shared the opinion that in addition to visiting standards bodies, visits to actual users of standards, oil and gas sector enterprises, were equally useful.

Project website
The project has established its own website, www.ogsp.info. The purpose has been to present information about the oil and gas sector quality infrastructure in the six project countries, as well as of the project and its results on the website. Also information about the relevant international organisations is provided. The website is bilingual (English, Russian).

In this context it shall be recognised that standards, neither in original form nor translations, can be included in the contents of the website for reasons of IPRs.

4 CONCLUSIONS

It has been expressly evident that wide and real interest in the project exists from the countries in harmonisation of standards and in legal, regulatory and other harmonisation issues.

Harmonisation processes had already started in the countries, but the rate of progress has not always been high for many reasons, including lack of funding and lack of human resources.

One particular lesson learnt is that harmonisation of standards may be a very long process requiring financial resources and strong political will to achieve full-scale implementation.

Another particular lesson is that standards are proprietary documents and typically have associated with them substantial liabilities. Standards take often years to develop and pass through many hands (review and approval) before being published for general use. They must be
treated respecting legal principles and should not be used in part or translated without following accepted rules or procedures. In this project, the Contractor has endeavoured to adhere to such principles. While it took some time and project resources to establish such procedures, the Contractor maintains that this has been the correct and appropriate approach.

In a project, in which both calendar time and the effective working time are limited, a wide-scale harmonisation process can only be initiated with principal consideration to how continuation of the harmonisation process in the O&G sector can be maintained using the momentum established by the project.

A non-exhaustive list of the project's achievements is given below:

1. Achieving a consensus position on the most important standards in the O&G sector to be considered for translation with a view to harmonisation.
2. Establishing an inter-regional network of contacts between stakeholders, a prerequisite for the continuation of the process of harmonisation of standards in the regions.
3. Identifying and creating awareness, in the region, of the legal and associated issues and principles to be addressed when dealing with standards (including the provision and distribution of such standards) in the context of harmonisation initiatives.
4. Identifying and creating awareness of the legal and commercial principles associated with the translation of standards including IPR and respective liabilities along with practical and effective solutions for resolving such limitations.
5. Establishing practical solutions to getting European and International Standards adopted in the regions and countries using, inter alia, EASC procedures.
6. Supporting the adoption, at regional level, of a number of European standards via the EASC voting route. Other standards are due to follow as a direct consequence of the project.
7. Establishing an implementation program for the further adoption of European and International standards after project completion.
8. Carrying out a comprehensive training programme for large groups of experts from the project countries. Notable increase of awareness of the EU standards and the whole EU Quality Infrastructure was achieved.
9. Communicating to stakeholders the opportunities provided by a European and international co-operation in the field of harmonisation of standards.