

20th AsiaConstruct Conference
Hong Kong
13 & 14 November 2014

Theme Paper

Meeting Construction Industry Resources Requirements

THE MALAYSIA WAY

Jointly prepared by

Sariah Abd. Karib
Noridah Shaffii
Che Saliza Che Soh
Nur Ima Zainol Abidin



Business Division, Corporate and Business Sector
Construction Industry Development Board (CIDB) Malaysia
Level 34, Menara Dato' Onn
Putra World Trade Centre (PWTC)
No. 45, Jalan Tun Ismail
50480 Kuala Lumpur
Malaysia
asiaconstruct_my@cidb.gov.my

August 2014

CONTENT

INTRODUCTION

CONSTRUCTION MATERIALS

- Material Prices**
- Materials Demand and Supply**
- Materials Quality**

CONSTRUCTION WORKER

- Foreign Workers**
- Skilled Workers**
- Worker's Safety**
- Workers Demand and Supply**

CONSTRUCTION TECHNOLOGY, MACHINERY AND EQUIPMENT

- Industrialised Building System (IBS)**
- Machineries and Equipments**

CASH FLOW IN CONSTRUCTION

SUMMARY

INTRODUCTION

The Malaysia economy registered a growth of 4.7% in 2013 (2012: 5.6%), driven by the continued strong growth in the domestic demand. All economic sectors are seen to register positive growth with construction sector's growth remaining strong at 10.9% (2012: 18.1%). Construction output in 2013 rose by 13% to RM90.9 billion (USD27.7 billion) (2012: RM80.7 billion, USD26.4 billion). All types of construction activity showed a positive increase in output compared to 2012 anchored mainly by the implementation of civil engineering projects in 2013 (36%; RM32.3 billion, USD9.9 billion) followed by non-residential sub-sector (32%; RM29.3 billion, USD8.9 billion), residential sub-sector (28%; RM25.0 billion, USD7.6 billion), and special trade sub-sector (5%; RM4.3 billion, USD1.3 billion).

Eventhough the construction sector contribution to the GDP in Malaysia is relatively small, averaging 3.5% (2011 until 2013), the construction sector has always played an important role in creating downstream demand through backward linkages and upstream demand through forward linkages. Any investment by other economic sectors will create demand for construction works as construction is a demand driven sector.

In terms of the number and value of new construction projects awarded in 2013, the Construction Industry Development Board (CIDB) Malaysia recorded 7,621 projects worth RM120.4 billion (USD36.7 billion) (2012: 7,781 projects; RM125.2 billion, USD40.9 billion). This figure is likely to increase as more projects awarded in 2013 gets reported to CIDB. The private sector has been the main engine of growth for construction with value of projects awarded ranging from 55% in 2009 to 85% in 2012. Similarly in terms of value, 82% of new projects in 2013 were private sector projects.

For the first half of 2014, the Malaysia economy registered a growth of 6.3%, underpinned by higher exports and continued strength in private domestic demand. All economic sectors are seen to register positive growth with construction sector's growth remaining strong at 14.3%.

Table 1 Malaysia Gross Domestic Product by Key Economic Sectors

Sector	GDP Growth (%)			Contribution (%)		
	2012	2013	1H2014	2012	2013	1H2014
Agriculture	1.0	2.1	4.6	7.3	7.1	6.8
Mining and Quarrying	1.4	0.5	0.6	8.4	8.1	8.0
Services	6.4	5.9	6.3	54.6	55.2	54.9
Manufacturing	4.8	3.4	7.1	24.9	24.5	24.8
Construction	18.1	10.9	14.3	3.5	3.7	4.0
GDP	5.6	4.7	6.3	-	-	-

Note : At Constant 2005 Price

Source : Monthly Bulletin Statistics, Central Bank of Malaysia

Going forward, the Malaysia construction sector is expected to continue to benefit from the sustainable growth of the country's economy and the high contribution of the private sector in the implementation of many new construction projects. More construction projects mean a higher demand on key construction resources such as

construction workers; construction materials; construction machinery and equipment, in particular at the construction stage of the value chain. In order to continue leveraging on domestic opportunities, there is a need to adopt a holistic approach in reviewing those factors that impact the resource requirements for construction such as availability of construction materials at competitive prices and availability of sufficient and skilled workforce.

Under the Construction Industry Development Board (CIDB) Act 1994, Act 520 (Amended 2011), the CIDB Malaysia, a statutory body, is to undertake 14 functions related to the construction industry. Out of these, 8 functions under Section 4 (1) are concerned with meeting resources requirements for the Malaysian construction industry in terms of business environment, quality assurance, standards, training, registration, accreditation and technologies as follows:

- (a) To promote and stimulate the development, improvement and expansion of the construction industry;
- (f) To promote and encourage quality assurance in the construction industry;
- (g) To regulate the conformance of standards for construction workmanship and materials;
- (i) To provide, promote, review and coordinate training in the construction industry;
- (j) To register and accredit contractors, to impose any conditions of registration and accreditation of the contractors and to revoke, suspend or reinstate the registration and accreditation;
- (k) To register, accredit and certify construction personnel and to revoke, suspend or reinstate the registration, accreditation and certification of such construction personnel;
- (l) To regulate the implementation of quality and safe construction works;
- (m) To regulate the implementation of Industrialised Building System in the construction industry.

According to a research undertaken by CIDB in 2012, it was found that typically construction costs is contributed by the cost of 3 major resources that are construction materials (64%), construction worker (20%) and machineries and equipment (3%) assuming overheads and profit margin of 13%. Thus this report is a review of the challenges faced by the Malaysia construction industry and the various approaches taken by CIDB through the powers under the relevant 8 functions of Act 520 Section 4 (1) in meeting the construction resources requirements for the 3 major resources according to their importance in terms of their contribution to construction costs.

CONSTRUCTION MATERIALS

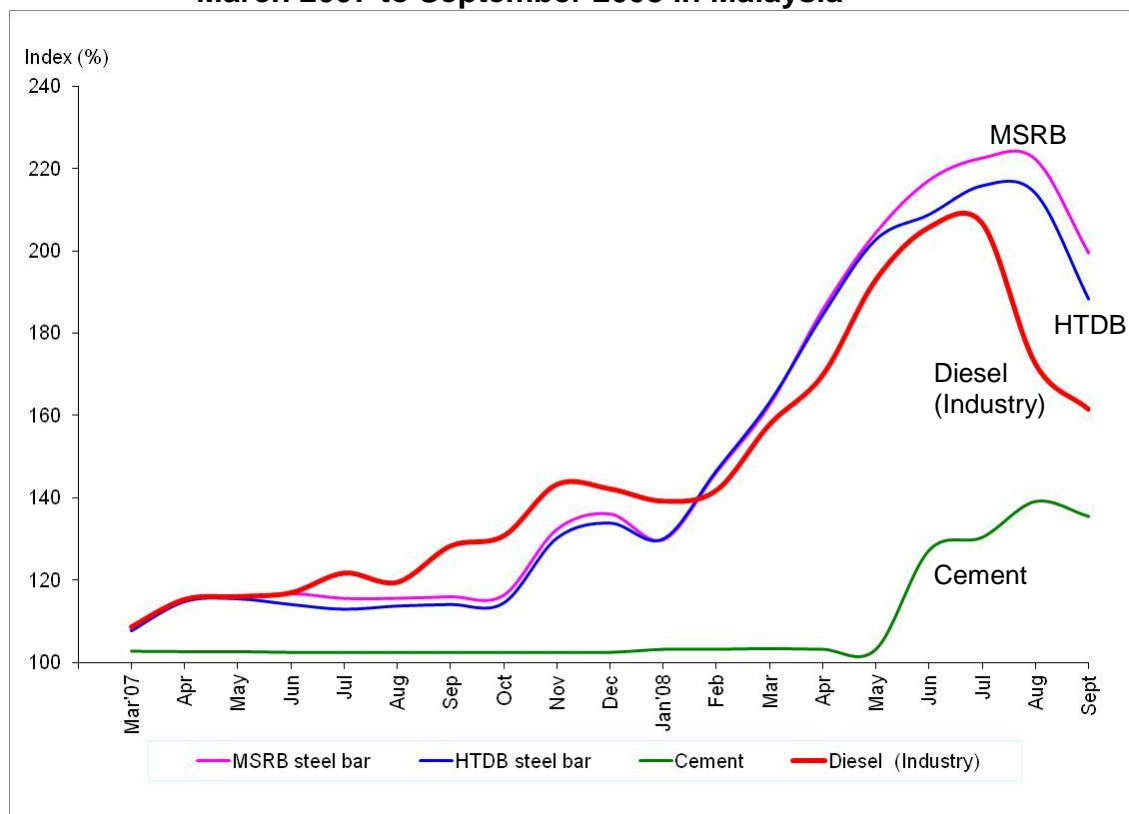
It is a matter of fact that construction materials represent a major expense in implementing construction projects. In Malaysia, ensuring material prices stability; equilibrium between demand and supply of materials; and conformance of materials to quality standards are among the biggest challenges faced by the Malaysian construction industry pertaining to material resources.

Material Prices

In many cases, sudden and unexpected increases in construction material prices can have a dire effect on the implementation of construction projects particularly during the construction phase. In ensuring material prices stability, Malaysia had implemented some measures like controlling the price for steel bars and cement under the Price Control Act 1946. Nevertheless, due to world demand for cement and steel, the industry could not sustain selling at the controlled ceiling prices and there was a price hike in steel and cement prices in early 2007. For steel, the price hike then was further compounded by the difficulty in obtaining smaller sizes steel bars. Chart 1 shows the average price increases of both these materials indicating the highest prices recorded was in July 2008 when steel prices had increased by about 103% (from average of RM1,938.00 to RM3,942.00 per tonne, USD560.00 to USD1,211.00 per tonne) and prices of cement bags had increased by 35% (from RM11.00 to RM15.00 per bag, USD3.20 to USD4.60 per bag). Prices of other materials only increased at marginal rate.

There were 2 main factors that led to the price increase. Firstly, the steel price increase was mainly due to the increase in the price of crude oil in the international market that led to the increase in the cost of raw materials (scrap metal) worldwide. Secondly, the high demand of steel bars and cement both domestically and globally. Domestically, the high demand was due to many construction projects being implemented concurrently has also led to a price increase of these materials.

**Chart 1 Trend of Steel and Cement Price Indices
March 2007 to September 2008 in Malaysia**



Note : Base year January 2007

Source : CIDB Malaysia

This has led to the increase in construction costs above the agreed contract price, eroding profit margins of contractors. The margin erosion had caused contractors to reject contract offers, and many contractors at that time in 2008 were either unable to complete their construction works or severe delays in completion were seen.

Revision of Construction Material Ceiling Price

In mitigating the erratic movement of steel and cement prices, the government reacted in progressively increasing the ceiling price of steel thrice by as much as 45% (16 April, 9 June and 1 December 2007) and cement price twice by as much as 10% (16 December 2006 and 13 April 2007). The last ceiling price of steel which took effect on 1 December 2007, was RM2,225.00 to RM2,569.00 per tonne (USD655.00 to USD757.00 per tonne) depending on size and grade. The last ceiling price of cement stood at RM197.50 to RM352.00 per tonne (USD57.00 to USD102.00 per tonne).

However, the government's approach in stabilising the prices of steel and cement price through this approach was ineffective as both materials continued to be sold above the ceiling price resulting in the industry requesting for the steel and cement market to be fully liberalised to allow prices to be determined by market forces.

Liberalisation of Steel and Cement Market

Responding to the industry request, the government decided to remove the price control for steel in May 2008 and cement in June 2008 followed by liberalising the industry for both materials. The first stage of liberalisation involved giving exemption of import duty on steel products and removal of approved permits provided the imported steel complies to both domestic and international quality standard recognised by CIDB. As for cement, the government reduced the import duty from 50% to 10% for non-ASEAN countries and maintaining 5% for ASEAN countries.

The second stage of liberalisation took place in November 2008. The steel and cement market was fully liberalised with full duty exemption to all importers. For steel, the number of steel products liberalised expanded from 3 to 57 of the Customs Tariff Code. Out of 57, only 15 products were identified for use in the construction industry. In ensuring quality assurance, the CIDB Certificate of Approval is a prerequisite for the importation of steel and cement. Hence, under ASEAN Free Trade Area (AFTA), full liberalisation for these two materials achieved in 2008 is much earlier than initially scheduled in 2015.

At the time of writing this report in 2014, the prices of steel and cement in Malaysia is continuously determined by market forces.

Strengthening the Mechanism for Price Fluctuation Reimbursement

In complementing other mitigating measures to cushion the impact of the materials price increase in 2007, the government also took measures to review the special provisions on reimbursing contractors for material price fluctuations for government projects. For building works, price variation calculation is allowed for 14 types of materials based on the changes of cost indices and steel unit price. For civil

engineering works, the price calculation is allowed over 11 types of material, an increase from 5 previously. For the first time ever, reimbursement for materials price fluctuation is allowed for mechanical and electrical (M&E) works and design & build contracts.

The government's revised mechanism for the reimbursement of price fluctuation was applied retrospectively from 1 January 2008, for both conventional contracts and design & build contracts. This move was much welcomed by the industry in ensuring timely completion of government projects.

Materials Demand and Supply

Many observations from past trends show that the erratic movement of material prices could be brought about by insufficient supply of construction materials created by the sudden surge in construction material demand (Chart 2). Therefore, it is important to be able to pre-empt materials demand through a near accurate projection system for projecting construction demand.

Chart 2 Trends of Projects Awarded in Malaysia



Source : CIDB Malaysia

Note : As of June 2014

Projection of Demand for Construction Materials

Realising the importance of having a credible system to project construction material demand, CIDB is now establishing a forecasting model to reasonably foresee the demand for major construction materials. The CIDB uses the rich source of information in its own integrated database on construction projects awarded in the country for projecting major material demand. The system known as myPROJEXIS is expected to be completed by early 2015. Once completed, myPROJEXIS will enable CIDB to produce 3 major forecasts: construction sector growth; demand for major construction materials; and demand for construction workers in major trades.

Materials Quality

Ensuring the conformance to quality standards of construction materials is another big challenge pertaining to material resources in Malaysia. In assuring the quality of locally manufactured materials used in construction projects, CIDB is empowered under Section 4(1)(g) Act 520, to regulate the conformance of standards for selected construction materials listed under the relevant schedule. In assuring the quality of imported construction materials used in the country, conformance to the relevant Malaysia Standards (MS) is a compulsory requirement. The power in executing this is derived from the Customs Act 1967.

Controlling Quality for Locally Manufactured Materials

For locally manufactured construction materials, CIDB is empowered under Act 520 (Amended 2011) to issue the Product Certification Licence (PCL) to manufacturers that comply with the requirements of the relevant MS in the manufacturing of building materials. Initially 18 types of construction materials is proposed to be regulated under this requirement. The implementation of this regulatory power is expected to come into force in 2014.

Controlling Quality for Imported Materials

In enforcing the requirements of the relevant MS on imported construction materials, CIDB is the agency responsible under the Customs Directive (Prohibited Imports) of the Customs Act 1967 to issue the Certificate of Approval (COA) to importers. The COA will only be issued by CIDB for imported materials that conform to stringent quality requirements under the relevant MS. The CIDB's role in regulating imported construction material was further expanded in 2013 to include products related to both the construction industry and the oil & gas industry which was previously regulated by the Standard and Industrial Research Institute of Malaysia (SIRIM). The latest development in 2014 requires all building materials to obtain the Product Certification or positive Full Type Test Report (FTTR) from the country of origin before the products are exported into Malaysia.

CONSTRUCTION WORKER

Construction worker is a very important resource in the implementation of construction projects. The various categories of workers includes general worker; skilled worker; site supervisor and workers in the managerial level such as safety managers and project managers. From a research undertaken by CIDB in 2012, the costs of employing construction workers contributes about 20% of total construction cost. Issues and challenges faced pertaining to construction workers such as over dependency on foreign workers; lack of skills; workers safety; and equilibrium between demand and supply of workers will impact the productivity of the construction industry and the quality of workmanship of construction works.

Foreign Workers

In Malaysia, the construction sector is over dependent on foreign workers. This is evident by their high number at construction sites representing about 55% of the total number of workers (CIDB study in 2010). In Peninsular Malaysia, about 434,300 foreign construction workers from various nationalities such as Indonesia, Bangladesh, Myanmar, Pakistan and Nepal are registered with the Immigration Department of Malaysia (Table 2) recording the second highest compared to the other sectors at 19.3%. The actual number of foreign workers engaged in construction could possibly be higher if illegal foreign workers are taken into account.

Table 2 Number of Foreign Workers Registered with Malaysia Immigration Department in Peninsular Malaysia until 31 December 2013

Nationality	Construction	Domestic Help	Manufacturing	Services	Plantation	Agriculture	Total
Bangladesh	113,322	91	127,855	44,891	18,541	18,150	322,750
India	9,210	877	5,859	60,634	23,130	24,307	124,017
Indonesia	244,144	121,107	147,940	53,028	357,076	98,360	1,021,655
Myanmar	22,938	108	102,869	24,831	3,689	7,012	161,447
Nepal	11,533	84	296,997	52,456	7,355	17,041	385,466
Pakistan	16,142	56	4,152	4,623	8,398	17,291	50,662
Philipina	5,958	35,945	4,824	4,798	10,981	6,620	69,126
Thailand	1,085	348	378	11,590	693	2,950	17,044
Vietnam	4,881	1,028	44,477	1,877	168	559	52,990
Others	2,029	10,292	16,421	10,593	1,580	1,192	45,165
Total	434,300	169,936	751,772	269,321	431,611	193,482	2,250,322

Source : Immigration Department of Malaysia

Note : Others country include China, Cambodia, Laos and Sri Lanka

Contractors resort to foreign workers due to their resilience, mobility and willingness to accept lower wages. Moreover, contractor's preference to use conventional method of construction involving wet trades like bricklaying and plastering is not attractive to the local workforce due to the 3D (Dirty, Difficult, Dangerous) syndrome thus causing contractors to resort to foreign workers.

Continued dependence on foreign workers especially the illegal workers has brought about social, economic and security issues in the country. Therefore, the government has devised strategies in preventing the continuous inflow of illegal foreign workers by placing stringent criteria for the importation of foreign workers and implementing the Comprehensive Settlement Program on Illegal Immigrants (6P Program).

Importation of Foreign Construction Workers

Acknowledging the dependency of the construction industry towards foreign construction workers, the government had established the Construction Labour Exchange Centre Berhad (CLAB). CLAB is a non-profit oriented organisation

established by the CIDB in 2003. Its main function is to manage the distribution of foreign construction workers to contractors in a quick and efficient manner by accepting foreign workers with valid permit from contractors who no longer need them; distributing the foreign workers to contractors who are in need of them; and managing the flow of foreign workers from source countries in meeting the demand of foreign workers in the country.

The construction company has an option whether to use the CLAB service or otherwise in sourcing foreign construction workers. Initially in 2006, CLAB's role in managing the application of foreign workers was limited to 50 workers per company. In 2009, this figure was later increased to 100 workers per company. Between 31 March 2005 and 31 December 2013, CLAB had re-distributed about 41,953 construction foreign workers to 4,062 construction companies.

The government continues to tighten the procedure for importing foreign construction workers. Effective 1 January 2014, all applications for foreign workers must first have prior approval from the OSC of MOHA (One Stop Centre of Ministry of Home Affairs). In assisting the OSC, an officer from CIDB is positioned at MOHA to help filter and identify the appropriate number of foreign construction workers to be approved.

Comprehensive Settlement Program on Illegal Immigrants

In 2011, the government implemented a new strategy in cutting down the number of illegal immigrants through the Comprehensive Settlement Program on Illegal Immigrants or for short, 6P Amnesty Program. This program is aimed at strengthening the management of foreign nationals within the country, controlling the entry of new foreign workers into the country, facilitating the management of economic activity involving foreign workers and controlling the growth of crime in Malaysia. The 6P program comprises registration, legalisation, amnesty, supervision, enforcement and deportation.

The 6P program had shown a positive result when more than 2.3 million foreign nationals voluntarily registered. Of these, 1.3 million are illegal workers and the remaining 1.0 million are legal workers. This total does not include those who did not sign up, domestic helper and refugees in Sabah and Sarawak. From this registration process (11 July to 31 August 2011), it was found that for several countries the number of illegal workers exceeds that of legal workers. The highest number of illegal workers was from Indonesia with a total of 640,609 compared to 405,312 legal workers, followed by Bangladesh with 267,803 illegal workers compared to 132,897 legal workers. However, the number of legal foreign workers from Nepal is high at 221,617 compared to 33,437 illegal workers.

Skilled Worker

The implementation of construction projects using skilled construction workers would certainly enhance the productivity of the construction industry and the quality of workmanship. However in Malaysia, foreign construction workers that enter the country are mostly unskilled workers. In order to migrate to more productive technologies and efficient method of construction, the CIDB is empowered to firstly accredit the skills of foreign workers and secondly, to enhance the skill of local

construction workers through training, accreditation and certification under Section 4(1)(k) Act 520.

Training for Construction Worker

In fulfilling the objective of enhancing skills of construction workers, CIDB has established 6 training centres known as the Malaysia Construction Academy or *Akademi Binaan Malaysia* (ABM). Over and above this, CIDB has also accredited 40 private training centres. All these training centres provide skills training to both existing construction personnel and new workers. Besides providing training, these training centres also undertake the exercise of accreditation and certification of construction workers. Over time with training, accreditation and certification, it is expected that the overall quality of workmanship and productivity of the construction industry will be enhanced, site accidents reduced and most importantly the supply of skilled construction workers improved.

Offering construction training modules in 60 trades, in 2013 the ABM produces 22,864 trained construction workers; 21,879 in skill trades; 842 in supervisory and; 143 in management (Table 3). The number of construction workers trained increases annually. Training at ABM focuses on high end specialised trades that is market driven such as scaffold erection; welding; wireman; chargin; fitting/insulation; blasting and painting; non destructive testing; crane operation and; plant operation which has the potential to raise the trainees' employability towards earning high income. In enhancing the quality of training, CIDB continuously upgrades its training facilities by providing it with the latest equipment and machineries such as simulator machines for welding and crane operations. At the same time, CIDB continues to collaborate with the industry and selected training institutes to plan and implement new training schemes.

Table 3 Number of Trained Construction Personnel

Training Area	Year	
	2012	2013
Skill	15,330	21,879
Supervisor	525	842
Management	145	143
Total	16,000	22,864

Source : CIDB Malaysia

A recent Memorandum of Understanding (MoU) between Malaysia (CIDB) and Indonesia (Indonesian Construction Development Authority) signed on 31 March 2014 was for Malaysia to provide skills training programs and certification to Indonesian construction workers who are legally employed in the Malaysia construction sector. Initially, Indonesian construction workers will be trained in 4 skill trades (bricklaying and plastering; plastering and tiling; carpentry, barbending and concreting; and building decorative painting). By the end of 2014, 700 Indonesia construction workers are expected to be trained in these skill trades.

Accreditation of Skilled Workers

Quality issues in construction workmanship are known to be caused by workers who are unskilled and incompetent. Prior to the amendment of the CIDB Act, the number of accredited and certified skilled local and foreign construction workers is not encouraging. Realising that accreditation can be an important tool in improving the number of skilled and competent construction workers, the CIDB Act 520 (Amended 2011) has incorporated requirements for mandatory accreditation and certification of construction personnel covering semi and skilled workers, site supervisors and project managers both local and foreign. 62 trades have been identified for the accreditation and certification of skilled construction workers and construction site supervisors. Gradually, only skilled construction workers will be allowed to perform skilled works at construction sites, thus fulfilling the government's aspiration to raise the quality of workmanship in construction projects.

Apart from the 62 trades that have been identified, the CIDB encourages skilled workers in other trades to be accredited. For this exercise, the Certificate of Skill Competency or *Sijil Kecekapan Kemahiran* (SKK) will be issued to local workers and the Testimonial of Skilled Foreign Worker or *Perakuan Kemahiran Pekerja Asing* (PKPA) will be issued if they are foreign workers. In 2013, a total of 9,961 construction workers were accredited by the CIDB (Table 4). Of these, 95% were local workers while the rest were foreign workers.

Table 4 Number of Accredited Construction Workers

Construction Workers	Year	
	2012	2013
Local	9,434	9,486
Foreign	1,365	475
Total	10,799	9,961

Source : CIDB Malaysia

Worker's Safety

Under Section 4(1)(k) Act 520, it is mandatory for all construction personnel in the country to be registered with CIDB. In order to be registered as a construction personnel, they are firstly required under the CIDB Green Card Program to undergo the course on Safety Induction for Construction Workers (SICW). This course is part of CIDB's effort to inculcate awareness among the workers on the safety and health aspects at work. Secondly, after completing the SICW course, the construction personnel is eligible to apply to register as a construction worker. Once the application is approved, the said worker is given a green card.

Green Card Holders

It is compulsory for contractors to only engage registered construction workers who hold a green card. All registered construction personnel who hold a green card is automatically covered by a special Insurance Scheme that insures the construction personnel against hospital charges due to accident; permanent disability due to

illness and accident; death due to illness and accident; and funeral expenses. While inculcating safety practice at construction sites is forefront under the Green Card Program, through the registration process, CIDB is able to monitor the number of workers employed in the construction sector. For local construction personnel, the green card is valid up to 5 years. For foreign construction personnel, the green card validity is according to their respective work permit validity.

In 2013, the number of local worker with valid registration was 243,666 (2012: 168,906). This number includes 96,745 new registration and 146,921 renewal (Table 5). The number of new registration and renewal showed a significant increase by 32% and 54% respectively. Foreign workers registration in 2013 increased significantly by 138% to 78,204 (2012: 32,891). Out of this number, new registration increased by 127% and renewal increased by 155%. This strong increment in the registration through the Green Card Program is a result of CIDB's enforcement activity both at site and through reminder letters.

Compared to registration of foreign construction workers under the Immigration Department of Malaysia (434,300 persons), the number of foreign construction worker registered with the CIDB remained low (78,204 persons) (Table 6). This difference could be attributed to the unwillingness of employers to register their foreign workers under the Green Card Program in view of the mobility of those foreign workers to move from one employer to another.

Table 5 Number of LOCAL Construction Personnel Registered in 2012 and 2013

No	Category	2012			2013		
		Total Registered	New Registration	Registration Renewal	Total Registered	New Registration	Registration Renewal
1	General worker	59,614	33,702	25,912	76,354	41,010	35,344
2	Construction worker	26,960	14,017	12,943	53,611	27,722	25,889
3	Skilled construction worker	13,685	659	13,026	18,857	594	18,263
4	Manager and site assistant manager	14,083	3,119	10,964	19,509	2,608	16,901
5	Construction supervisor	16,424	3,054	13,370	21,547	2,081	19,466
6	Administrative personnel	38,141	18,668	19,473	53,788	22,730	31,058
Total		168,906	73,218	95,688	243,666	96,745	146,921

Source : CIDB Malaysia

Table 6 Number of FOREIGN Construction Personnel Registered in 2012 and 2013

No	Category	2012			2013		
		Total Registered	New Registration	Registration Renewal	Total Registered	New Registration	Registration Renewal
1	General worker	29,390	17,556	11,834	71,607	41,033	30,571
2	Construction worker	1,356	1,036	320	4,050	2,380	1,670
3	Skilled construction worker	566	68	498	426	100	326
4	Manager and site assistant manager	484	319	165	838	497	341
5	Construction supervisor	304	235	69	178	91	87
6	Administrative personel	791	605	186	1,105	818	287
Total		32,891	19,819	13,072	78,204	44,919	33,285

Source : CIDB Malaysia

Workers Demand and Supply

The Malaysia construction industry has often had to deal with the shortage of construction workers mainly due to the sudden increase in construction demand. Currently, the CIDB is not able to assist the construction industry in projecting the demand for workers. Therefore a reliable system that enables the projection of construction demand would help the construction industry plan ahead in ensuring the supply of construction workers.

In the pipeline, is a forecasting system known as myPROJEXIS, currently being developed by CIDB. Once completed, myPROJEXIS is able to provide forecast on construction workers demand in major trades. With the availability of information on workers demand, CLAB would be in a better position to manage the supply of foreign workers in the country more effectively.

CONSTRUCTION TECHNOLOGY, MACHINERIES AND EQUIPMENT

The productivity of the construction sector in Malaysia is relatively low as it is heavily dependent on labour (Table 7). Compounding this is the adoption of conventional construction method that does not encourage utilisation of modern machinery and equipment which is estimated at only 3% of the total construction cost. Increasing productivity calls for enhancing the skills of construction workers and improving the use of machineries and equipments. In Malaysia, most of the machineries and equipments are imported from abroad. Many contractors do not purchase the heavy machineries and equipments due its high price, uncertainties in securing new construction projects, maintenance and storage costs. They prefer to rent the heavy machineries and equipments from suppliers based on a contractually agreed

duration. Nevertheless, contractors are more likely to purchase cheaper and smaller machineries and equipments that are easily stored and maintained.

Table 7 Value-Added Per Employee

Economic Sector	2012		2013	
	RM	USD	RM	USD
Agriculture	34,202	11,184	32,625	9,983
Mining and Quarrying	786,998	257,348	725,449	221,988
Services	53,597	17,526	53,944	16,507
Manufacturing	83,822	27,410	86,538	26,481
Construction	22,799	7,455	23,373	7,152

Source: Central Bank of Malaysia Annual Report 2013

A key factor that limits the enhancement of productivity is the limited technology adoption, both in terms of technology used in advanced construction methods and modern machineries and equipment used throughout the construction process. Therefore, the government is aggressively encouraging the practice of using modern technique such as IBS with intensive machinery and heavy equipment utilisation.

Industrialised Building System (IBS)

IBS is a construction technique in which components are manufactured in a controlled environment (on or off site), transported, positioned and assembled on site. Migrating to IBS is expected to improve the overall performance of the industry in terms of faster completion and better quality of works through mechanisation, automation and modernisation. With higher utilisation of machineries and equipments and lesser dependency on workers, productivity will be increased. Furthermore, manufacturing the components under controlled condition will ensure higher quality of construction and reduction of waste materials. In addition, it will enhance safety level in the construction sector.

The major challenge in the adoption of IBS is the resistance to change by the industry and the abundance of cheap workers. Industry's reluctance also stems from the high capital cost, high transport cost and the assumption by designers that IBS limits their design creativity. A study conducted in 2012 in identifying utilisation of IBS found that only 46% of the 400 private projects in Klang Valley has adopted IBS. The adoption of IBS for projects outside the Klang Valley is believed to be lower than this. In encouraging the adoption of IBS, the government has formulated policies and introduced incentive schemes.

Incentives, Policies And Regulations on Industrialised Building System (IBS)

Adoption of IBS which has been introduced since the beginning of 2000 improved significantly when the government issued Treasury Circular Year 2008, which mandates the use of IBS for government projects and IBS score of not less than 70% effective on 31 October 2008. Exceptions are given to only for projects worth less than RM10 million and are located in remote areas and renovation works not

involving the construction of new buildings. As a result, between October 2008 and September 2013, a total of 1,422 government projects with a value of RM36.1 billion had adopted IBS. Based on a study conducted by CIDB in 2010, 85 completed projects using IBS showed a decrease by 47% in the number of foreign workers at construction sites.

In encouraging the manufacture of IBS components, CIDB had taken the initiative to register IBS products, manufacturers, contractors, installers and consultants. As of April 2014, CIDB has registered 429 IBS products, 170 IBS manufacturers and 8,298 IBS specialised contractor and accredit 7,473 Lightweight Blockwall Installer, 7,363 Roof Truss Installer, 1,501 Precast Concrete Installer, 187 Panel Lightweight Installer, 176 in Steel Structure Erection & Fabrication and 62 in Aluminium Fabrication Framework as well as 37 IBS consultants.

Various measures have been taken and will continue to be taken to enhance the uptake of IBS effectively. Among the measures that have been implemented are:

- i. Establishment of IBS Roadmap (2003 – 2010) as a blueprint to industrialise the construction sector which was reviewed to IBS Roadmap (2011 – 2015) to emphasize on commercial issues.
- ii. Formation of IBS Centre in 2007 as a referral centre.
- iii. Exemption from levy payment through the federal budget 2005 on housing projects with a minimum IBS score of 50%.
- iv. Introducing refund incentives for purchasing IBS components mould through the federal budget 2006.
- v. Enhancing awareness on IBS in highlighting the advantages of modern technology, and introduction to newer and more sophisticated machineries and construction equipment through 3 international conference and exhibition, 179 national seminars and road shows throughout the country.
- vi. Introducing IBS Catalogue System in June 2013 as a reference for designing and preparing more efficient and cost-effective building plans.
- vii. Implementing 7 types of training based on ABM modules on IBS such as aluminium framework fabrication; steel structure erection and fabrication; precast concrete installer; lightweight panel installer; lightweight block wall installer; roof truss installer (steel); and roof truss installer (timber). Between January 2007 and September 2013, a total of 81,184 participants have attended the course.

Machineries and Equipments

In Malaysia, the government imposes import duty and sales tax on machineries and equipments that are imported from abroad such as bulldozers, rollers, piling and special purpose truck. The import duty and sales tax are considered relatively high, ranging from 10% to 30% when compared to that imposed by other ASEAN countries such as Thailand, Indonesia, Philippines, Vietnam and Singapore.

Reduction of Import Duties and Sales Tax

At the end of 2012, CIDB had suggested that the government reduce the import duty and sales tax on heavy machineries used in construction. Following that, at the end of 2013, CIDB submitted a proposal to the government on the implementation of IBS stressing on the importance of using heavy machineries. In this proposal, the same earlier suggestion was again brought up that is to reduce the rate of import duty and sales tax on heavy machineries in the construction industry as an incentive to encourage the use of IBS.

In the short term, reduction in duties and taxes on heavy machineries will promote the use of newer and modern machineries that is safer and more productive; accelerating the construction process; ensuring the quality of construction; and reducing dependency on foreign workers. In the long term, the positive outcome of the reduction in duties and taxes can be felt when more local machine operators are trained and the machinery maintenance industry becomes mature. It could also lead to ancillary industries such as services business and after sales support to be established.

CASH FLOW IN CONSTRUCTION

Getting cash to flow during the implementation of construction projects is crucial in ensuring that the contractors are always in a healthy position to finance the project. Cash flow problems if left unaddressed can impede national growth as construction is the key sector which supports all other economic sectors. This is through the provision of physical building and infrastructure in meeting the private sector business objectives and the government's socio economic activities. Any problems that affect the smooth implementation of construction projects including payment problems will impact wealth creation hence the enhancement of quality of life and standard of living of the people. On a larger scale, such problems will also affect the industry's economic contribution to the nation. As such, a new Act of Parliament, the Construction Industry Payment and Adjudication Act (CIPAA) was enacted in 2012. In ensuring the smooth implementation of CIPAA, 2 specialist construction courts have also been established.

Construction Industry Payment and Adjudication Act (CIPAA) (Act 746)

CIPAA introduces statutory adjudication as a dispute resolution mechanism that provides for the recovery of payment to an aggrieved party, upon the conclusion of the adjudication process. An aggrieved party may be accorded a host of other remedies such as a right to reduce the rate of work progress or to suspend work or even to secure direct payment from the principal. Besides construction contracts, the CIPAA also applies to supplies contracts and professional consultancy services.

Much of construction works is subcontracted and the complexity of this multilayered sub-contracting is compounded by the fact that most appointments of these sub contractors are done using incomplete terms of payment or orally, without terms of payment. It is a known fact that all construction participants, as long as they are on the receiving end of the payment spectrum, may have experienced payment problems such as non-payment, late payment or under payment. Therefore,

Malaysia enacted the CIPAA to address payment related disputes towards enhancing cash flow during project implementation. CIPAA came into force on 15 April 2014.

Establishment of Specialist Construction Court

In getting construction justice delivered effectively and efficiently including under CIPAA, 2 specialist construction courts were established by the Malaysia Judiciary in April 2013 one each in Kuala Lumpur and Shah Alam. The establishment of the construction courts completes the 3 main pillars of construction justice that includes arbitration, adjudication and litigation.

The 2 construction courts deal with cases involving building and construction disputes; engineering disputes; claims by and against engineers, architects, surveyors, accountants and other specialist advisers; claims relating to the quality of goods sold or hired and work done, materials supplied or services rendered; claims relating to the environment including pollution cases.

As of June 2014, 164 cases have been filed in the Construction Court located in the Kuala Lumpur Court while 41 cases have been filed in Shah Alam. Of the 41 cases in Shah Alam, 20 cases are still pending, while 60 cases are pending in the Construction Court in Kuala Lumpur.

Moving forward, the CIDB is now tracking and analysing cases brought to the construction courts to establish the common causes of disputes within the construction industry. This would form the basis in formulating future policies for improving the construction industry.

SUMMARY

As Malaysia continues to progress towards a developed economy, the construction industry continues to be an integral part of the Malaysian economy. Moreover, the construction industry benefits a wide range of stakeholders that stand to gain from a robust and healthy construction industry. The government has taken significant approach in meeting the Malaysian construction resource requirements towards institutionalising a more productive industry and ensuring that spending on construction is geared towards productivity and quality through greater use of technology; access to highly skill workers and quality materials; and conducive business environment.

In line with the effort to further drive industry changes, CIDB has amended the Act 520 to broaden its mandate to include the setting of standards; registration of construction personnel; training; accreditation and certification; company quality assessment; and health, safety and environment. Next in the pipeline, is the Construction Industry Master Plan II (CIMP) 2016 – 2020 which is being developed by CIDB in collaboration with key ministries, government agencies and various organisations representing the construction industry. The CIMP attempts a significant leap to deliver a step change in industry performance and truly transform the Malaysia construction industry.

Meeting Construction Industry Resource Requirements

MALAYSIA'S EXPERIENCE

20th AsiaConstruct Conference
13 – 14 November 2014
Hong Kong

Che Saliza Che Soh

Business Division
Construction Industry Development Board
CIDB Malaysia

Construction Resources

Materials

Manpower

Methods

Machinery

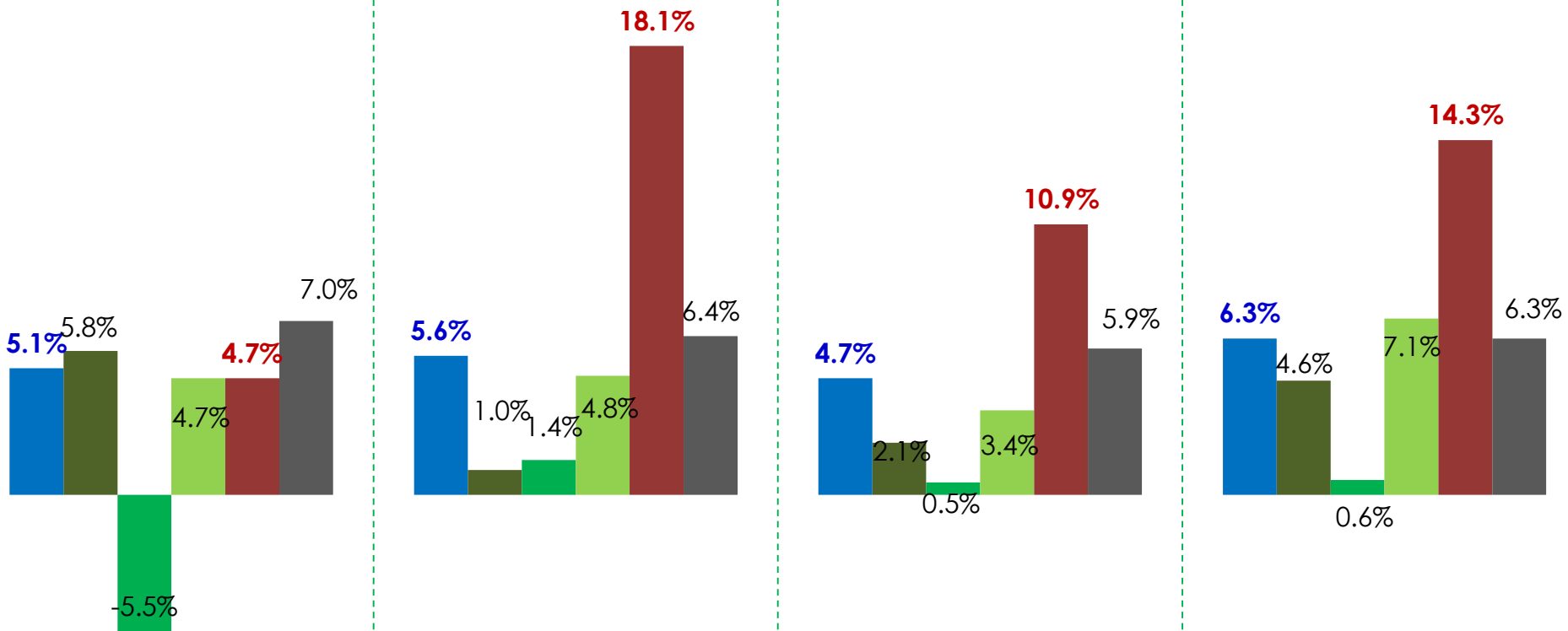
Money

Construction Scenario



GDP Growth by Major Economic Activity

■ National GDP
 ■ Agriculture
 ■ Mining
 ■ Manufacturing
 ■ Construction
 ■ Services



2011

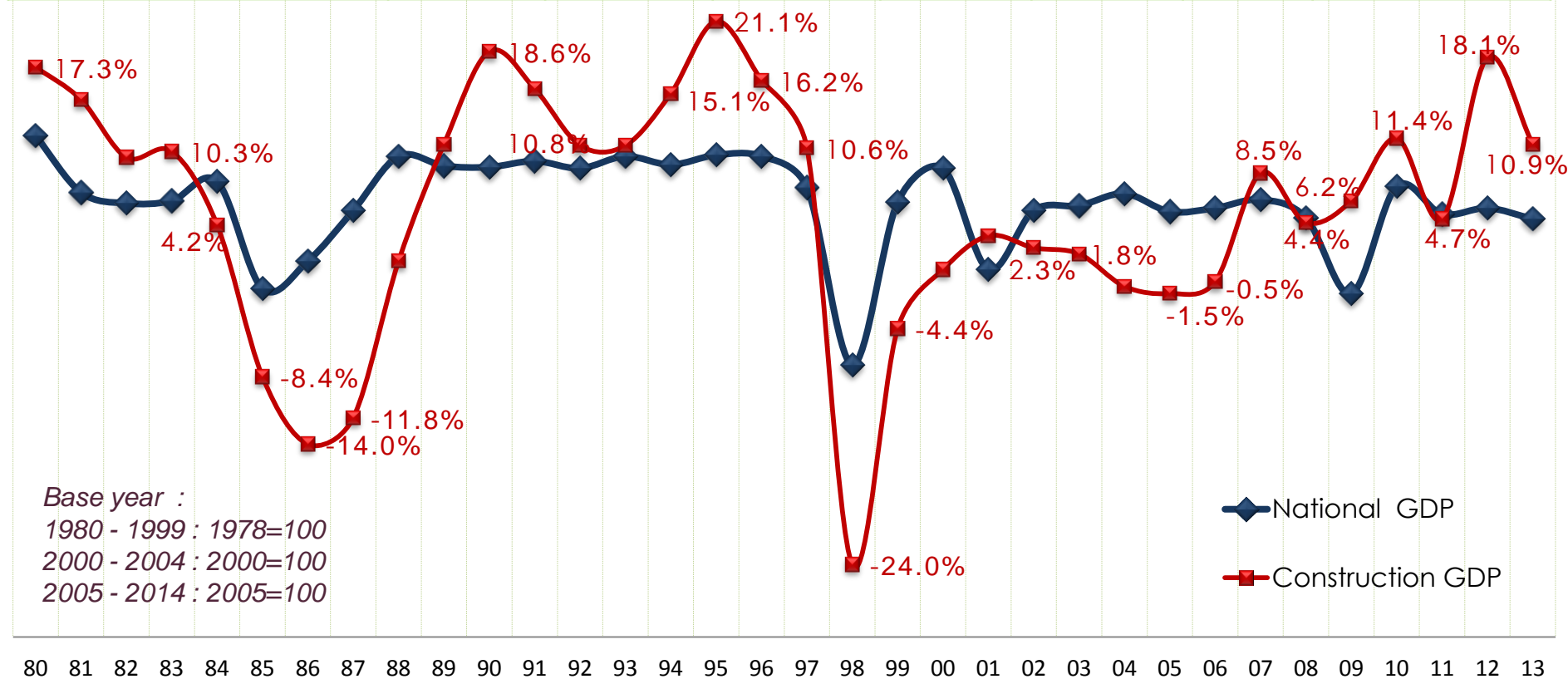
2012

2013

1H 2014

GDP Growth

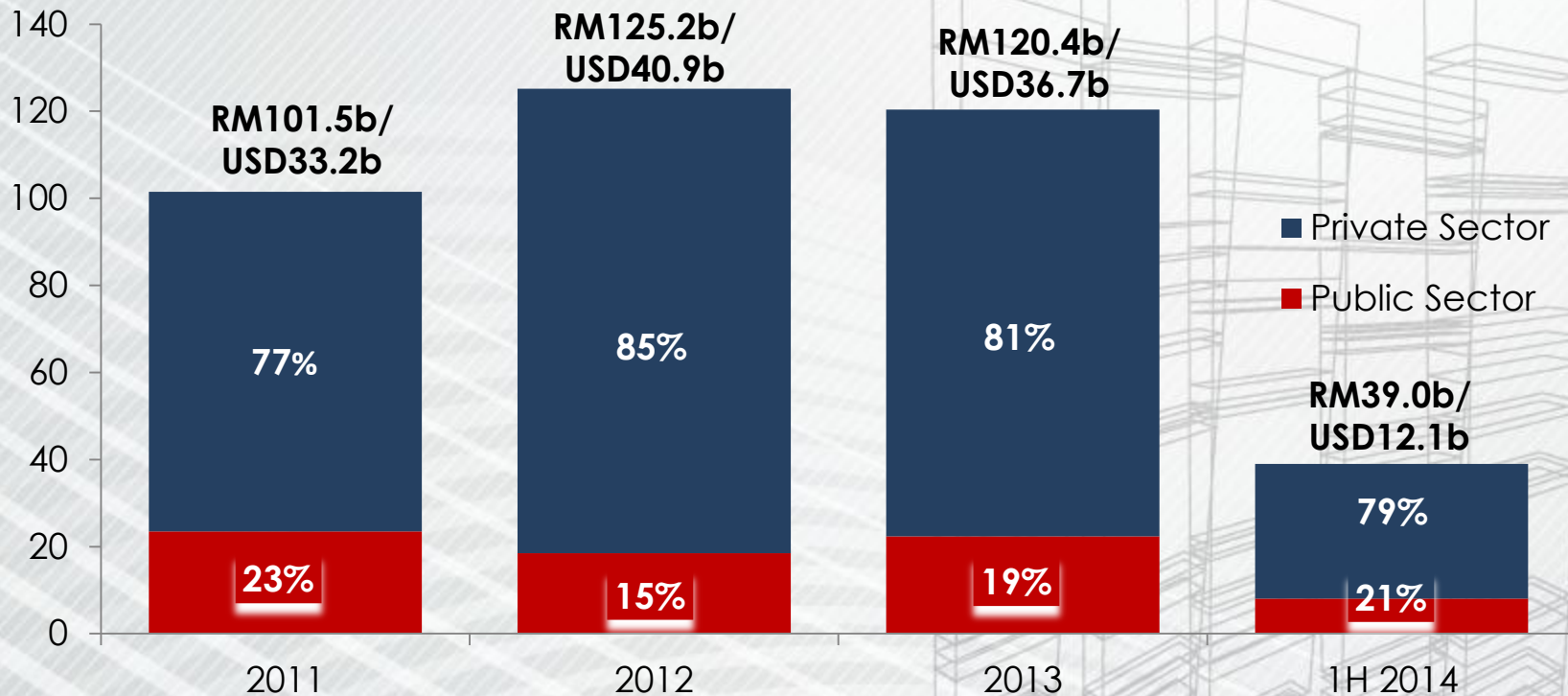
	2011	2012	2013	2014			
				Q1	Q2	1H	Annual (f)
National GDP (%)	5.1%	5.6%	4.7%	6.2%	6.4%	6.3%	5.5% -6.0%
Construction Sector GDP (%)	4.7%	18.1%	10.9%	18.9%	9.9%	14.3%	12.7%



Projects by Public Private Sector

Number of Projects				
Sector	2011	2012	2013	1H 2014
Public	1,948	1,959	1,826	389
Private	5,747	5,822	5,795	1,814
Total	7,695	7,781	7,621	2,203

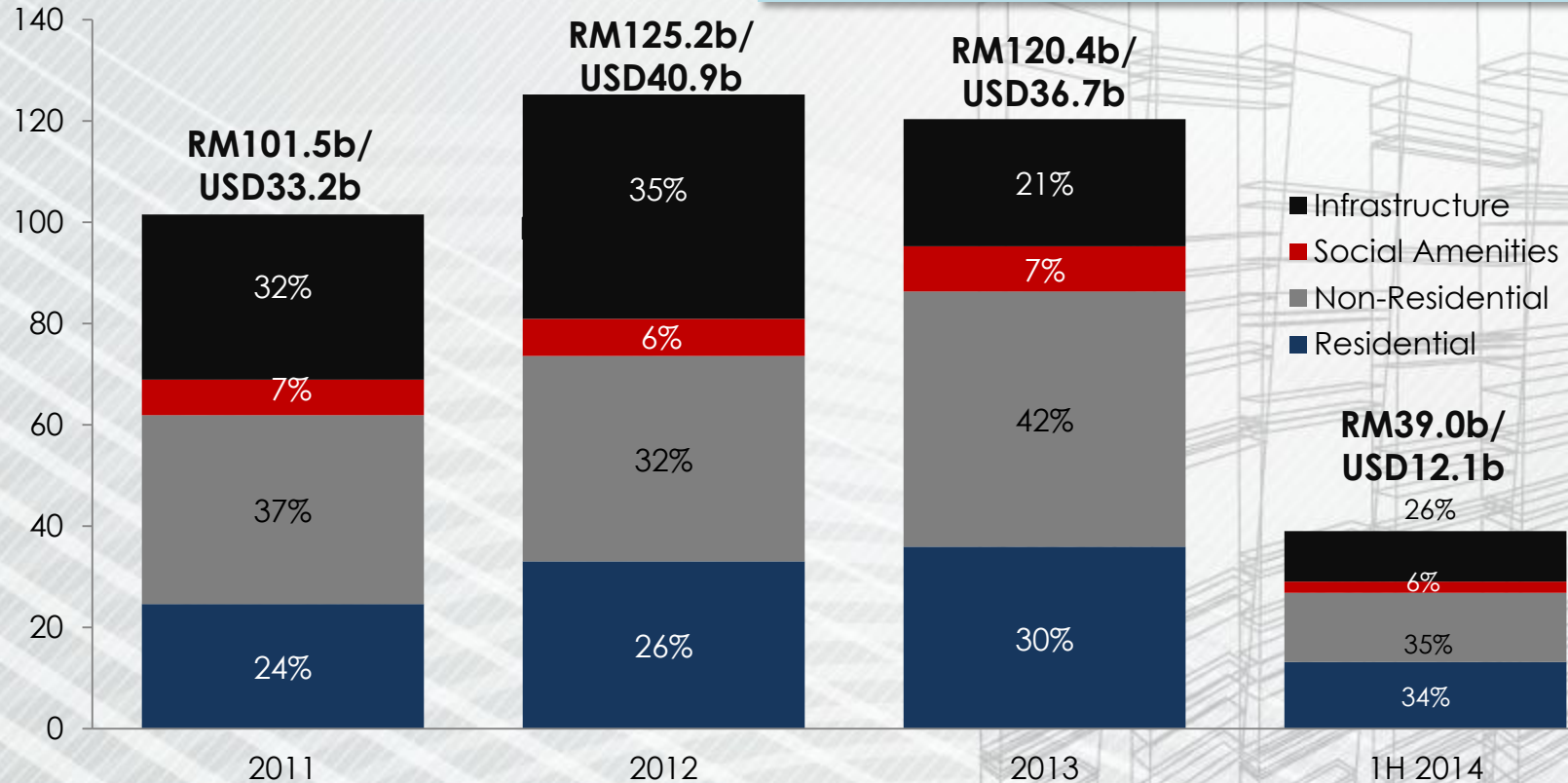
Project Value
(RM billion)



Projects by Category

Category	Number of Projects			
	2011	2012	2013	1H 2014
Residential	2,257	2,246	2,159	691
Non-Residential	2,612	2,735	2,859	830
Social Amenity	844	913	661	176
Infrastructure	1,982	1,887	1,942	506
Total	7,685	7,781	7,621	2,203

Project Value
[RM billion]



CIDB Act 1994, ACT 520 (Amended 2011)

concerned with
meeting resources
requirement

- advisory
- regulatory
- facilitative

6
functions

8
functions

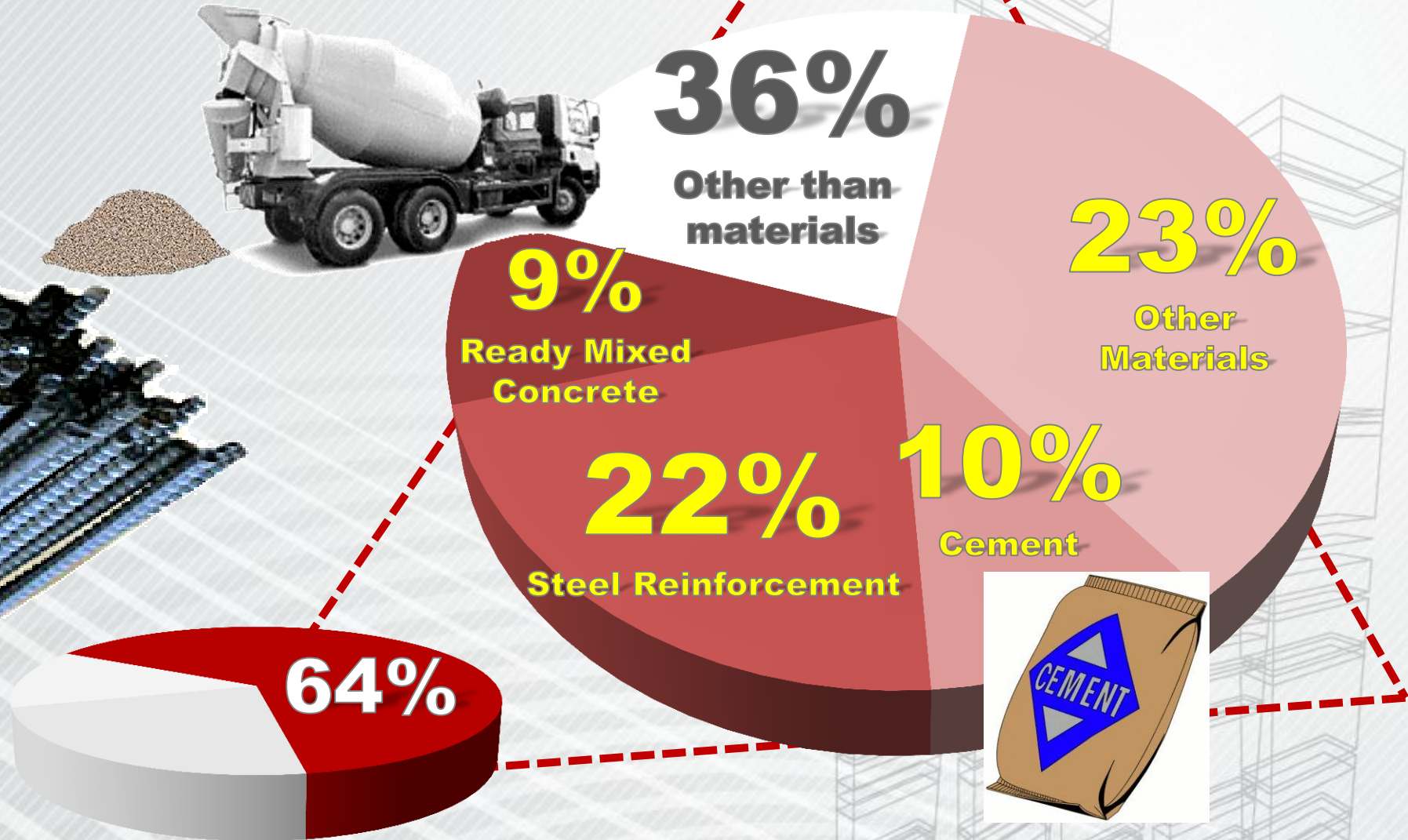
Materials, Manpower and Machinery Contribution



Construction Materials

- Material Prices
- Materials Demand And Supply
- Materials Quality

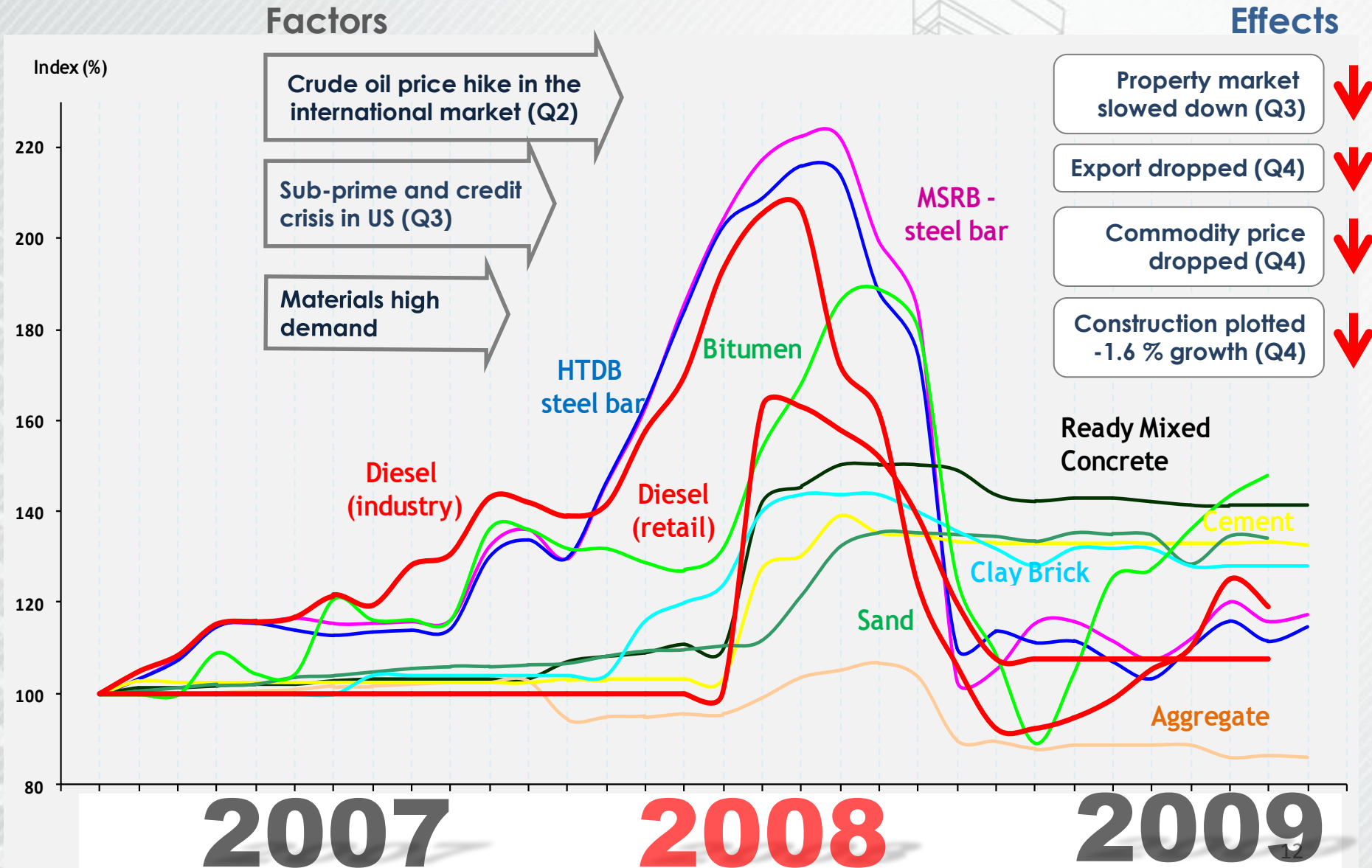
Construction Materials Weightage for Building Works



Note : Based on CIDB's study in 2012.

Excludes the overhead and profit margin from the cost of goods and construction workers.

Trend of Materials Price Indices



Measures to Mitigate Materials Price Increase in 2008



Ceiling Price Revision

Stabilising the prices of steel and cement by progressively increased the ceiling price

2007



Liberalisation

The steel and cement market fully liberalised with full duty exemption to all importers

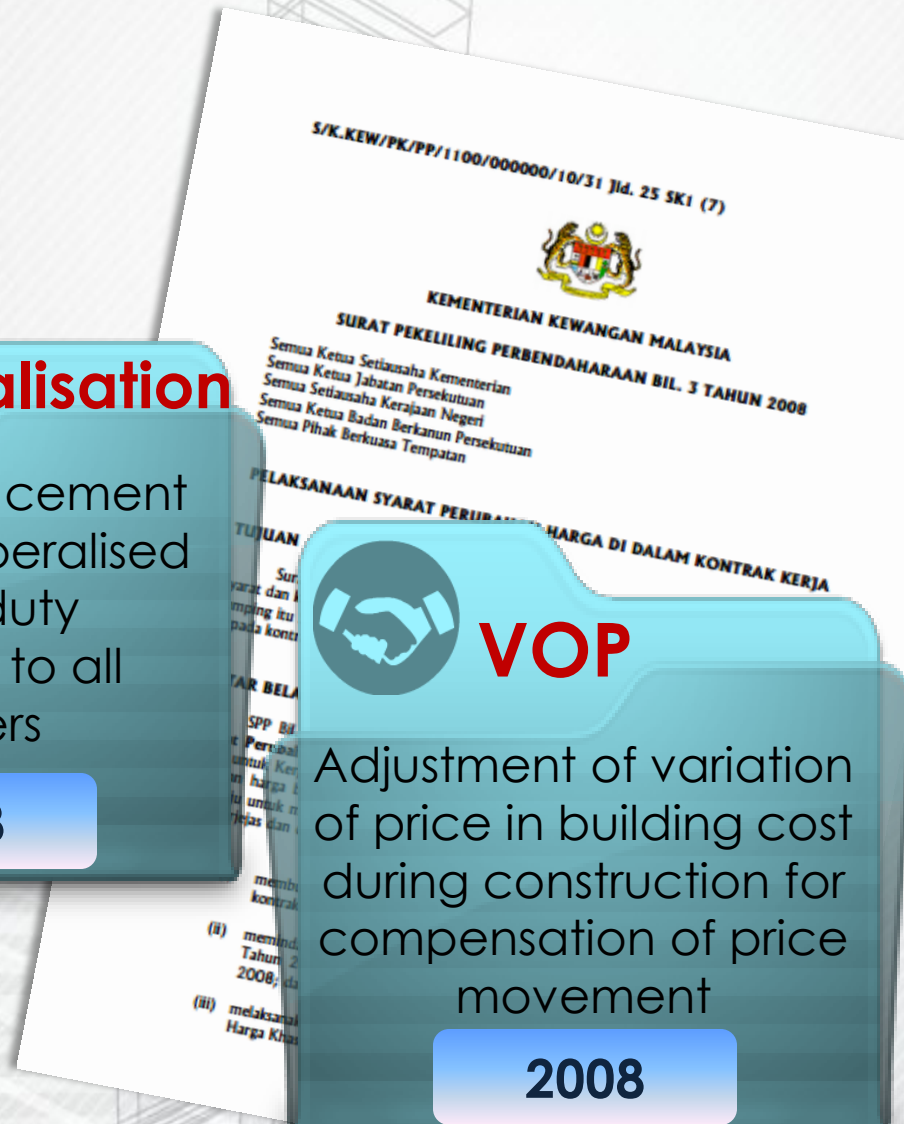
2008



VOP

Adjustment of variation of price in building cost during construction for compensation of price movement

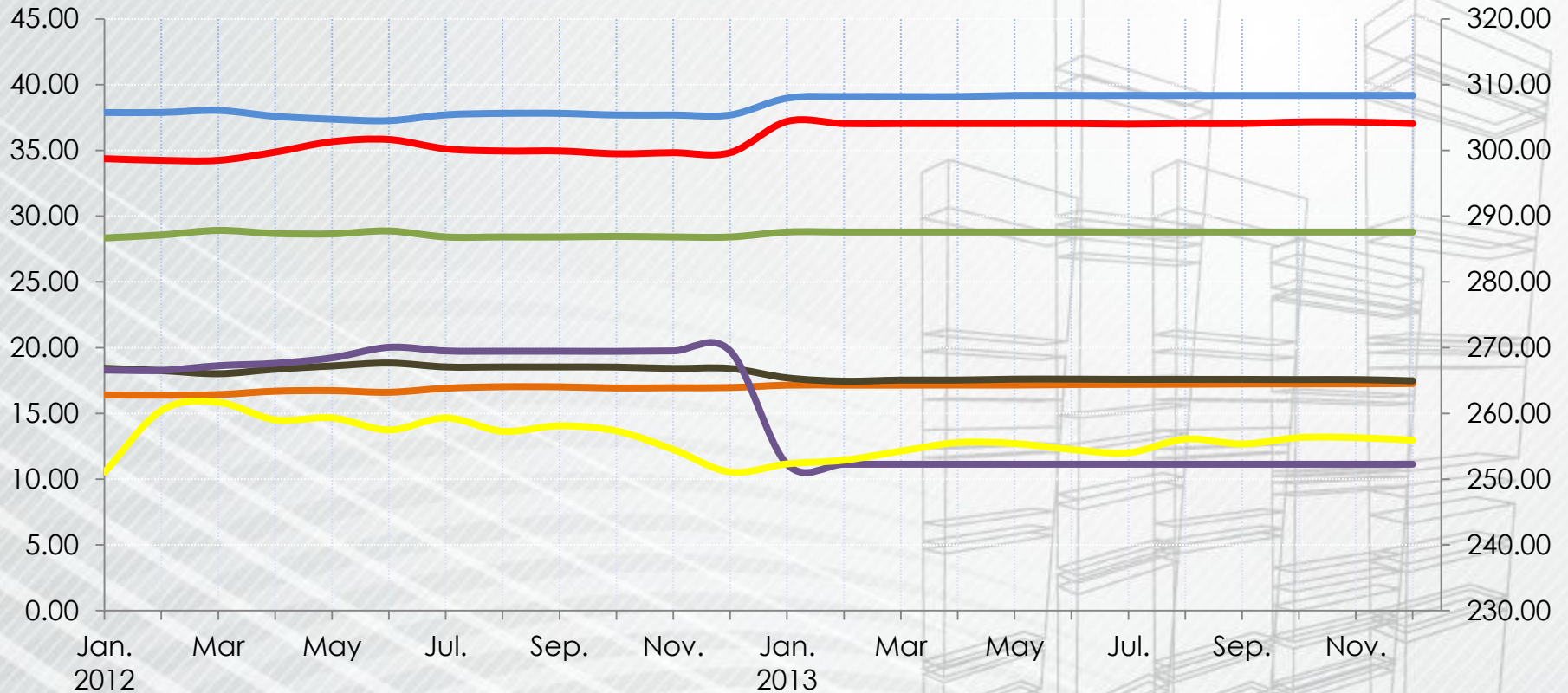
2008



Trends of Current Materials Price

Price for Cement, BRC A10, Aggregate, Bricks and Sand (RM)

Price for Round Bar and Ready-mixed Concrete (RM)



— Cement/bag
— BRC A10/m²
— Round bars/100kg

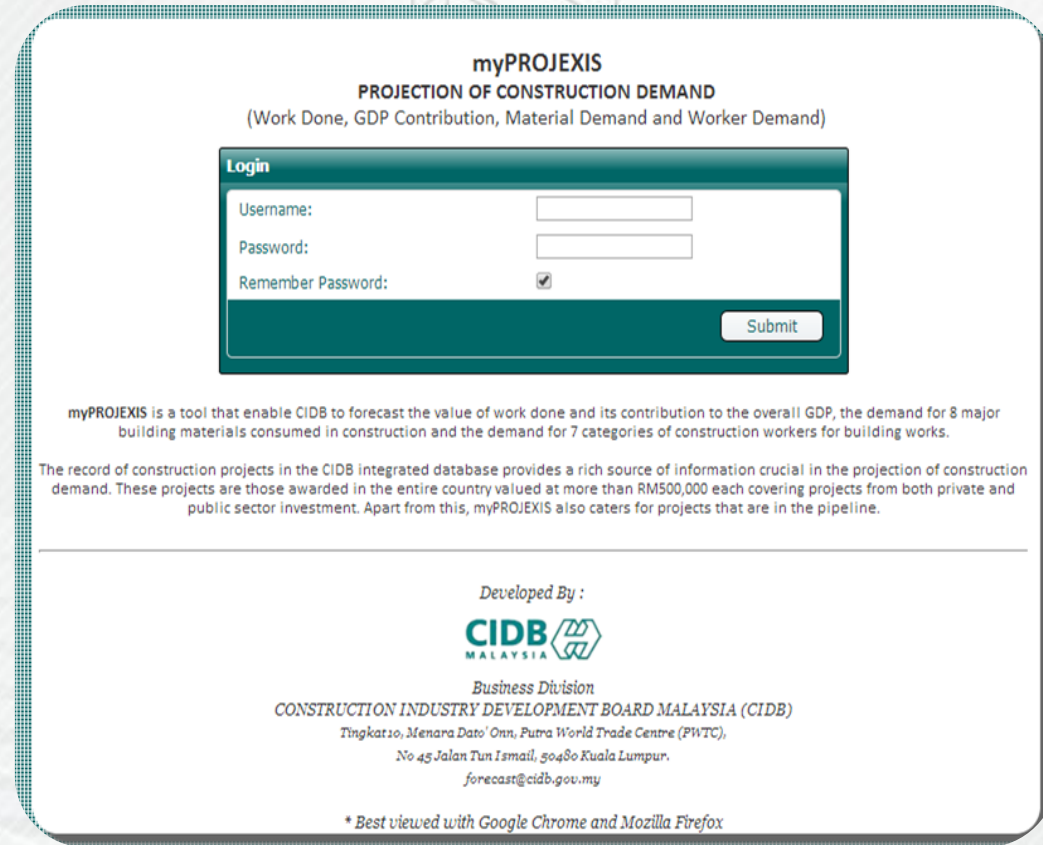
— Aggregate/tonne
— Bricks/100 unit

— Sand/tonne
— Ready-mixed Concrete/m³

Projection of Materials Demand

myPROJEXIS system is a tool that enable CIDB to forecast:

- the value of work done/ construction sector growth;
- the demand for major construction materials consumed in construction; and
- demand for construction workers in major trades



myPROJEXIS
PROJECTION OF CONSTRUCTION DEMAND
(Work Done, GDP Contribution, Material Demand and Worker Demand)

Login

Username:


Password:

Remember Password:

myPROJEXIS is a tool that enable CIDB to forecast the value of work done and its contribution to the overall GDP, the demand for 8 major building materials consumed in construction and the demand for 7 categories of construction workers for building works.

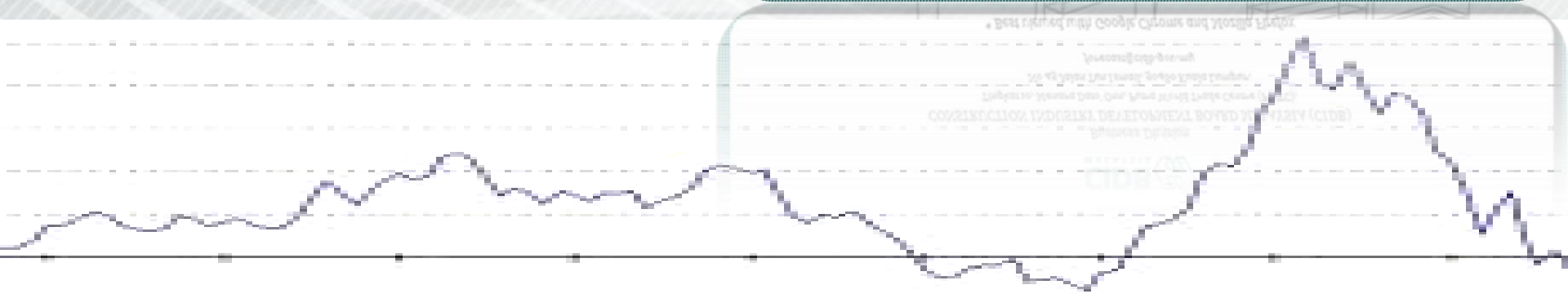
The record of construction projects in the CIDB integrated database provides a rich source of information crucial in the projection of construction demand. These projects are those awarded in the entire country valued at more than RM500,000 each covering projects from both private and public sector investment. Apart from this, myPROJEXIS also caters for projects that are in the pipeline.

Developed By :



Business Division
CONSTRUCTION INDUSTRY DEVELOPMENT BOARD MALAYSIA (CIDB)
Tingkat 10, Menara Dato' Onn, Putra World Trade Centre (PWTC),
No 45 Jalan Tun Ismail, 50480 Kuala Lumpur.
forecast@cidb.gov.my

* Best viewed with Google Chrome and Mozilla Firefox



Control Measures on Quality of **Locally** Manufactured Materials



Product Certification Licence (PCL)

Given to manufacturer who comply with the requirements of the relevant Malaysia Standard in the manufacturing of building materials

18 types of construction materials regulated

Control Measures on Quality of Imported Materials

Serial No. : 20133969
Permit No. : CID141C11003752013

CERTIFICATE OF APPROVAL

This Certificate Valid Until : 05 December 2013

Application ID. : CID1412013004464
Date of Issuance : 21 November 2013

GUOCERA MARKETING SDN. BHD.
5TH FLOOR, KOMPLEKS KEMAJUAN
NO. 2, JALAN 19/1B
46300 P.J., SELANGOR, MALAYSIA

It is hereby certified that the goods detailed below have conformed to the said Malaysian Standards (MS)

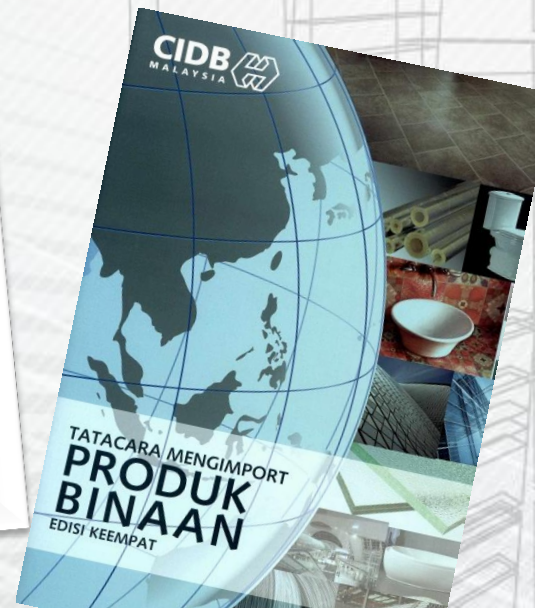
No.	Description of Goods	Quantity / Meter Square (m2) Packaging and Brand	MS Applicable (No. & Year)
1.	Unglazed Ceramic Tiles Group Tiles B1a UGL (80X80CM)	5600 Cartons / 10752 MTK GUOCERA GRES	MS ISO 13006 : 2003

- Country of Origin : CN - CHINA
- Point of Entry in Malaysia : PORT KLANG
- Bill of Lading No. & Date : FSNPKL13110008A/
FSNPKL13110008B (9/11/2013)
- No. of Container : 10 (Ten)
- Packing List / Invoice No. & Date : 2013PH278 /
2013PH277-1 (07/11/2013)
- CIDB Reference No. : CID1412013004464C
- OGA Remarks : Lulus seperti disyorkan

(Mohd Zaid Zakaria)
for Chief Executive
Construction Industry Development Board (CIDB)
Malaysia

Certificate of Approval (COA)

Issued to imported materials that conform to stringent quality requirements under the relevant Malaysia Standards

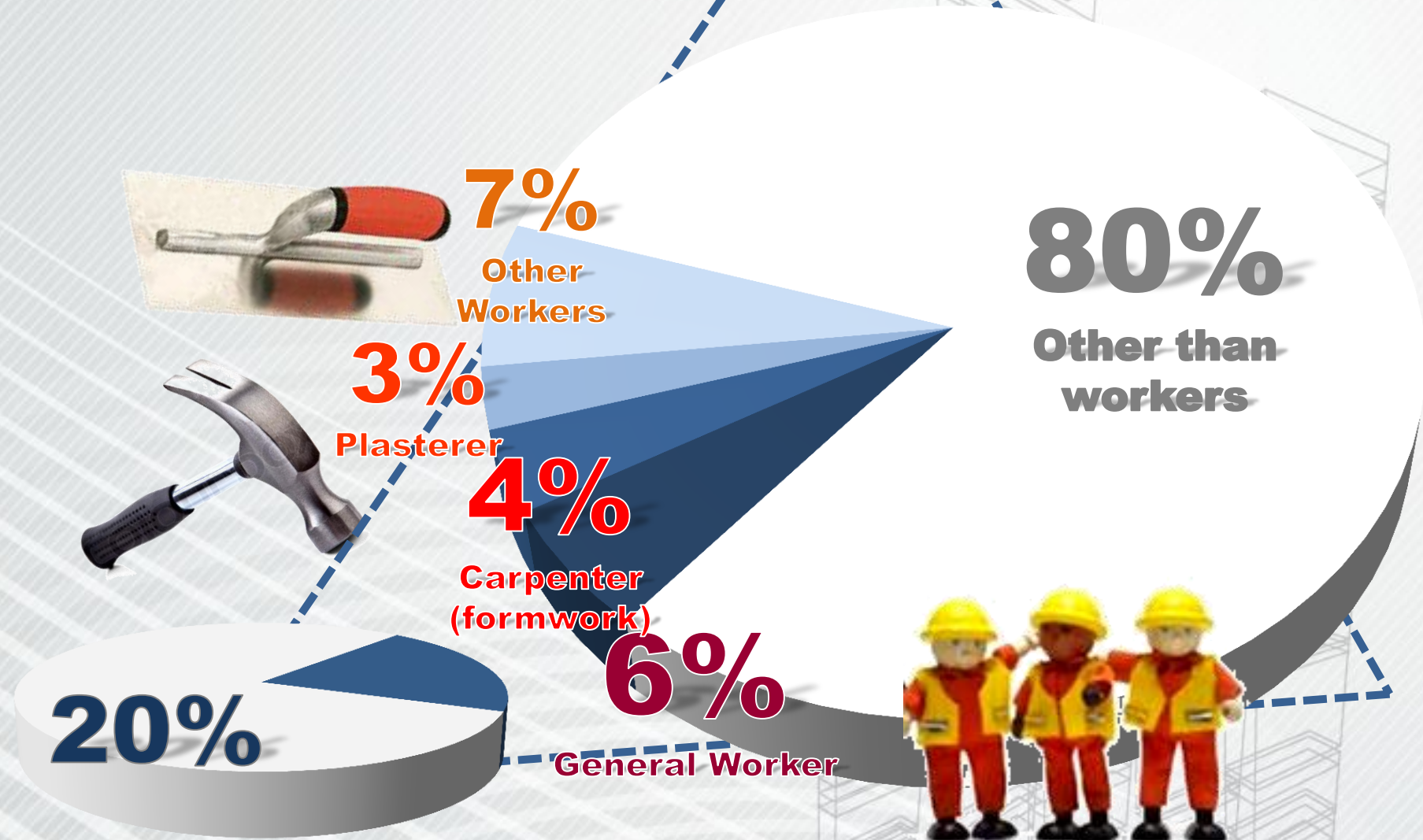


Procedure to Import Construction Products

Construction Worker

- Foreign Workers
- Skilled Workers
- Safety & Health

Construction Workers Weightage for Building Works



Note : Based on CIDB's study in 2012.

Excludes the overhead and profit margin from the cost of goods and construction workers.

Foreign Construction Workers

434,300

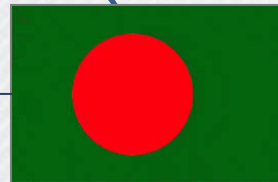
registered with
Immigration
Department of
Malaysia

19.3%

compared with
other sectors



56%



26%



5%

55%

Based on CIDB
study in 2010

Importation and Distribution of Foreign Workers



Construction
Labour
Exchange
Centre Berhad



**FOREIGN
WORKERS
IDENTITY CARD**

Solutions to your manpower needs

1

Manage the distribution of foreign construction workers to contractors in a quick and efficient manner

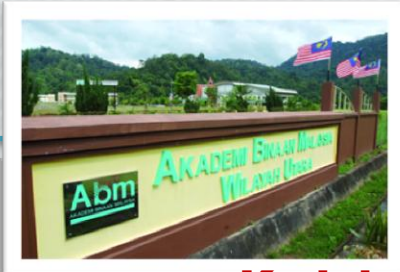
2

Redistribute workers to construction companies that require them for their projects.

3

Managing the flow of foreign construction workers from source countries to furnish the needs of the construction industry

Skilled Workers Training Centers



Kedah

Centre of Excellence for Mechanical and Electrical Services Training
- North Region



Terengganu

Centre of Excellence for Oil & Gas Services Training
- East Region



Sabah

Centre of Excellence for Oil And Gas Services Training
- East Malaysia



Kuala Lumpur

Centre of Excellence for Latest Technology in Construction
- Central Region

Centre of Excellence for Welding and Fabrication Technology Training
- South Region



Johor



Sarawak

Centre of Excellence for Infrastructure Sustainable Development
- East Malaysia

Training for Construction Worker



60 trades:

- Scaffold Erection
- Welding
- Wireman
- Chargeman
- Fitting/ Insulation
- Blasting/ Painting
- Non-Destructive Testing (NDT)
- Crane Operation
- Plant Operation

Training Area	Nos. Trained	
	2012	2013
Skill	15,330	21,879
Supervisor	525	842
Management	145	143
Total	16,000	22,864

MOU with Indonesian Construction Development Authority



MOU on 31 March 2014 to provide skills training programs and certification to Indonesian construction worker who are legally employed in Malaysia



**Indonesian
Construction
Development
Authority**

Trades 1

**Bricklaying
and Plastering**

2 days

Trades 2

**Plastering and
Tiling**

2 days

Trades 3

**Carpentry,
Barbending
and
Concreting**

2 days

Trades 4

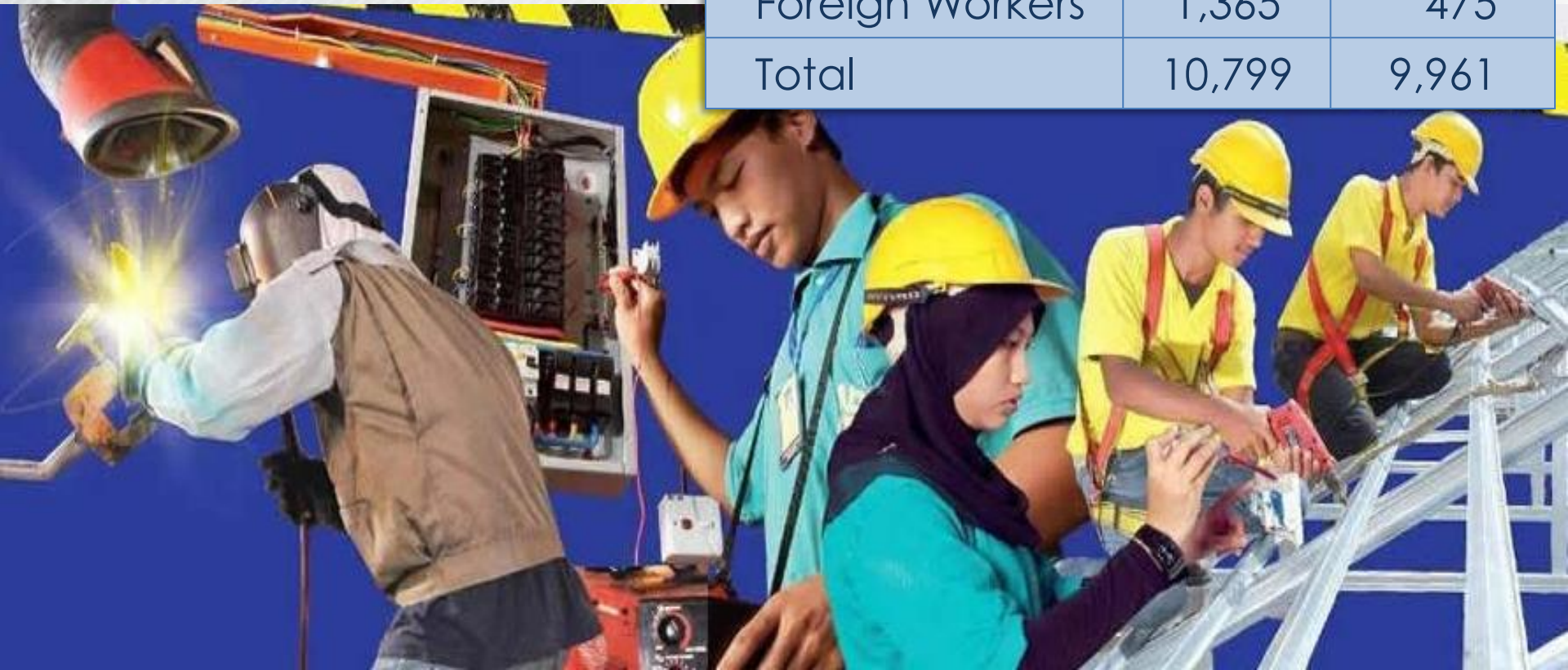
**Building
Decorative
Painting**

2 days

Accreditation of Skilled Workers

62 trades identified for accreditation and certification

Construction Workers	Nos. Accredited	
	2012	2013
Local Workers	9,434	9,486
Foreign Workers	1,365	475
Total	10,799	9,961



Green Card Program

- Prepared by the Certified Training Provider
- Prerequisite to the new personnel

Safety Induction for Construction Workers (SICW) Course

Construction Personnel Registration (Green Card)

- Construction site personnel are required to register and hold a green card

- Insurance coverage for valid green card holder

Insurance Scheme

Head protection must be worn

Flammable liquid

Foot protection must be worn

No smoking

Danger Hot

Keep tidy, place all rubbish in bins provided

Safety Coversalls must be worn

Hand protection must be worn

Wear welding mask

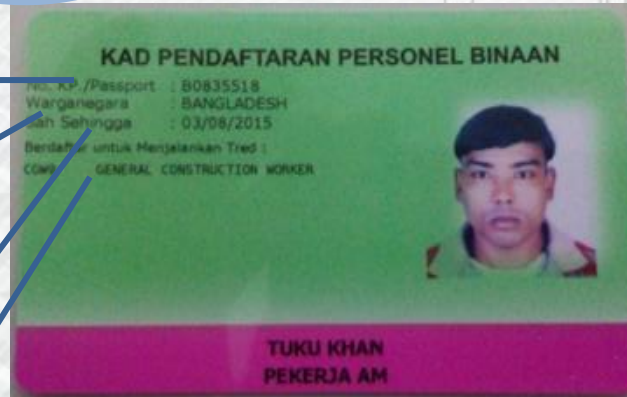
Smoking and naked flames prohibited

Identity Card/
Passport Number

Nationality

Validity Date

Construction
Trade



Name and
Construction
Trade



Projection of Worker's Demand

myPROJEXIS system is a tool that enable CIDB to forecast:

- the value of work done/construction sector growth;
- the demand for major construction materials consumed in construction; and
- demand for construction workers in major trades

myPROJEXIS
PROJECTION OF CONSTRUCTION DEMAND
(Work Done, GDP Contribution, Material Demand and Worker Demand)

Login

Username:


Password:

Remember Password:

myPROJEXIS is a tool that enable CIDB to forecast the value of work done and its contribution to the overall GDP, the demand for 8 major building materials consumed in construction and the demand for 7 categories of construction workers for building works.

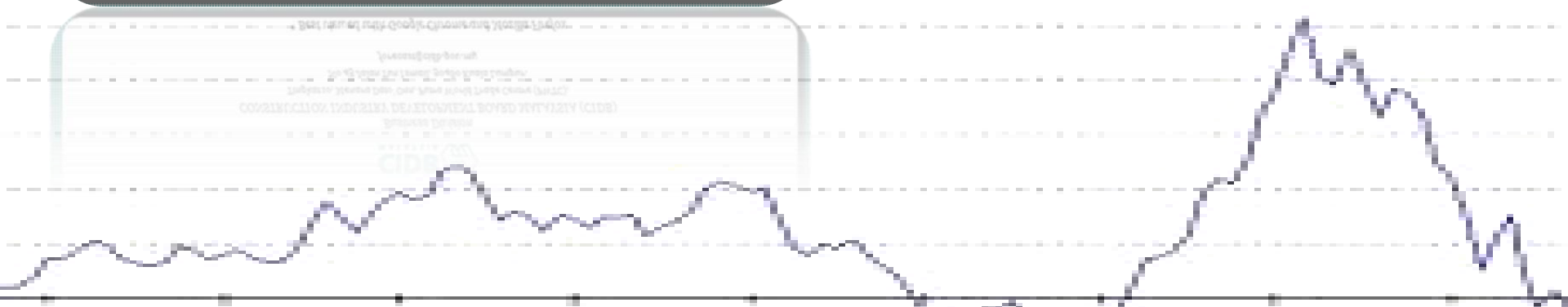
The record of construction projects in the CIDB integrated database provides a rich source of information crucial in the projection of construction demand. These projects are those awarded in the entire country valued at more than RM500,000 each covering projects from both private and public sector investment. Apart from this, myPROJEXIS also caters for projects that are in the pipeline.

Developed By :



Business Division
CONSTRUCTION INDUSTRY DEVELOPMENT BOARD MALAYSIA (CIDB)
Tingkat 10, Menara Dato' Onn, Putra World Trade Centre (PWTC),
No 45 Jalan Tun Ismail, 50480 Kuala Lumpur.
forecast@cidb.gov.my

* Best viewed with Google Chrome and Mozilla Firefox



Method and Machinery

- **Industrialised Building Systems (IBS)**
- **Heavy Machineries & Equipment**

Construction Machineries Weightage for Building Works



0.3%
Excavator/
Backhoe

0.7%
Mobile Crane

2%
Others

97%
Other than
machineries

3%



Note : Based on CIDB's study.
Excludes the overhead and profit margin from the cost of goods and construction workers.

Industrialised Building System (IBS)

“A system/method of construction where the components are manufactured in a **CONTROLLED ENVIRONMENT** (on or off site), **TRANSPORTED**, **POSITIONED** and **ASSEMBLED** on the construction site with minimum workers“



Manufactured



Transported



Positioned and Assembled

Incentives, Policies, Regulation and Measures on IBS

IBS Centre

Registration IBS Products, Manufactures, Contractors, Installers & Consultants

IBS Roadmaps

Treasury Circular 2008

Exemption On Levy Payment

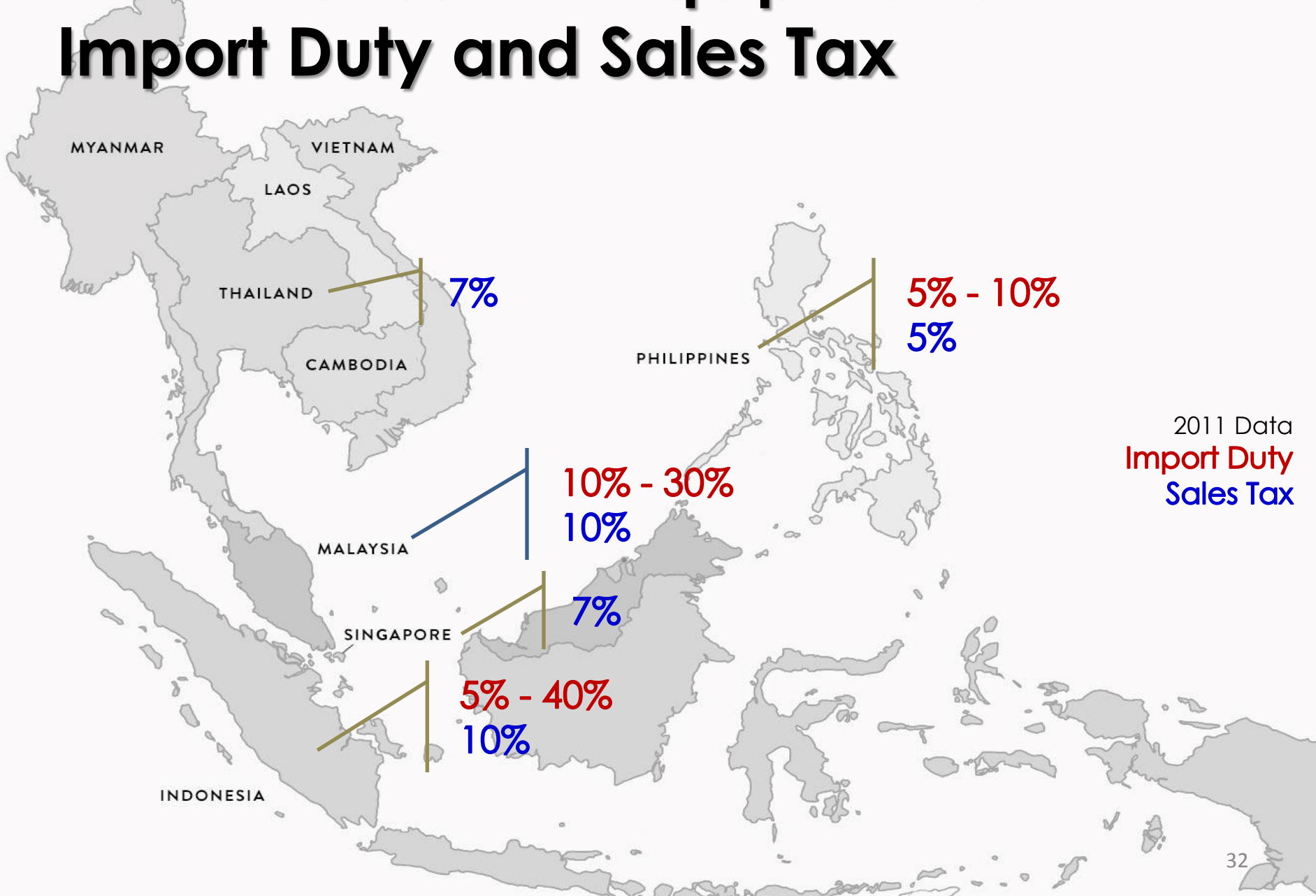
Incentives For Purchasing IBS Components Mould To Manufacturer

IBS Catalogue System

Training Module

International Conference, Exhibition, Seminars & Road Shows

Machineries and Equipments Import Duty and Sales Tax



2011 Data
Import Duty
Sales Tax

Machineries and Equipments Import Duty & Sales Tax Reduction



Year 2012

Proposal.....

Proposal to reduce the import duty and sales tax on heavy machineries used in construction

Year 2013

Proposal

Addressing the implementation of IBS and stressing the importance of using heavy machineries



Money @ Cash Flow



Essential Element in Project Implementation



Cash flow
is the **LIFE BLOOD** of the construction industry

Purpose of Construction Industry Payment and Adjudication Act (CIPAA) Act 746

1

To facilitate regular and timely payment

2

To provide a mechanism for speedy dispute resolution through adjudication

3

To provide remedies for the recovery of payment in the construction industry

Specialist Construction Court



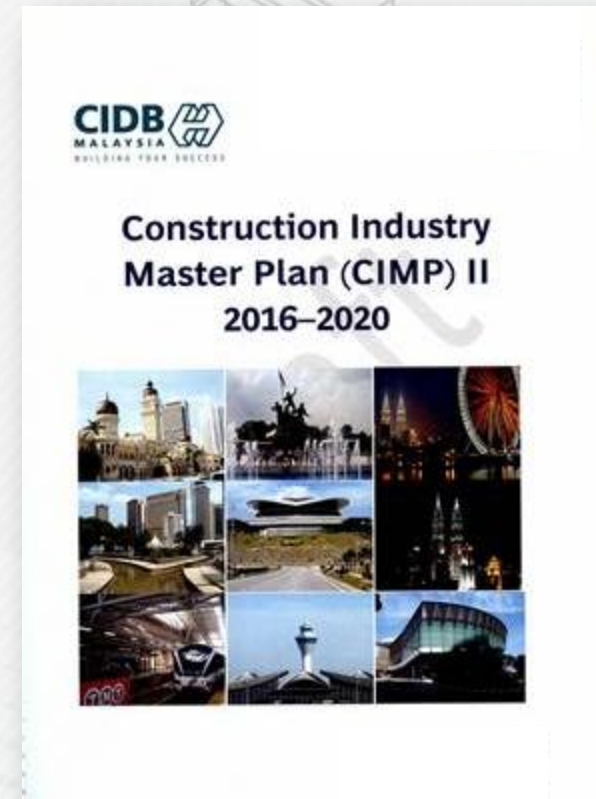
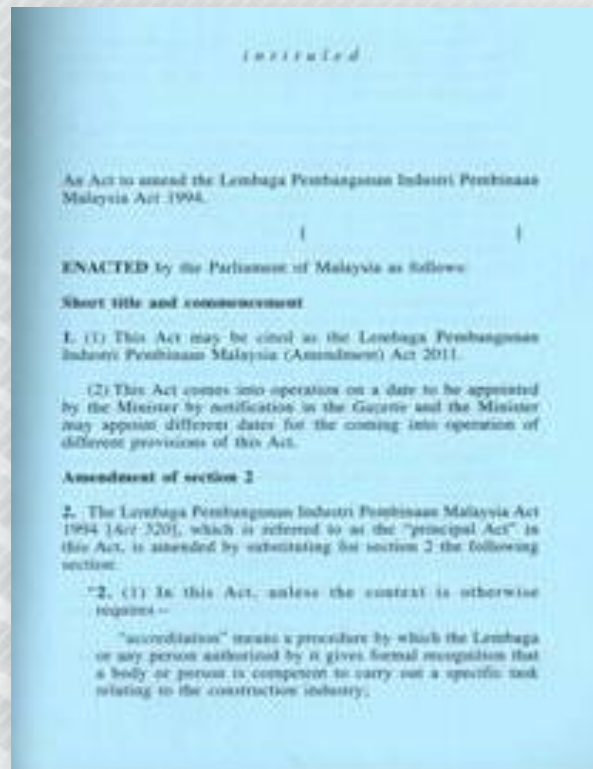
Kuala Lumpur

Shah Alam



Way Forward

CIDB Act 1994 ACT 520 (Amended 2011)



Construction Industry Master Plan II (2016-2020)



THANK YOU

www.cidb.gov.my