STRATEGIC BUSINESS PLAN – ISO/TC 6 PAPER, BOARD & PULPS

Executive summary

Main Fields and overall size of the markets addressed by ISO/TC6

Paper is used worldwide and has many applications in everyday life. Such applications include:

- Information and Communication papers commonly used for advertising, business and educational purposes [e.g., correspondence, reports, forms, coupons, tickets, books, magazines, flyers, posters, brochures, inserts and newspapers];
- Packaging papers and boards used as protective carriers for durable goods [e.g., boxes, wrappers, and bags];
- Household and sanitary purposes [e.g., tissue and towels];
- Industrial applications [e.g., building products and laminates].

The world's average annual paper consumption is ~59 kg per capita and reaches ~150-200 kg in North America and Europe (source: Statista.com).

Paper is produced in several countries around the world, with 30 countries accounting for ~85% of the total production. Global production of paper and paperboard was 404 million metric tonnes in 2019 (source: FAO). It had been growing at a slightly positive 0.4% compound annual growth rate (CAGR) since 2008 due to the growth in the Packaging and Sanitary papers sector offsetting the decline in the Graphic paper sectors. However, in 2019 growth could no longer offset the decline, resulting in a 1.1% decrease in global production vs 2018. It is expected that the 2020-2021 pandemic will have a lasting impact on paper consumption worldwide, accelerating the trends in respective market segments.

The need for standards in pulp and paper has long been recognized. Technical Committee 6 has been in existence since 1947 and is one of the original technical committees instituted by the International Organization for Standardization. ISO TC6 is responsible for standardization of test methods and product specifications in the field of pulp, paper and board. Its present membership consists of the major producing and consuming countries of the world.

In September 2018, the TMB approved an updated TC6 Scope:
Standardization in the field of paper, board and pulps and cellulosic nanomaterials, and lignins, including terminology, sampling procedures, test methods, product and quality specifications, and the establishment and maintenance of appropriate calibration systems. This includes all types of paper, pulps and board as well as products thereof containing any portion of recycled material or material intended for recycling.
Excluded :
matters falling within the scopes of particular technical committees (e.g. ISO / TC 42, 46, 122, 130, 154) with which liaison should be maintained.

Benefits realized through the availability of the standards

Today, a wide variety of pulp and paper products with a multitude of end-uses are available on the market. This vast array of products needs to be differentiated based on standardized properties. Emerging bio-based materials from the forest sector need to enter the market place. "Standard" properties and related specifications are critical to the conditions of trade agreed upon between manufacturers and buyers of paper and bioproducts worldwide. International Standards developed through the ISO/TC6 have been and continue to be instrumental in the facilitation of trade in these products.

Main objectives and priorities in the work of the committee

Within the domain of pulp, paper and board and forest-sourced bioproducts, the main objectives and priorities in the work of the committee are (1) to provide maintenance on existing standards, (2) to develop new standards for traditional pulp, paper and board sectors, (3) to develop standards in emerging bioproduct areas such as cellulosic nanomaterials and lignins, (4) to ensure that the standards fulfill societal requirements with respect to health, environmental protection, material and product safety and quality, (5) to recognize the interests of all markets, thereby ensuring the global relevance of TC6 standards and facilitating international trade, (6) to ensure that the TC6 standards are well known, readily available and widely used.

1 Introduction

1.1 ISO technical committees and business planning

The extension of formal business planning to ISO Technical Committees (ISO/TCs) is an important measure which forms part of a major review of business. The aim is to align the ISO work programme with expressed business environment needs and trends and to allow ISO/TCs to prioritize among different projects, to identify the benefits expected from the availability of International Standards, and to ensure adequate resources for projects throughout their development.

1.2 International standardization and the role of ISO

The foremost aim of international standardization is to facilitate the exchange of goods and services through the elimination of technical barriers to trade.

Three bodies are responsible for the planning, development and adoption of International Standards: ISO (International Organization for Standardization) is responsible for all sectors excluding Electrotechnical, which is the responsibility of IEC (International Electrotechnical Committee), and most of the Telecommunications Technologies, which are largely the responsibility of ITU (International Telecommunication Union).

ISO is a legal association, the members of which are the National Standards Bodies (NSBs) of some 164 countries (organizations representing social and economic interests at the international level), supported by a Central Secretariat based in Geneva, Switzerland.

The principal deliverable of ISO is the International Standard.

An International Standard embodies the essential principles of global openness and transparency, consensus and technical coherence. These are safeguarded through its development in an ISO Technical Committee (ISO/TC), representative of all interested parties, supported by a public comment phase (the ISO Technical Enquiry). ISO and its Technical Committees are also able to offer the ISO Technical Specification (ISO/TS), the ISO Public Available Specification (ISO/PAS) and the ISO Technical Report (ISO/TR) as solutions to market needs. These ISO products represent lower levels of consensus and have therefore not the same status as an International Standard.

ISOalso offers the International Workshop Agreement (IWA) as a deliverable which aims to bridge the gap between the activities of consortia and the formal process of standardization represented by ISO and its national members. An important distinction is that the IWA is developed by ISO workshops and fora, comprising only participants with direct interest, and so it is not accorded the status of an International Standard.

2 Business Environment of the ISO/TC

2.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal and social dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this ISO/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards:

- The pulp, paper and board industry is both capital intensive and labour intensive. Papermaking is complex and involves many unit operations. Pulp characteristics depend on the composition of the fibre basket which can vary regionally, seasonally or even from shipment to shipment. Consequently, having standardized methods to assess product quality and uniformity are of vital importance.
- Many grades of pulp and paper are traded as global commodities. Demand for many paper products is cyclical in nature, subject to worldwide economic trends and fluctuations.
- Most paper, board and pulp products used in printing and packaging, such as newsprint, commercial and business papers, linerboard, paperboard etc., can be classified as having "standard" properties and specifications which are broadly accepted by manufacturers, consumers, distributors, converters, brokers, public authorities and non-governmental organizations. To measure “standard” properties and specifications accurately and fast there is a need for instruments for measuring paper properties both in laboratories and as online instruments.
- Tremendous changes in societal behaviour in recent years have had a pronounced effect on demand for paper grades. The internet, digital media, social networks have changed how people get information and are having an impact on the demand for newsprint and printing paper grades. In packaging, there is a renewed demand for paper-based packaging because of increased environmental concerns over fossil fuel-based packaging. The growth of online shopping is driving an increased demand for containerboard. These are some examples of forces that have played significant roles in shifting paper markets. As well, new paper-based products are under constant development and will require standard methods of test.
- The past decade has seen many mergers and acquisitions in the pulp and paper industry, producing larger corporations. A similar trend has occurred in the publishing sector. These multi-national companies may exert greater influence over the direction of standards writing and compliance in regions where they have operations.
- Advancements in technologies have led to larger, faster pulp and paper machines and a reduction in the required workforce. Automation and statistical process control are now commonplace in the industry. New technologies will continue to drive interest in international standards for measurement, testing and control.
- The overall and irreversible decline in the demand for printing paper grades has pushed the industry to develop new products and technologies as well as building biorefinery installations. For example, the last decade has seen the scale-up and commercialization of advanced cellulosic materials (e.g. cellulose nanocrystals, cellulose nanofibrils, cellulose filaments) and the commercial development of lignins. The commercialization of these emerging products will require the support of standards that will enable the description and differentiation of products. This is why TC6 has expanded its scope in 2014 and 2018 to explicitly include these new materials and products.
- Many countries have regulations in place addressing product liability. These can include directives related to the hygienic attributes of paper and board products that are to come into contact with foodstuffs. In many jurisdictions there also exist directives covering

liability over damage due to defective packaging in the shipping of containers. TC6 standards must take into consideration the existence of such rules and regulations.

- With increasing environmental awareness at the global level, the development of Circular Economies and the growing Bioeconomy, products of the Pulp and Paper Industry are increasingly being assessed and compared to other classes of products for environmental impact and sustainability. TC6 must keep abreast of standardization activities related to environment and sustainability in other TCs that could impact the Pulp and Paper industry.

In addition, in order to take into account the growing importance of recyclability aspects and the development of new standards on recyclability, recycled materials and materials intended for recycling have been included in the scope of ISO/TC6 in 2018

2.2 Quantitative Indicators of the Business Environment

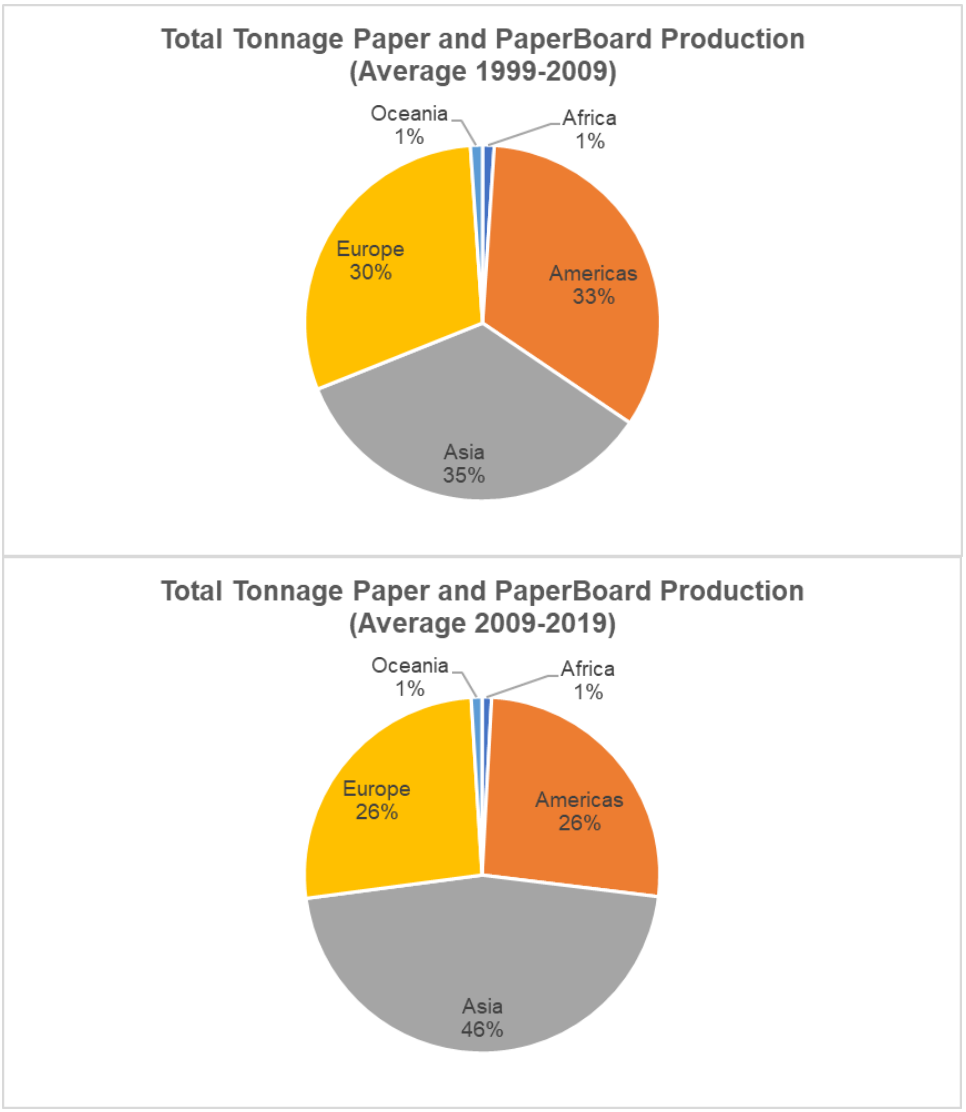
The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the ISO/TC:

Paper is produced in many countries around the world, with 30 countries accounting for 85% of the total production. Global production of paper and paperboard was 404 million metric tonnes in 2019 (source: FAO), corresponding to a 0.4% compound annual growth rate (CAGR) since 2008. Examining the tonnages and growth rates of the different categories of paper and board provides more insights into the state of the industry.

Category	2018 Tonnage (metric tonnes)	2019 Tonnage (metric tonnes)	CAGR (%) since 2008	% change vs 2018
Packaging paper and paperboard	241 203 452	241 471 789	+2.4	+0.1
Printing and writing papers	96 449 642	92 277 910	-2.2	-4.3
Newsprint	20 062 853	17 976 507	-7.8	-10.4
Household and sanitary papers	35 230 808	35 760 785	+3.1	+1.5
Other paper and paperboard	15 711 310	16 804 843	-0.6	+7.0
Total Paper & Board	408 682 065	404 315 834	+0.4	-1.1

Source: United Nations Food and Agriculture Organization (FAO) 2019 (http://www.fao.org/faostat/en/#data/FO)

The detailed data shows that the overall slightly positive growth rate since 2008 is a combination of growth in the Packaging and Sanitary papers sector with decline in the Graphic paper sectors. The decline in the Graphic paper sector is having a major impact on the industry and in 2019 was no longer compensated by the growth sectors. The 2020-2021 pandemic is expected to accelerate these trends, but it is too early to estimate the actual impact. Another change that has occurred in the past decade is a shift in the geographical distribution of the production from Europe and North America to Asia as is illustrated in the Figure below.



Source: United Nations Food and Agriculture Organization (FAO) 2019 (http://www.fao.org/faostat/en/#data/FO)

The world's average annual paper consumption is 59 kg per capita and reaches 150-200 kg in North America and Europe (source: Statista.com)

Test methods for paper, board and pulp must be as precise as necessary, thereby achieving sufficient repeatability and reproducibility. At the same time, standardized methods developed through TC6 must be practical to carry out – suitable for use by pulp, paper and board manufacturers as well as their customers.
The use of ISO/TC 6 standards is expected to increase, as it is anticipated that many new customers in the high growth economies of the world will specify that manufacturers comply with these standards.

3 Benefits expected from the work of the ISO/TC

Since the pulp and paper industry has an extremely long history, many national, regional and proprietary standards existed well before the establishment of ISO/TC6. It has been an ongoing challenge to expand the awareness and encourage the use of ISO standards, but driven by globalization of the industry over the past few decades, progress on this endeavour has been made.

Benefits from the work of ISO/TC6 include:

- Published standards are readily accessible all over the world, and therefore complement the international nature of the papermaking industry.
- Standards encompass a single, internally consistent set of test methods, and thereby facilitate the unambiguous description of the wide variety of pulp, paper and board grades appearing in specifications used for international trade.
- Standard testing methods released through the ISO/TC6 offer preferred methods of testing for upholding contractual obligations between buyers and sellers of pulp, paper and board and settling trade disputes.
- ISO Standards have high credibility since a committee dedicated to technical competence, peer review, procedural openness, and representative of all interested parties develops them.
- Experts regularly review ISO Standards to ensure that they represent current industrial practices and technologies.
- Rapid reaction by TC6 to new market requirements and to the development of new products requiring new testing procedures or new testing equipment will avoid the creation of conflicting or contradicting national testing procedures. Several regions of the World are either harmonizing the national standards to ISO standards or directly adopting the ISO standards as national standards.

4 Representation and participation in the ISO/TC

4.1 Membership

As of 2021, ISO TC6 has 29 Participating Members and 31 Observing Members. The up-to-date information can be found at:

https://www.iso.org/committee/45674.html?view=participation

4.2 Analysis of the participation

- Most major producers and consumers of paper, board and pulp are represented within ISO/TC6. Canada (SCC) holds the secretariat of ISO/TC6, while Sweden (SIS) holds the secretariat of the subcommittee on Test methods and quality specifications for paper and board. Several countries presently support convenorships of Working Groups such as Australia, Canada, France, Germany, the Netherlands, Sweden, the United Kingdom, and the United States of America.
- Several representatives of ISO/TC6 act as formal liaisons with other Technical Committees involved in areas that are of mutual interest.
- Existing national and regional standards often form the basis for the development of ISO standards. In the past, the origins of draft standards prepared by ISO/TC6 have come from such sources as Appita, CEN, PAPTAC, SCAN-TEST, JTAPPI, and TAPPI. ISO/TC6 continues to collaborate with other established organizations in the preparation of international standards.
- Concerted efforts continue to be made to improve the level of involvement from developing countries. The importance of participating in the development of international standards must be emphasized, as well as the potential impact of the published standards on conditions of trade.
- English is the base language for communications within ISO/TC6. Selected standards are subsequently translated as needed into French with the assistance of the French and Canadian delegations.
- Plenary meetings are held in 18-month intervals, with the location rotating to various continents around the globe. ISO TC6 has been using teleconferencing combined with in-person meetings during plenary week since 2014. Due to the pandemic, ISO/TC6 and ISO/TC6/SC2 will be holding their first entirely virtual working group and plenary meetings in May-June 2021.

5 Objectives of the ISO/TC and strategies for their achievement

5.1 Defined objectives of the ISO/TC

Within the domain of pulp, paper and board and forest-sourced bioproducts, the main objectives and priorities in the work of the committee are:

- to provide maintenance on existing standards;
- to develop new standards for traditional pulp, paper and board sectors;
- to develop standards in emerging bioproduct areas such as cellulosic nanomaterials and lignins;
- to ensure that the standards fulfill societal requirements with respect to health, environmental protection, material and product safety and quality;
- to recognize the interests of all markets, thereby ensuring the global relevance of TC6 standards and facilitating international trade;
- to ensure that the TC6 standards are well known, readily available and widely used.

5.2 Identified strategies to achieve the ISO/TC's defined objectives

To achieve the objectives listed in 5.1 it will necessitate:

- Continuous identification of trade and industry needs. For the cellulosic nanomaterials and lignins areas, the development of a roadmap and prioritization of standardization needs are an essential part of delivering the right standards to the market in a timely manner.
- Maintaining a scope and structure within TC6 that is conducive to the efficient development of standards.
- Increasing the use of ISO's remote communication tools to facilitate and accelerate standards development work.
- Close cooperation and collaboration with CEN/TC172 in accordance with the Vienna Agreement.
- Encourage the participation of countries not yet active in TC6.
- Attract new experts from traditional and non-traditional fields for TC6.
- Marketing and promoting the use of standards developed by TC6.

6 Factors affecting completion and implementation of the ISO/TC6 work programme

- Increased competition in the pulp and paper sector and the decline in demand for printing papers has prompted cost reduction efforts and mill closures. This has resulted in a depleted workforce at all levels of organisation in the companies and the mills. There is less time and fewer individuals to participate in the process of developing international standards, even though the need for these standards is greater than ever.
- Another challenge of the committee is that the average age of the experts keeps increasing. This trend is similar to what the industry as a whole is facing. The committee was successful in attracting younger experts in the emerging sectors, but we still need to maintain a strong expert base for the traditional pulp and paper standards.
- Representatives from some countries within TC6, both participating and observing, have not been entirely successful in communicating the importance of ISO Standards. Senior management may not be aware of the existence of these standards, their value to trade, and the risks of non-involvement in their development. Standards writing activities should be considered an essential part of business plans and strategies.
- Most standards prepared by TC6 are intended for practical use at the mill level. To ensure that the interests of the mills are respected, significantly greater participation from pulp and paper companies is being sought. A balanced mix of technical experts from various backgrounds is required to produce standards that are universally applicable.
- Participation in TC6 from non-active countries is needed to expand the levels of acceptance and usage of the standards.
- Standards developed through the ISO are not mandatory. As a result they suffer the inherent risks of remaining unknown or being ignored. [Note: This is in contrast to European Standards developed by CEN which are mandatory and must be followed by each CEN-member. Another important difference is that each CEN-Member must implement each European standard in its national standards programme. National Standards that are essentially equivalent to European Standards must be withdrawn.]

7 Structure, current projects and publications of the ISO/TC

Information on ISO online

The link below is to the TC6's page on ISO's website:
https://www.iso.org/committee/45674.html

This site contains information that is continuously updated. Please click on the tabs and links on this page to find the following information:

- About (Secretariat, Committee Manager, Chair, Date of creation, Scope, etc.)
- Contact details
- Structure (Subcommittees and working groups)
- Liaisons
- Meetings
- Tools
- Work programme (published standards and standards under development)

Reference information

Glossary of terms and abbreviations used in ISO/TC Business Plans

General information on the principles of ISO's technical work