

**Setting the course for a healthy steel industry**

**GFSEC, Paris, 17 March 2020**

Thank you for the opportunity to speak on this occasion. Owing to prior commitments I beg you to accept my apology, and to welcome my colleague in my place.

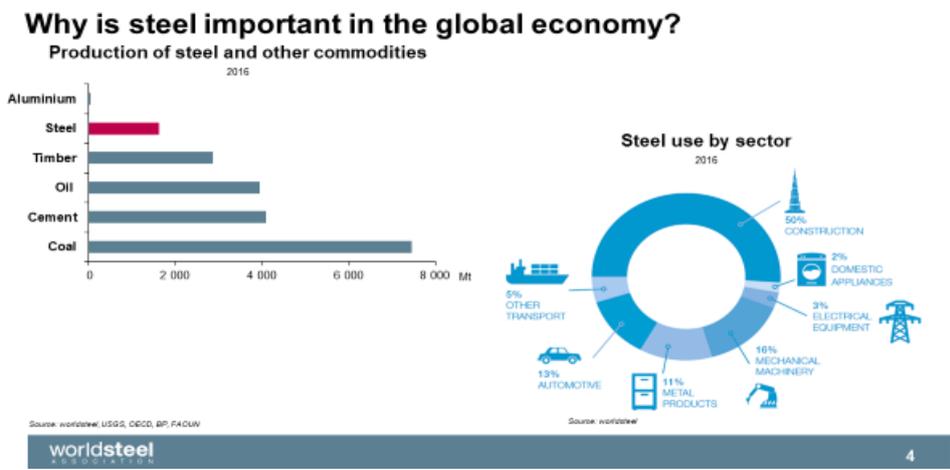
This forum has over the past three years played an important role in the orderly development of the steel industry. It is fitting and important that this should continue. For that reason, this forum remains important as a platform where information can be exchanged, misunderstanding can be minimised and to support the maintenance of a “level playing field” upon which the steel industry must operate.

**The importance of the global steel industry**

It is almost impossible to imagine modern society without steel. Indeed, the industrial revolution could be said to be built on steel – the modern era only developed after progress in the process of making steel in larger volumes was made, and it is commonly accepted as the start of the modern industrial era.

Today, society depends on a reliable source of steel for almost all aspects of progress and development towards an orderly modern lifestyle. Even recognising the fact that steel intensity declines as a society develops, modern society will continue to use large amounts of steel in the future. How to manage activity in the supply chain to remain able to do this in a sustainable way is important to society as a whole. While steel is not the largest of materials commonly used in society, it remains one of the materials with the widest range of applications. It is clear in figure 1, (right side panel) that without steel, many sectors vital to any modern economy may not remain sustainable.

Figure 1



In a recent study done by Oxford Economics, we tried to estimate the size of the steel industry on a global level. We used the input-output economic modelling approach, based on

data gathered from the OECD and a number of important steel producing countries. The objective was to estimate firstly how much the steel industry contributes to global economic activity. In input-output terminology this is called the direct effect. Secondly, we wanted to estimate the economic impact that results from those products and services that the steel industry purchases from other sectors such as the mining sector in order to make steel – this is called the indirect effect. Finally, the economic impact of how the workers in the steel industry spend their wages was also estimated. This is called the induced effect.

We then repeated the same exercise for the most important steel using industries.

The results, shown in figure 2, were impressive. The direct effects of steel production globally amount to US\$ 500 billion in added value, and employment for more than 6 million people around the world.

Figure 2

### Impact of the global steel industry is widespread

The steel industry is transforming iron ore into a range of products that are sold for a total annual value of **US \$2.5 trillion** in 2017. The “added value” of its production processes was almost **US \$500 billion** and it **employed more than 6 million** people around the world.

For every two jobs in the steel sector, 13 more jobs are supported throughout its supply chain. In total, some **40 million people** work within the steel industry’s global supply chain, generating over **US \$1.2 trillion of added value**.

The steel industry **facilitated a further US \$1.2 trillion of value-added** output in 2017, and supported an additional **49 million jobs** in steel-using sectors around the world.



When we add the indirect effects – an additional US\$ 1.2 trillion in added value and an additional 40 million employment opportunities need to be added to that of the steel industry.

Adding the estimated economic impact of those industries that use steel as an important input facilitated an increased value-added component of a further US\$1.2 trillion and a further 49 million jobs globally.

The combined activity of almost US\$ 3 trillion in value added and 95 million employment activity amounts to about 3.5% of global GDP and around 3% of global employment.

It is true also that for a large and global industry such as the steel industry, there still exist large differences between steel industries in different regions. This comes partly from the history of the steel industry as a key industry in economic development, partly as a result of government regulation and intervention in the industry, and partly because the industry is at heart local in that the majority of products travel typically less than 500 km to the place of use. At the same time, one third of steel products will cross continental boundaries, leading to an industry that is global, but with strong local roots.

## Long term challenges

Political and economic changes are both a reason for - and result of - a world that is becoming more regionalised and protective. For an industry such as ours, where a good proportion of our output crosses continental boundaries on a regular basis, it is important to note these changes in the way society operates, and to adapt where needed. Despite the fact that the steel industry globally uses very similar production processes, produces products that are very similar and are used in similar applications, the industry is still fragmented along national and regional boundaries. Part of this fragmentation is to be found in the history of our industry, but a large part comes from differences in regional legislation that the industry have to abide by.

Consequently, the challenges the industry faces cannot always be solved by “one size fits all” solutions. Solutions need to be crafted to fit within local legislation and practices, even if they want to address a global challenge. Solutions that aim to be too prescriptive may lose impact precisely because they do not leave room for local solutions to be crafted.

Within this changing environment in the short term, our industry faces a number of important longer-term challenges – see figure 3. We in worldsteel identify three groups of challenges that we believe will increasingly influence our industry. Part of the skill is to decide how to react, and how fast to do this.

### Figure 3

#### Three strategic shifts to negotiate

- Contribute to a sustainable environment
  - CO2
  - Step up in production efficiency
- Manage the impact of automation
  - Labour
  - Equipment
- Benefit from shifts in the economic centre
  - West to East
  - Rural to City

Foremost of these longer-term challenges is to find ways to mitigate our impact on the environment. In the continued search for long term sustainability, we need to find solutions in our supply chains and ways to ensure that we are seen to be responsible in where and how we source the materials we require to make steel. Equally, we need to focus on our manufacturing approaches and drive relentless efficiency into an already efficient process. Finally, we do all this to ensure that steel is seen as green and environmentally friendly by our customers and society at large. While many breakthrough solutions towards producing carbon-neutral steel are at present being investigated, none is at the stage where it can be commercially exploited. Part of it is because of the cost and availability of hydrogen, that plays an important part in all these solutions. At worldsteel, we have agreement with our members to focus in the interim on process efficiency, as our data shows that good process

efficiency goes hand in hand with lower CO2 intensity. We will drive this “stepup” process while we wait for new steelmaking processes to become available commercially.

A second long-term challenge is the drive towards automation that will impact not only on our way of making steel, but also will influence our customers and the products that they make. These changes will impact not only on how steel is produced, but also how it will be used. Reconciling the impact of these changes, such as automated vehicles, ships and trains – to name but one example - on our product will require insight, daring and perseverance. While demand for steel in different applications will change as transportation becomes increasingly automated. We should also be aware that the requirements on our workforces will change. How to train and prepare our workers for this challenge will by itself be a significant task.

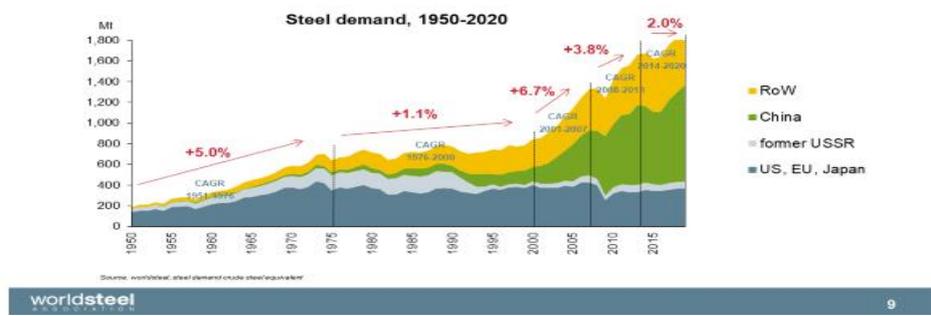
The third strategic adjustment relates to the shifting fortunes of peoples and economies. We already experience at the same time a shift in economic influence from west to east, and a human shift from the countryside to the cities. These shifts create opportunities and threats to our industry, but not in equal measure for everyone and with different impacts per region. Deciding how to focus attention and resources on these challenges is part of the everyday action of most of us involved in this industry. Long term evaluation indicates that steel and its role the construction industry will become more significant in the years ahead. The World Bank estimated that the urbanised part of the world population will increase from 55% (2018) to 68% (2050). This implies around 2.5 bn new people in cities by 2050. The next 30 years will see an explosion in demand for additional cities, infrastructure and accommodation. With around 50% of all steel finding its way into construction, this is a large market. Building techniques will need to adjust to be able to keep up with the speed of demand growth. Existing cities will need to adapt to deal with extra pressures on its infrastructure. Steel as a strong, durable and flexible material will play a strong role in solving these challenges.

Despite these challenges, it is above all important for our industry to remain sustainable in all aspects, and more importantly to be perceived as sustainable and efficient by the communities where we produce, and where our products are used.

worldsteel believes that the net impact of these changes will be mildly supportive of steel demand, but that the age of explosive growth in steel demand is over. With stabilisation in steel demand growth in China (see figure 4), global demand for steel is expected to slow down in the years ahead. While it is true that demand will continue to grow fast in some regions, this will be accompanied with slow growth in others. How to accommodate this “two-speed” character of commodity markets will be challenge where this forum can play an important role to build understanding and reduce aggression between different markets.

Figure 4

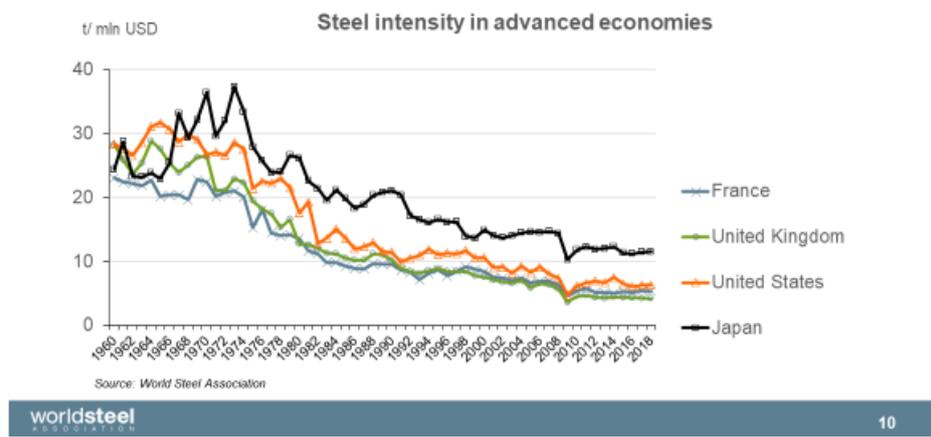
**Trend in steel demand**



History shows that as economies mature, a sharp drop off in the so-called steel intensity of economies occur. We measure steel intensity as the amount of steel associated with the creation of 1 million US\$ in GDP (Gross Domestic Product) – Figure 5. As the economy become more mature and infrastructure development reduces, the amount of steel associated with each unit of new GDP declines.

Figure 5

**Steel intensity in selected countries**

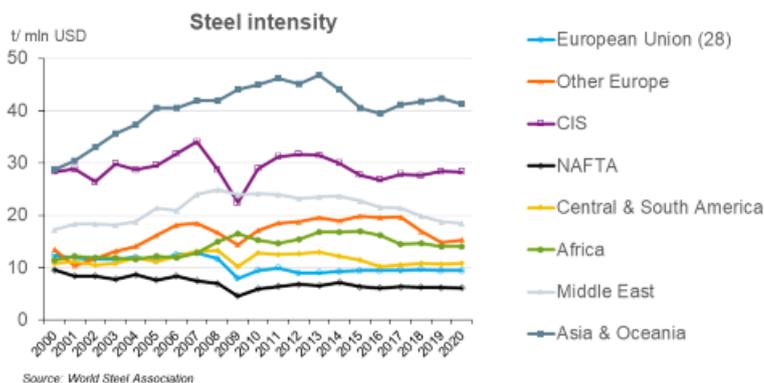


The sample of developed economies mapped in Figure 5 clearly show that in 1960, around 30 tons of steel was associated with one million US\$ of GDP generation, and this has declined by 2016 to a ration of around 10 tons to one million US\$ of GDP generation.

As can be seen in Figure 6, developing regions in the world has much higher steel intensities, but as these regions develop, steel intensities will decline, suppressing future growth in steel demand. It is also interesting that the adjustment period is generally shorter than the average lifetime of a new steel facility. – growth alone, cannot be relied on to absorb excess steel capacity.

Figure 6

**Steel intensity in selected regions**



The combined impact of these long-term trends, linked to the trends in steel use and steel intensity, suggest that steel use can be expected to grow into the future, but not at very fast rates. In addition, as new and growing practices of re-use of material, and the recycling of material become stronger, demand for newly created steel will be “pushed” further into the future.

At worldsteel, our view of long term demand growth for steel is shown in figure 7. We are positive that demand will continue to grow, but at slow rates on a global level. Regional differences will exist, but cannot deviate from the global pattern by too much or for too long.

Figure 7

**Expectations about long-term steel demand**



**The future**

Because steel as a product has shown itself over long periods to be very versatile, and after more than two centuries still excel in properties such as strength, versatility and excellent value, we believe that new steel using opportunities will materialise, and are in the process of development. I provide some examples.

Figure 8 shows an application I find personally interesting. This indicates new experimentation to capture so-called space junk by way of light weight steel netting, before transporting the junk back to earth. As with all fishing rights, expect significant debate about rights of access – probably much less on who will be responsible for disposing the junk.

Figure 9 shows a prototype fully automated cargo ship, being tested. The plan is for vessels such as this to travel the world's oceans, guided by satellite navigation technology. How to evade pirates have not yet been perfected, but imagine if this becomes a reality. What will the impact on the global community of sailors be, and how will we need to re-engineer the major ports in the world, and the major rail networks, etc. Insisting on customs systems that rely on paper documents and rubber stamps may become key drivers in deciding which ports will automate and remain part of global trade.

Finally, figure 10 shows an existing prototype of a fully modularised dwelling, that is developed in a factory, transported to site as something that looks like a small shipping container, and then expands into a fully functional dwelling on site. Think about the opportunities for new fast developing cities, but also what to do with large numbers of construction workers that may not like this idea as much as you or I do.

Figure 8

### Cleaning space



Figure 9

### Automated shipping



Figure 10

**(Almost) instant housing**



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**Finally**

Steel as a material is a well-known and reliable material that has a substantial role to play into the future. New demand opportunities for steel are available, but if history is the yardstick, new opportunities will enable demand for steel to grow, but not explode. The true deciders will not be application opportunities for steel, but rather how rapidly we can align regulatory and control systems to allow new developments to flourish.

The challenge, therefore, is wider than merely generating demand opportunities for steel. The true challenge, will be found in the multitude of trade-offs between different interest groups in modern society as part of charting a collective future. I suspect reality will emulate a drunken man on his way home – eventually he will reach home, but most likely not by the straightest route.

This forum could play an instrumental role in reducing obstacles, and injecting momentum into the process of new development.

I you all success with the journey.

**Edwin BASSON**