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STANDARDIZATION ACTIVITY IN THE FIELD OF AGRICULTURAL AND FORESTRY TRACTORS AND MACHINERY, IN THE CONTEXT OF EUROPEAN AND INTERNATIONAL STANDARDIZATION

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Abstract: Under the conditions the emergence of global markets, standards are absolutely essential for the survival and prosperity of organizations. In this context, the standardization activity of organization INMA Bucharest develops continuously in the Technical Committee CT 77 "Agricultural and forestry tractors and machinery" aligned to ISO and CEN (CEN/TC 144, ISO/TC 23), according to the best European/International practices. At present, the approach of standardization activity, which is an integral part of the quality management system INMA organization is oriented towards European and international standardization process and aims strategic objectives of the European standardization system in 2020. Also the development standardization activity targets the development of collaboration between specialists in R & D and innovation and standardization experts in order to develop innovation through standardization.

Keywords: standardisation, agricultural, forestry, tractors, machinery, technical committee

1. INTRODUCTION

We live in a world dominated profound by the standards. Standards contribute to the production and supply of products and services more efficient, safer and more environmentally friendly. Standards also provide a technical basis for legislation in the area of the health, safety and environment helps to transfer technology to developing countries. Standardization activity is focused on ensuring the scientific and technical information supplied by the national standards. Therefore, in the current circumstances of the global economy, the standards become important tools for communication, information and establishing technical level for a certain category of products or services. In general, the use of standards is voluntary, but if an organization has decided to comply with certain standards according to its activity and has entered into contracts based on their or has said use of standards, then standard becomes a mandatory tool for the organization. For all these reasons, the standards represent referential underlying increase competitiveness of Romanian products on the European market (when applied European standards) and international market (when applied international standards). And also for all these reasons, activity of research-development has to be based on standards. The need for standards is not a new phenomenon. The standards functions are diverse, but two are most important: compatibility and information. Any firm who wants success on market looking to improve their performances using the standards based on the needs dictated by the market that activates. As a result, within the organization INMA continuously develops standardization activity of his field activity, according to the best practices in the field of European and international standardization. The organizational frame and the structure of standardization activities in the field of agricultural and forestry tractors and machinery, is presented in the figure 1.

The structure of the Technical Committee TC 77, in which the activity of standardization is carried in the field of agricultural and forestry tractors and machinery, is presented in the figure 2.

The standardization activity of INMA is carried on based process and has the following features:

- ✓ is a component of organizational strategy INMA;
- ✓ is approached based process;
- ✓ is carried according to the methodology IL 14 of quality management system QMS INMA;
- ✓ is in accordance with the best European/international practices in the field;
- ✓ is oriented towards the development of standards in the field of activity of the organization;
- ✓ is involved in the standardization process at national level and European/ international.

Standardization process in the field of agricultural and forestry tractors and machinery is characterized by the following:

- ✓ is integrated in quality management system QMS INMA (provides a safe operation for the other activities performed within the organization: design, research and development, production, testing, marketing, quality, logistics, acquisition-supply);
- ✓ contribute to increasing the effectiveness of other processes which runs within the organization INMA (due to the use of standards developed in both the design as well to the execution and tests);
- ✓ is aligned to the European and international standardization.

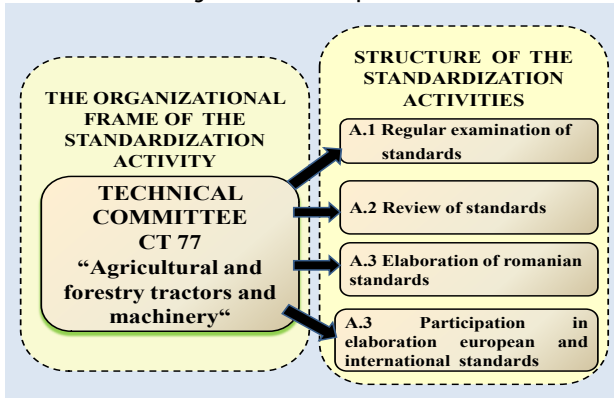


Figure 1 - The organizational frame and the structure of standardization activity

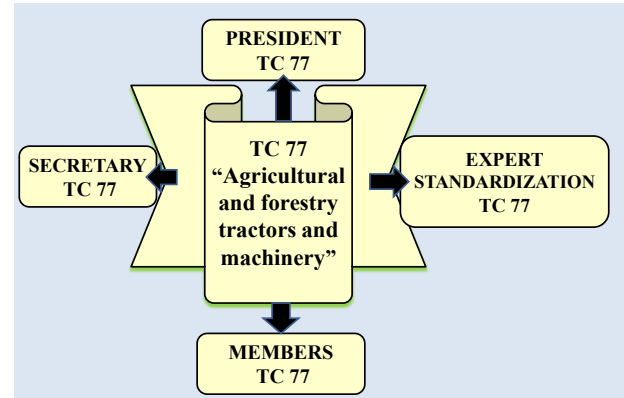


Figure 2 – The structure of the Technical Committee TC 77

The Technical Committee TC 77 in which the activities of standardization in the field of agricultural and forestry tractors and machinery, is correspondent with the European and international technical committees presented in the figure 3. The structure of the European and international committees (CEN/ TC 144 ISO / TC 23) corresponding CT 77, is conform to the table 1. The standardization activity within the CT 77 is carried under national legislation, which is given in the figure 4

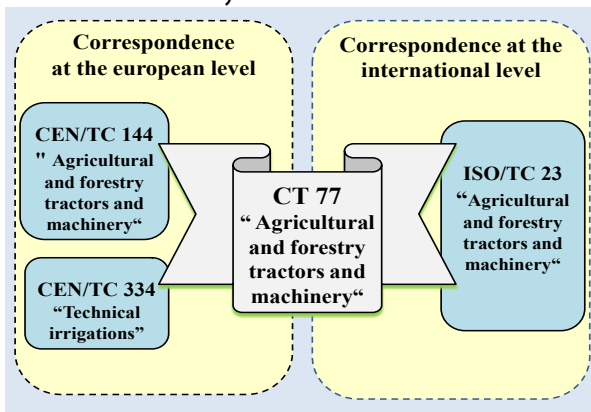


Figure 3 – European and international technical committees corresponding to TC 77 “Agricultural and forestry tractors and machinery”

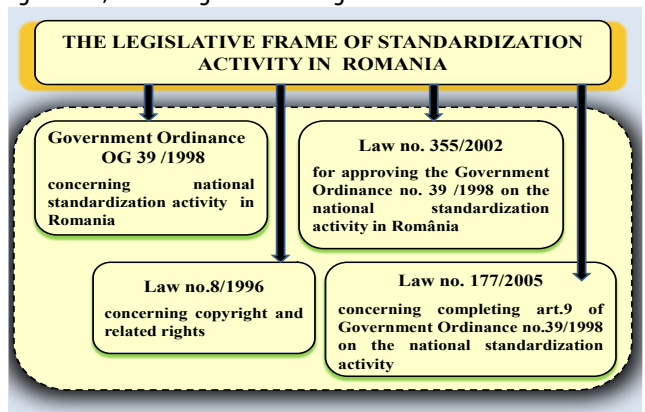


Figure 4 – The national legislation under which is performed the standardization activity TC 77

Table 1. The structure of the European and international Standardization committees (CEN/ TC 144, ISO/ TC 23) corresponding to CT 77

THE STRUCTURE OF CEN/ TC 144 “AGRICULTURAL AND FORESTRY TRACTORS AND MACHINERY“		THE STRUCTURE OF ISO/ TC 23 “AGRICULTURAL AND FORESTRY TRACTORS AND MACHINERY“	
Working group (TC/ WG)	Name of the field of activity working group (TC/WG)	Subcommittee/ Working group (TC/SC)	Name of the field of activity of the subcommittee(SC)
TC 144/WG 1	General safety requirements	TC 23/SC 2	Common tests
TC 144/WG 2	Tractors and self propelled machines	TC 23/SC 3	Safety and comfort
TC 144/WG 3	Mobile machines and trailers	TC 23/SC 4	Tractors
TC 144/WG 4	Portable machines and pedestrian controlled machines	TC 23/SC 6	Equipment for crop protection
TC 144/WG 5	Stationary equipment	TC 23/SC 7	Equipment for harvesting and conservation
TC 144/WG 6	Manually portable forestry equipment	TC 23/SC 13	Powered lawn and garden equipment
TC 144/WG 7	Powered lawn and garden equipment	TC 23/SC14	Operator controls, operator symbols and other displays, operator manuals
TC 144/WG 8	Forestry machinery	TC 23/SC 15	Machinery for forestry
		TC 23/SC 17	Manually portable forest machinery
		TC 23/SC 18	Irrigation and drainage equipment and systems
		TC 23/SC 19	Electronic devices for the agricultural equipment

The mode of realization comparative of the standardization activity at national, European and international level is shown in the table 2.

Table 2. Rules of operation of the standardization activity at national, European and international level

AT INTERNATIONAL LEVEL (ISO)	AT NATIONAL LEVEL	AT EUROPEAN LEVEL (EN)
<p>DIRECTIVE (ISO)</p> <p>-Part 1: 2009, Procedures for technical activity</p> <p>-Part 2: 2004, Rules that determine the structure and the redaction of the International Standards</p> <p>-Guide ISO/CEI 2:2004 Standardization and related activities. General vocabulary</p>	<p>THE ROMANIAN STANDARDS (SR)</p> <p>-SR 10000 (standard on the parties) Principles and methodology standardization</p> <p>-SR EN 45020:2007 Standardization and related activities. General vocabulary</p>	<p>INTERNAL REGULATION (CEN)</p> <p>-Part 2: 2010, Common rules for standardization activity;</p> <p>- Part 3: 2009, Rules that determine the structure an writing European standards</p> <p>-EN 45020:2006 Standardization and related activities. General vocabulary</p>

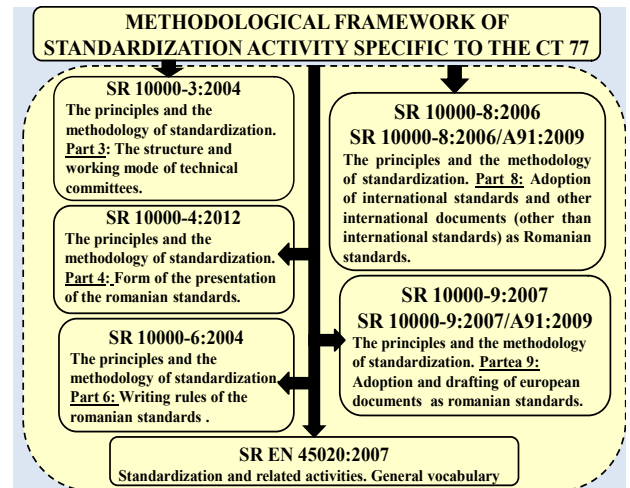


Figure 5 - The methodology of standardization activity within the CT 77

2. MATERIAL AND METHODS

The methodology of standardization activity within the CT 77 is in accordance with SR EN 45020: 2007 and with the following parts of the standard SR 10000, given in the figure 5.

The methodological framework of standardization activity CT 77 is according to the methodological framework of standardization activity at European and international level, as presented in the figures 6 and 7.

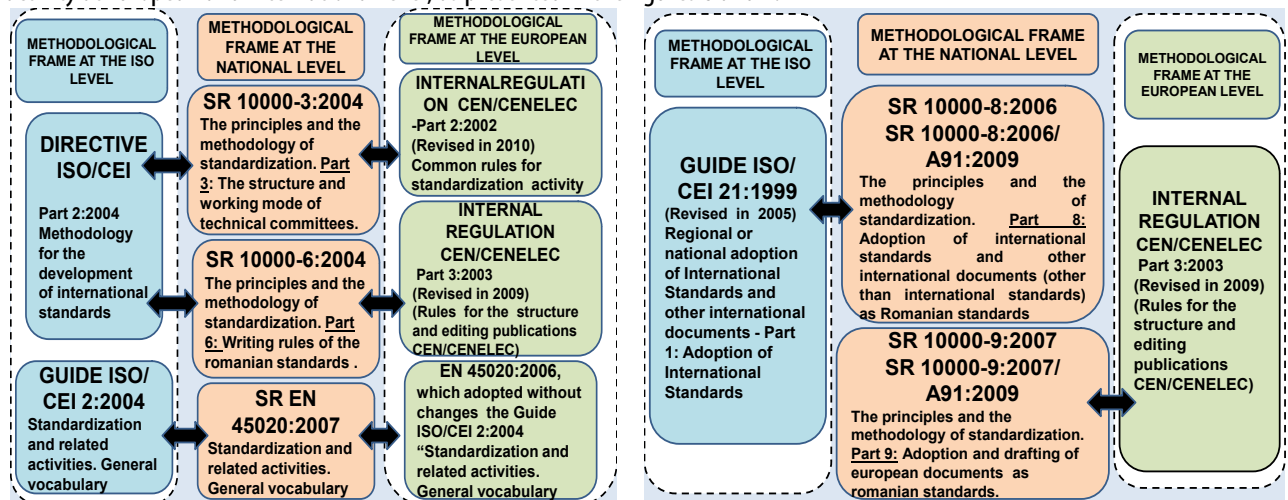


Figure 6-Figure 7. The comparative methodological framework of standardization activity CT 77 with methodological framework of standardization activity at European and international level

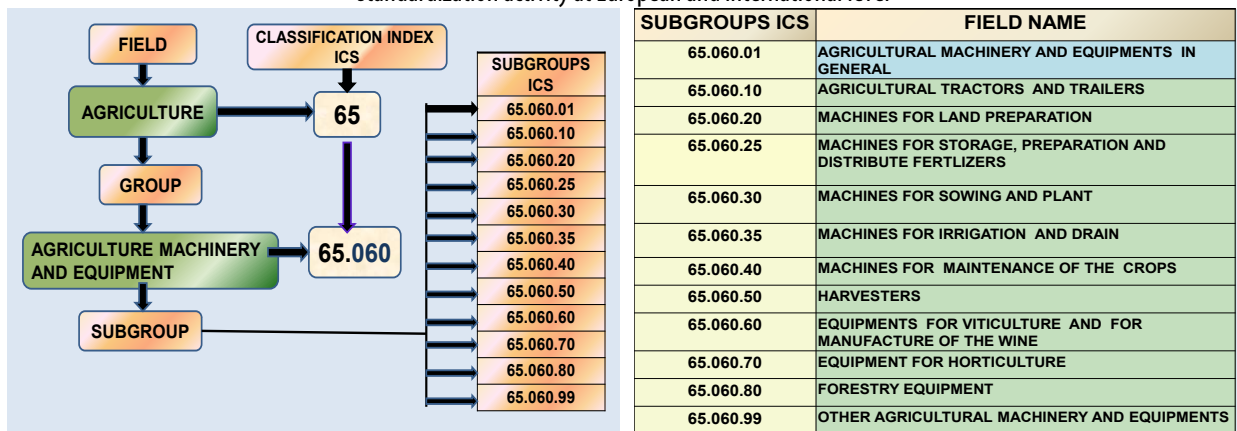


Figure 8 - Alignment of the national classification of the field of standards relating to the patrimony of CT 77 at international classification for standards (ICS)

The standards classification developed under the CT 77 is aligned with the International Classification for Standards (ICS) according to the figure 8. According to the fields correlated with ICS classification, standards developed by the CT 77 are classified in general and specific standards of his activity field according the figure 9 and figure 10.

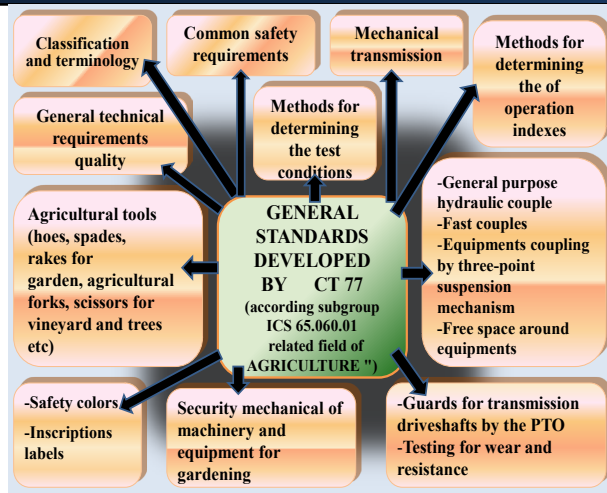


Figure 9 – General standards developed by CT 77 (according to ICS subgroups related to the "agriculture" field)

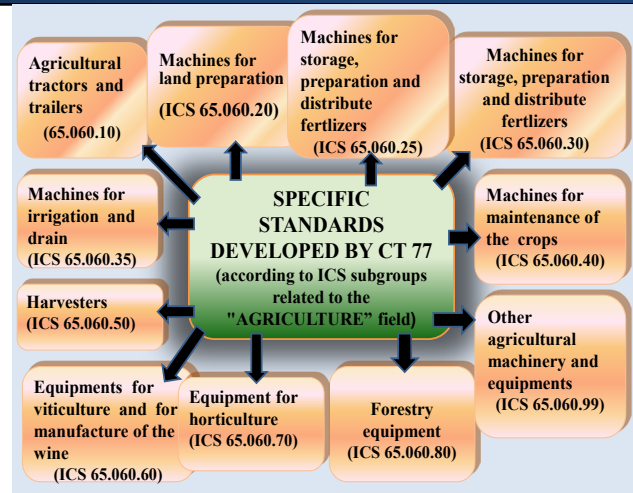


Figure 10 - Specific standards developed by CT 77 (according to ICS subgroups related to the "agriculture" field)

Romanian standards development in CT 77, is performed as the case, by one of the following methods presented in the figure 11.

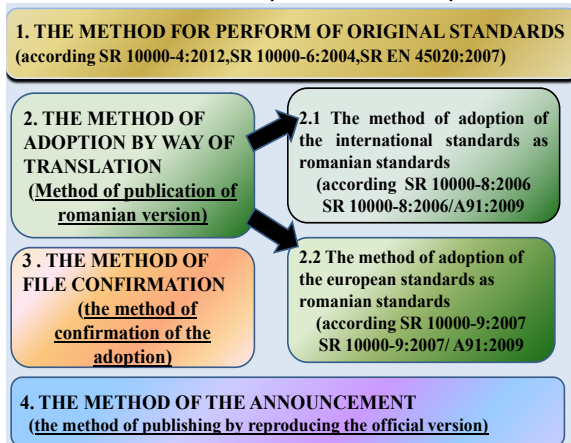


Figure 11 – Methods for the standards development in the CT 77

Figure 12 details:

- The year 2011 (Phase 1/Stage I)**
 - Examination original standards: 122 (121 original standards proposed according to the realization plan)
 - Review original standards by adopting international standards with similar field: 17 (14 according to the plan of realization)
- The year 2012 (Phase 3 and Phase 4/Stage II)**
 - Review original standards by adopting international standards with similar field: 22 (20 standards proposed after the examination/ 2011)

THE SITUATION RESULTING FROM THE ORIGINAL STANDARDS EXAMINATION OF PATRIMONY CT 77			
Original standards proposed for the CONFIRMATION	Original standards proposed for the REVIEW	Original standards proposed for the CANCELLATION	TOTAL STANDARD EXAMINED
18	102	2	122

Figure 12 - example of the results of standardization activity undertaken by CT 77

3. RESULTS OF RESEARCH AND DISCUSSION

In the period 2001-2013, TC 77 has developed 169 standards, in which: 37 standards in the CALIST Program 2001, 2002 and 2004, 39 standards in the SECTORAL Plan/2011 and 93 standards under direct contracts with the ROMANIAN STANDARDS ASSOCIATION - ASRO. A concrete example of the results of standardization activity undertaken by CT 77, refers to the examination of standards view to revising, confirmation or cancellation, respectively at standards developed under the sectorial plan / 2011 and is shown in the figure 12.:

4. CONCLUSIONS

Continuing the process of review of the original standards is imperative regarding reviewing all standards resulting from examination survey of the standards under the patrimony of CT 77 (conf. Phase I of the projects carried out in the SECTORAL Plan/ 2011), in order to align to the technical evolution and current requirements.

The development of standardization activity developed by CT 77, contributes to the development of research-development-innovation (R-D-I) activities by:

- ✓ DEVELOPMENT OF THE STANDARDS NECESSARY FOR THE R-D-I ACTIVITIES (standards in the field of agricultural and forestry tractors and machinery);
- ✓ INCREASED DEGREE OF INFORMATION about European and international standardization stage in the field of CT 77, according to <http://www.iso.org>, <http://standards.cen.eu>;
- ✓ DEVELOPMENT OF THE ALIGNMENT ROMANIAN STANDARDS IN THE FIELD OF TC 77 AT European standards SR EN, SR HD (full transposition of harmonized European standards, which are covered by DIRECTIVE "MACHINERY" 2006/42 / EC and provide PRESUMPTION OF CONFORMITY, by respect the ESSENTIAL REQUIREMENTS FOR SAFETY, HEALTH AND ENVIRONMENT);
- ✓ REDUCING THE TIME FOR DOCUMENTATION (by developing a catalog for standards of CT 77 and making it available electronically to the C-D-I specialists);

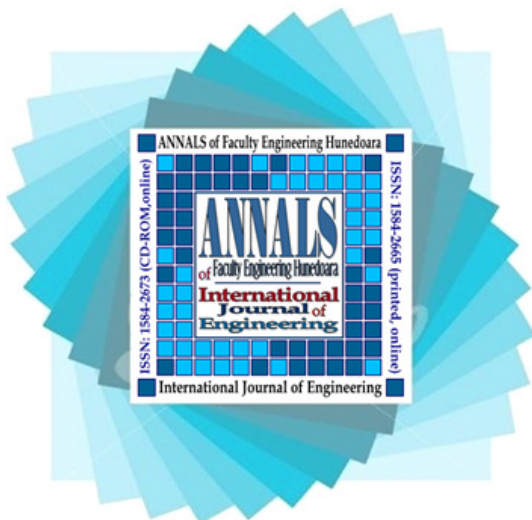
- ✓ TRANSLATION SKILLS DEVELOPMENT on the terminology used in the standards relating to the patrimony CT 77, necessary for exchanges of experience international/ European of the R-D-I;
- ✓ COMMUNICATION DEGREE DEVELOPMENT AMONG SPECIALISTS CDI AND EXPERTS STANDARDIZATION (through the integration of standardization activity in quality management system QMS-INMA).

The objective of standardization activity of CT 77 in view of the national strategy 2014-2020 is the development of the relationship between research – innovation – standardization. Achievement of this objective, targeting the active involvement of research collectives INMA within the activity of the Technical Committee CT 77, but mostly in the corresponding European Technical Committees through:

- ✓ involvement the research from the INMA in the stage for the development of the European standards that requires research, development and innovation activities;
- ✓ generate proposals for new Romanian standards and new themes of European standards as a result of the research themes in the field of activity of CT 77;
- ✓ promoting innovative solutions from the R-D-I projects by the development of national and European standards;
- ✓ development of the patrimony of national standards of CT 77

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