

Plastic Pipes and Products Piping Systems Ltd. – Mauritius – Economic benefits of standards – Case Study

August 2011– April 2012

Content of this presentation

- Plastic Pipes and Products Piping Systems Ltd.(PPP PSL) – Basic company information
- Plastic pipe production & PPP PSL's value chain
- Use of standards at PPP PSL
- Quantification of the impacts of standards
- Additional qualitative considerations

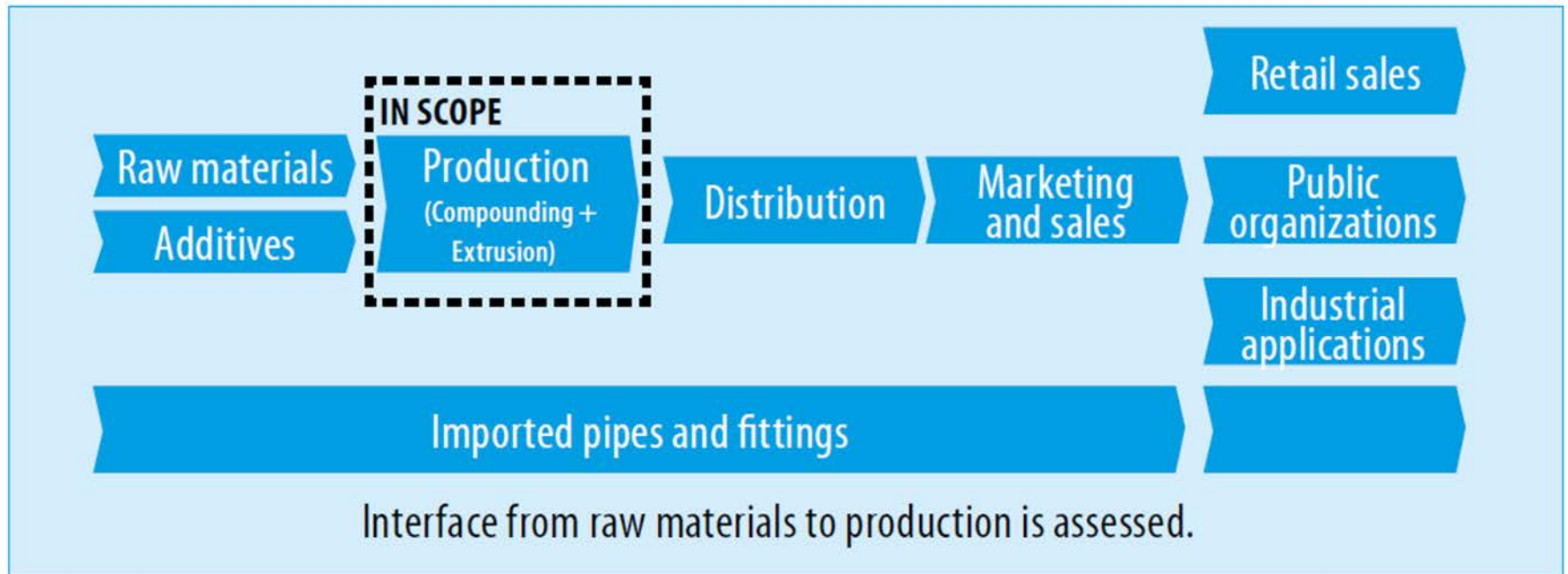
PPP PSL – Company overview (1)

- PPP PSL is part of the Desbro Group of Companies that has annual turnover of around USD 15 million. All the companies are private entities
- Established since 1975, PPP PSL manufactures plastic pipes and fittings made of PVC-U in sizes ranging from 20 mm to 250 mm for different applications such as cold and hot water supply, sewerage, draining and conduits for electrical wires
- PPP PSL also manufactures polypropylene (PP) single wall corrugated pipes in small sizes for electrical conduit applications and double wall corrugated pipes for telecommunication and sewerage applications
- A subsidiary company of PPP PSL is involved in the manufacture of polyethylene (PE) pipes

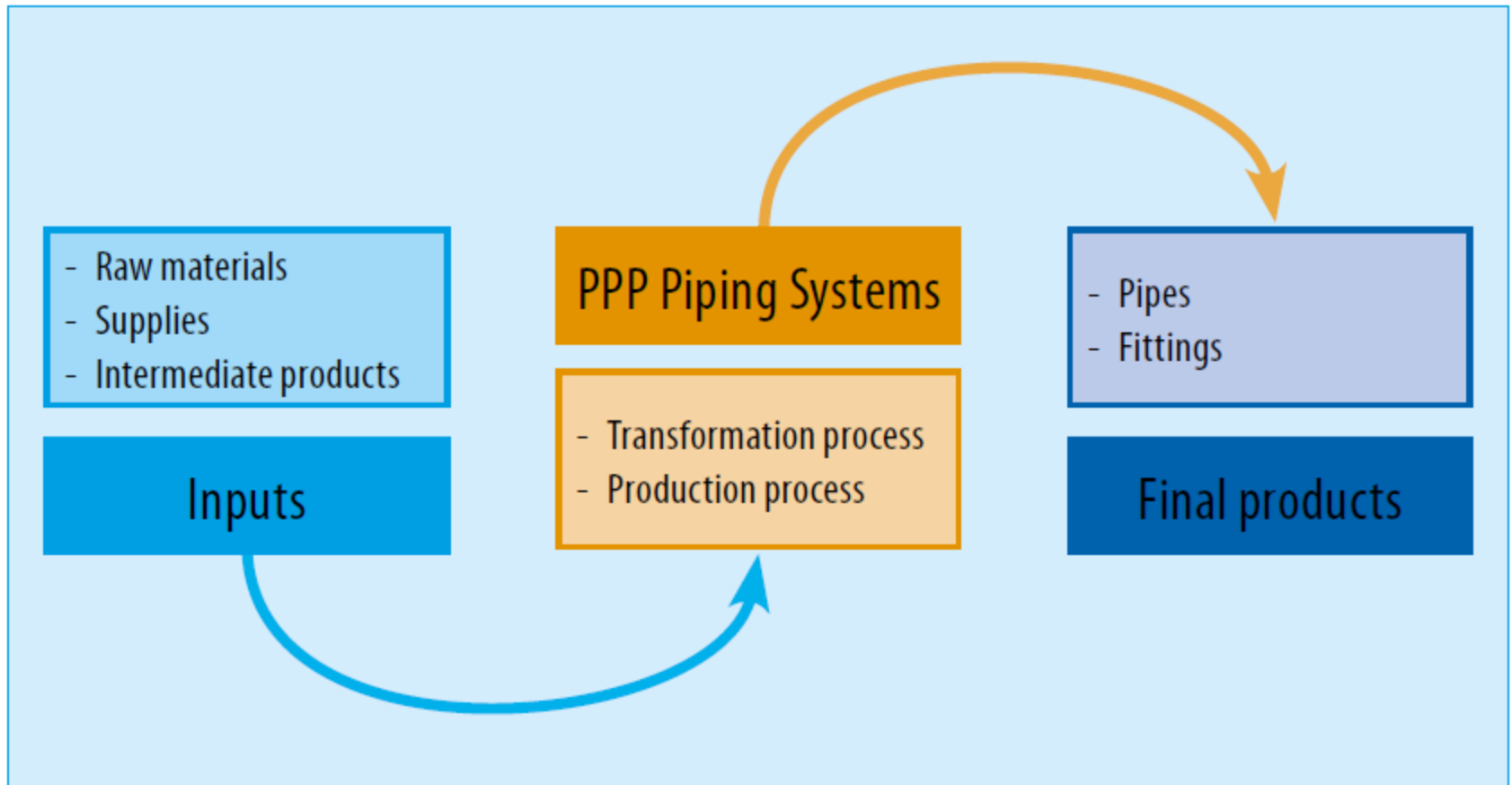
PPP PSL – Company overview (2)

- STR is the marketing arm for PPP PSL manufacturing. It has export markets in the Indian Ocean Islands and the East Africa region
- All products are manufactured according to international or European standards
- The company is certified to ISO 9001 for its internal processes, has obtained the AFNOR Certification Mark for its PE pipe production and has product certification for structured wall pipes for sewerage

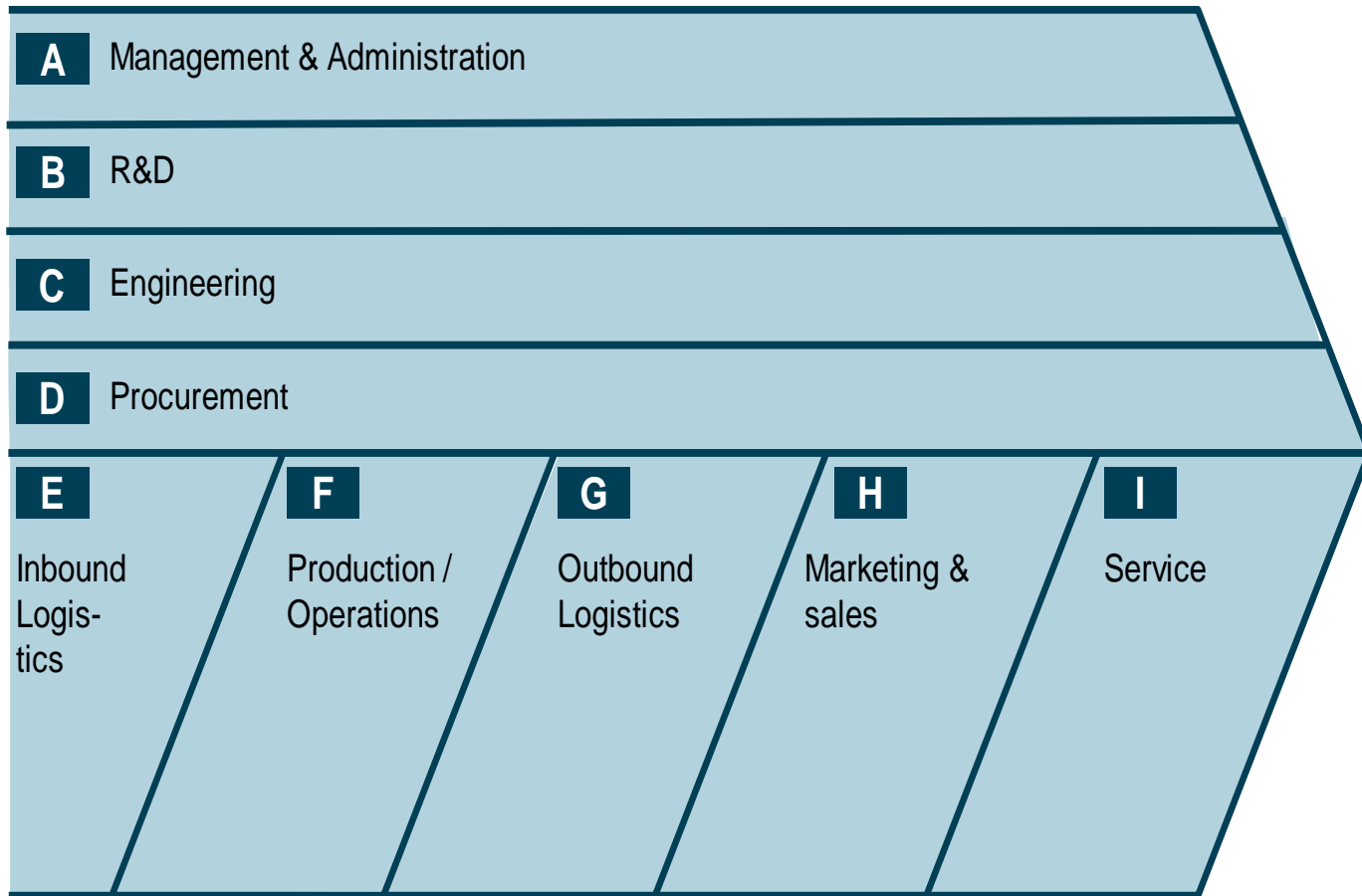
Plastics industry value chain



PPP PSL in the plastic pipe industry value chain



Model of a company value chain (M. Porter)



The “value chain” is used as a tool in the assessments to structure and analyze the activities of companies

Business functions and related activities

The operations of the company are subdivided into a number of key business functions, each of which is associated with a set of specific value chain activities.

Business function	Activities
Management and administration	Organizational structure, human resource management, financing, risk management, quality management
Research and development	Applied research, design of new products and development up to the prototype stage
Engineering	Maintenance of equipment and repairs
Procurement	Evaluation of suppliers, monitoring, purchase of materials, equipment and supplies, incoming inspection
Inbound logistics	Supply management, testing of raw materials and supplies, warehousing
Production/operations	Order processing, production planning, processing, process monitoring, quality control, control of health, safety and environmental aspects
Outbound logistics	Packing, storage, transportation, order tracking

Key value drivers in PPP PSL

Based on interviews with PPP PSL management, the following value drivers have been identified.

Value drivers	Descriptions
Quality of products	Ability to produce high quality products, bearing the MSB product certification mark in conformity with relevant international standards
Quality of production processes	Ability to minimize failure rates in production
Efficiency of production	Ability to optimize production processes in terms of process time and costs
Efficiency of the quality control system	Ability to monitor the production process and to perform tests as per standards requirements
Strategic standards adoption	Early adoption of specific standards for new products

Attitude of PPP PSL towards standards (1)

- The company uses standards as a strategic tool to improve the quality of its products, and to enhance competitiveness
- Various standards are applied in the chain of activities from procurement of raw materials, through production, and for conformity testing of final products
- The company is certified against ISO 9001 (quality management systems), for the management of its internal processes and holds the MSB product certification mark for polyethylene and un-plasticized polyvinyl chloride pipes and fittings, based on the relevant ISO standards. It has also obtained the AFNOR Certification Mark for its PE pipe production.

Attitude of PPP PSL towards standards (2)

- Using standards as value drivers, PPP PSL has been an early adopter of the European standard for structured wall PVC-U/PE/PP pipes for sewerage, giving it a competitive edge on the domestic market. The company subsequently obtained product certification for this type of pipe and was awarded the tender to supply pipes for the national sewerage project.
- PPP PSL participates in national standardization work related to plastic pipes and products
- In addition, PPP PSL conducts regular training and education programmes on piping techniques and on the relevant standards. These are targeted mainly at upgrading the skills of contractors and others involved in pipe work

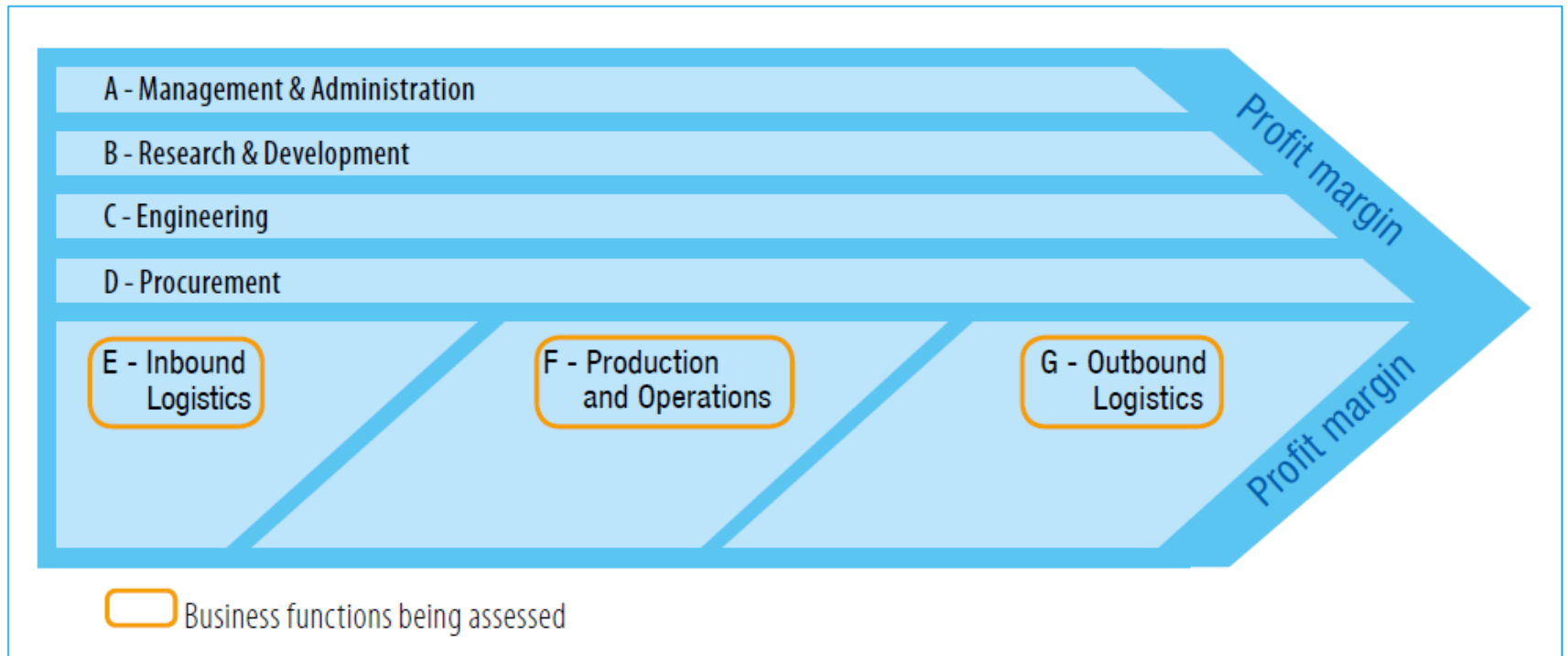
Key standards used by PPP PSL

- Various standards with specifications for products and testing methods as well as quality management systems, such as
- ISO 1452 Plastic piping systems for water supply and drainage
- ISO 3633 Plastics piping systems for soil and discharge
- ISO 4435 and EN 13476 Plastics piping systems for underground drainage and sewerage
- ISO 9001 Quality management system
- Other standards with product requirements and for testing

Preliminary analysis of the standards impacts

- Focusing on the core activities of the company including those areas where standards have the highest impact, the following business functions have been chosen for the purpose of the case study:
 - **Procurement**
 - **Inbound logistics**
 - **Production/operations**
 - **Outbound logistics**

Value chain of PPP PSL - Business functions selected for the assessment of the impacts of standards are highlighted



Procurement

- Consistency in quality of raw materials
- By referring to standards in communication and contracts with suppliers, time and other resources are saved and misunderstandings about required specifications for supplied raw materials and other goods are avoided
- No financial impacts could be determined

Inbound logistics

- Through the communication of requirements for supplies, and reference to standards, the **time and manpower** needed for testing raw materials has **reduced by 50%** resulting in:
 - a cost saving of 9000 MUR

Production and operations (1)

- Use of standards to systematically monitor the production process has resulted in:
 - a reduction in the downtime from 5% to 3%
 - a reduction of waste in production processes by 1.6% (= better use of raw materials)
 - a reduction in energy consumption per unit of product from 0.8KWh/Kg to 0.6 KWh/Kg

Production and operations (2)

- Structured wall pipes, a new product based on the European standard EN 13476, resulted in savings of raw materials of 25% over traditional pipes
- This products gives the company a leading position on the Mauritian market and contributes to 4.7% of the annual sales, which amounts to 5.7 million MUR.

Benefits of standards for PPP PSL

- Benefits resulting from the impacts of standards for «regular» products amount to around 5.4 million MUR representing a **4.5% of the annual average sales revenue**
- Benefit from the use of the European standard EN 13479 for structured wall pipes is estimated at 5.7 million MUR equalling **4.7% of the average annual sales**
- **Total benefits for PPP PSL amount to ~11.1 million MUR** (approximately USD 385 000 at April 2012 exchange rate)
- The contribution from standards amounts to **9.2% of total annual average sales revenue**

Some additional qualitative considerations (1)

- Production certification contributes positively to the benefits of the company. Certification marks have improved the company's reputation in the market and lowered transaction costs between buyers and sellers
- Training and education on piping systems has indirect benefits in disseminating knowledge about standards in industry and society

Some additional qualitative considerations (2)

- Environmental performance resulting from the adoption of European standard EN 13476 for structured wall pipes is a major qualitative benefit for the company. The improvement in environmental performance resulting from using less raw materials and thus producing less waste is significant but could not be quantified
- Participation in standards setting processes is another aspect that has given PPP PSL a competitive edge through early access to inside information on standardization



Thank you

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