



CONSTRUCTION INDUSTRY COUNCIL
建造業議會

Report of Manpower Forecasting 2015 Construction Workers

December 2015



Disclaimer

- The study was carefully conducted but inevitably based on a web of assumptions and incomplete basic data. Therefore, ballpark figures of this report only provide an indication of general trends of manpower situation. Further development of the forecast model is necessary to enhance its accuracy.
- Readers are encouraged to seek appropriate independent advice from their professional advisers where possible and should not treat or rely on this publication as a substitute for such professional advice for taking any relevant actions.

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Objectives

- To assess the trends of manpower demand and supply in the HK construction industry
- To identify the discrepancies between the demand and supply of the labour market
- To provide information for policy makers on the changes likely to occur in the construction investment and occupational profile of the labour force, and on the broad implications of these changes for training and employment policies
- To help formulate short-term actions and long-term strategies in order to meet the future needs

Manpower plans can never be blueprints in any rigid sense. They should be treated as one among many pieces of information which planners need to assess before taking decisions and then used to help evaluate the risks which exist in the present circumstances (Holden et al., 1990).



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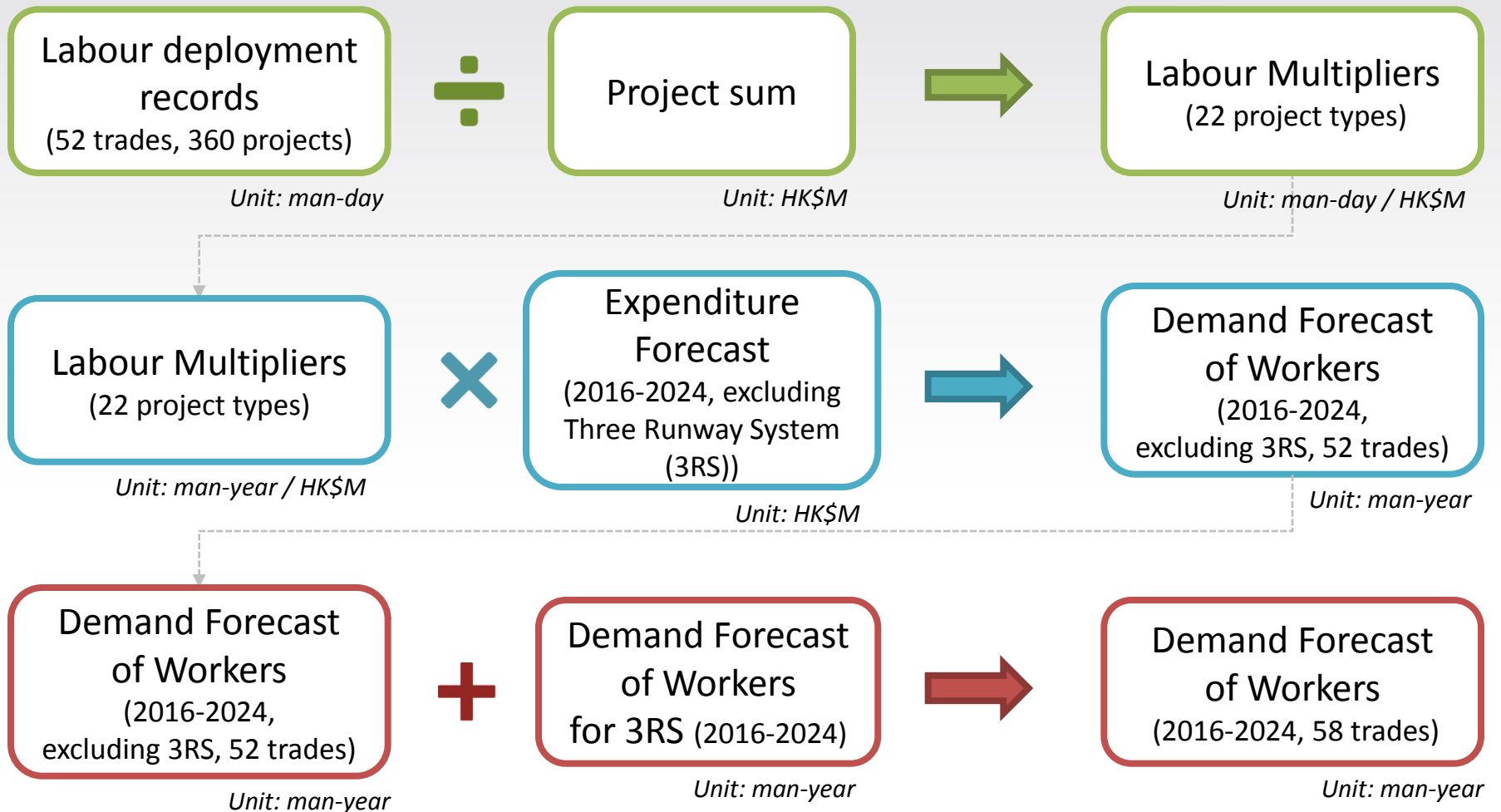
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DEMAND

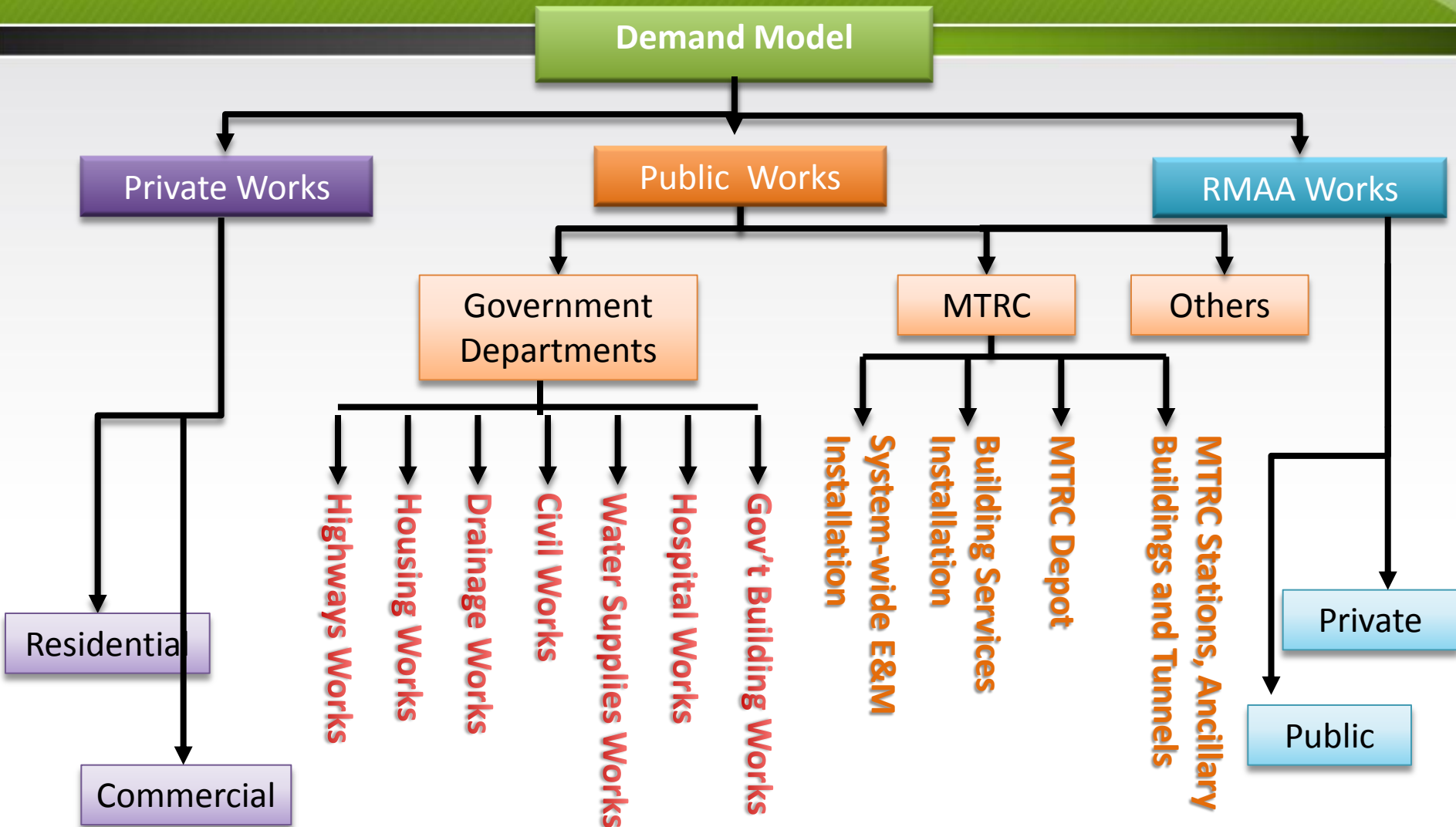
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CICMF Model - Demand



Demand Model: Project Types Covered



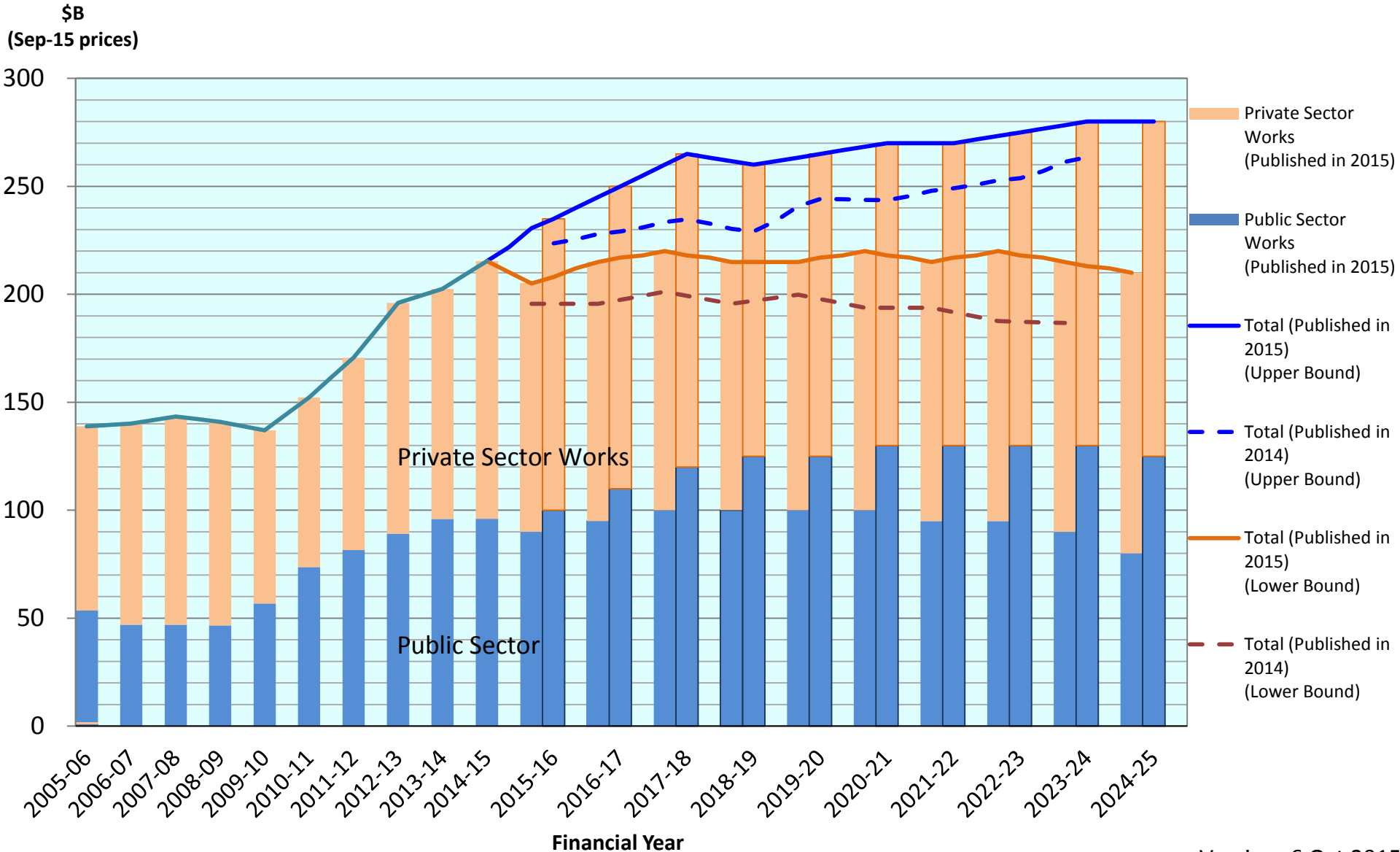
Assumptions

- Linear relationship between labour demand and construction output.
- Analogous labour deployment within a specific project type.
- Labour multipliers remain unchanged in the forecast period.
- For the private RMAA works, a combination of LMs are used to generate a set of more accurate and reliable private LMs :
 - Public maintenance works;
 - Renovation works of Airport Authority; and
 - RMAA projects of private stakeholders

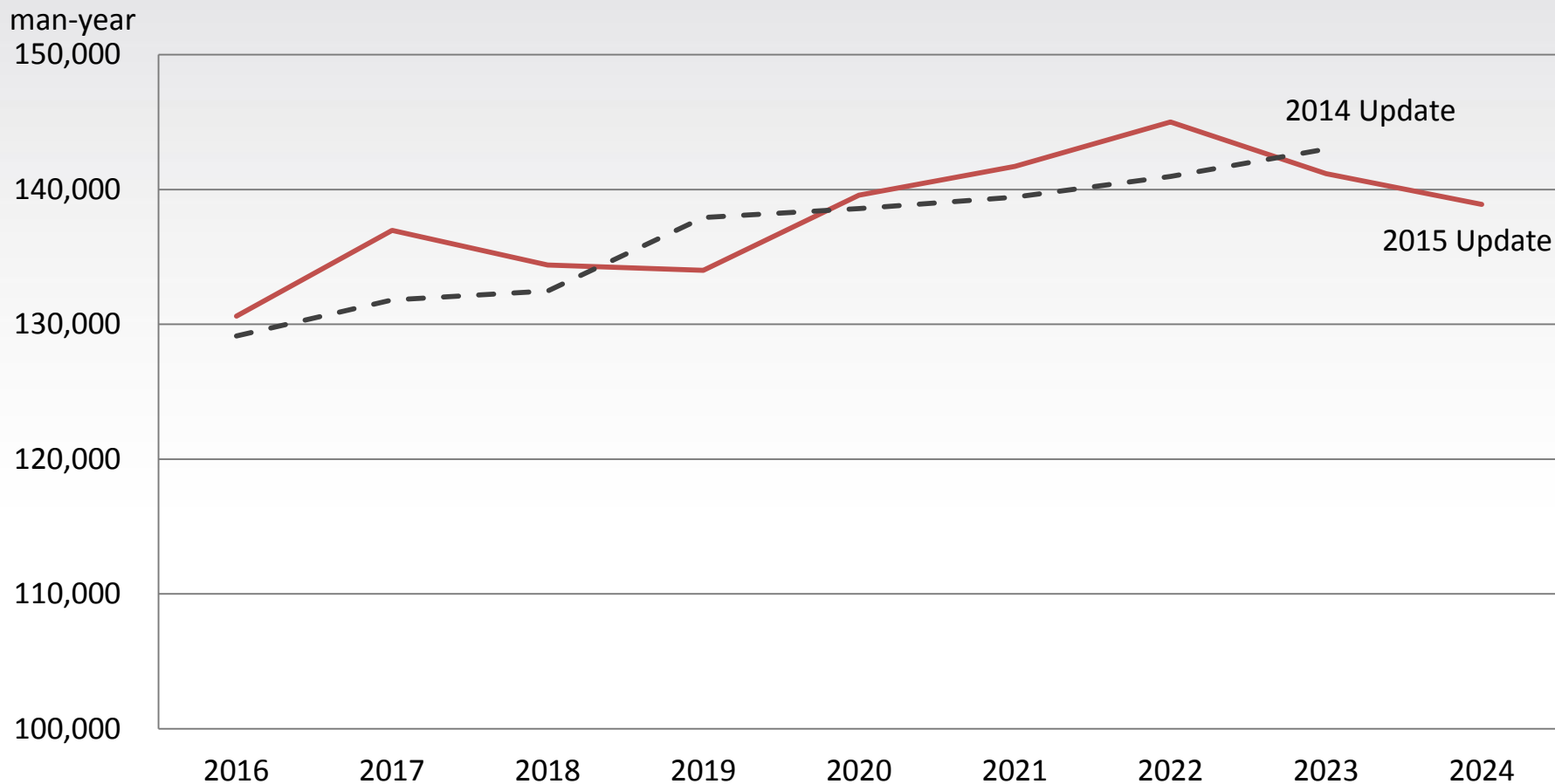
Updates / Enhancements

- Latest construction expenditure forecast
- New set of multipliers: 120 public projects added
- Outliers i.e. $>2\sigma$ have been removed (8 projects)
- The 25th percentile scenario of the expenditure forecast is adopted to reflect the potential effect of filibustering and economic uncertainties
- Incorporated manpower demand estimation of “three-runway system” (3RS) provided by the HKAA

Expenditure Forecast



Forecast of Skilled Workers Demand



Note: The manpower supply figures are in man-year and should be carefully handled when used to compare directly with the actual number of workers.



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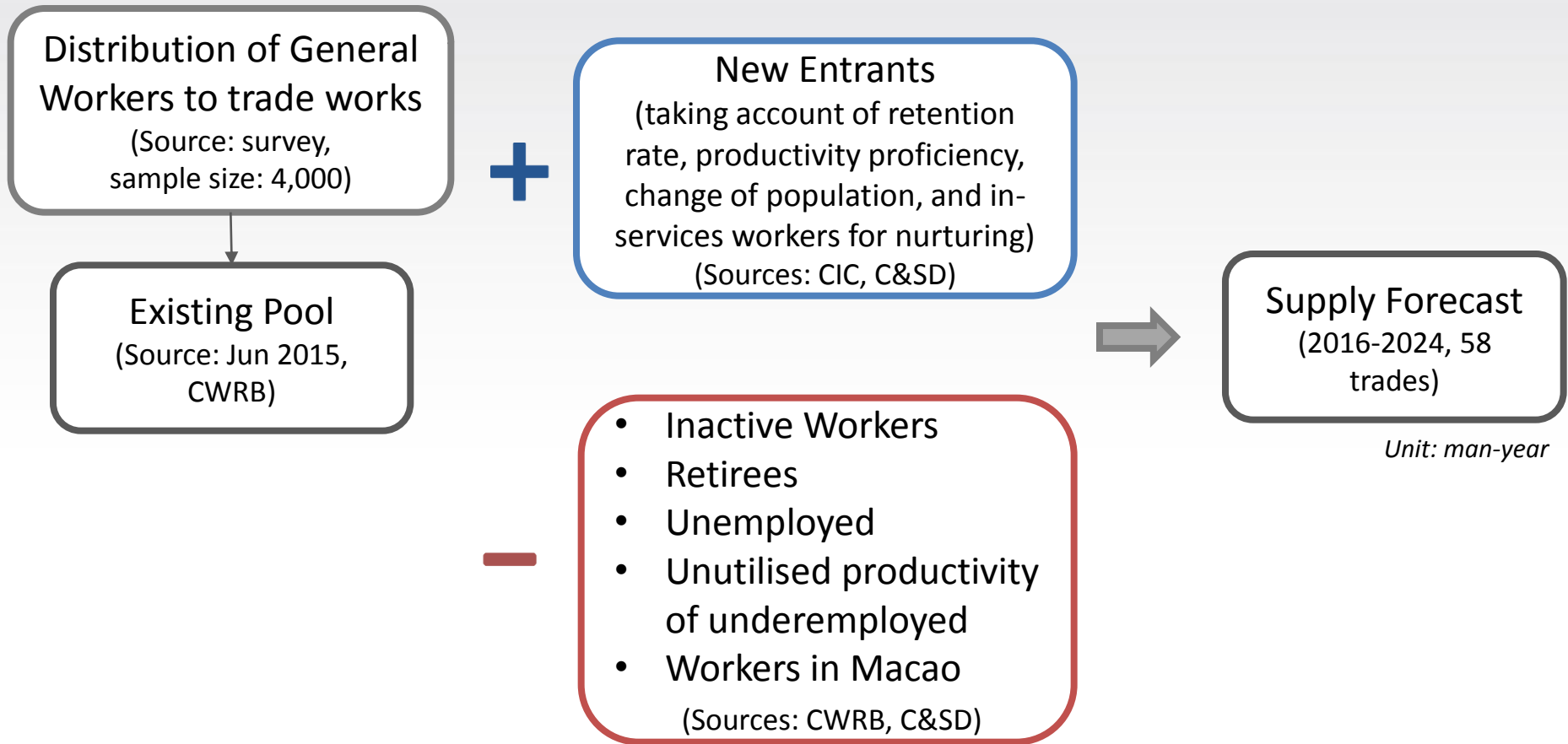
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SUPPLY

**Report of Manpower Forecasting 2015
Construction Workers**



CICMF Model - Supply



Assumptions

- Training places and retention rates remain unchanged in the forecast period.
- Results of phone surveys for registered general workers (RGW) reflect the real situation of RGW conducting skilled work on sites.
- Productivity of new entrants after graduation is 63.2% in 1st year, 81.2% in 2nd year and 100% in 3rd year (based on proficiency tests of CIC graduates).
- Discounted productivity of in-service skilled workers as trainers required in nurturing new entrants in 1st and 2nd years is 25% of new entrants.
- Discounted productivity of underemployed workers is 50% of fully employed workers.
- Retirement starts mainly from age 61 with increasing possibilities to the age 70, where 19 sun-shine trades have a higher retirement proportion than other trades.

Updates / Enhancements

Items	2014 Update	2015 Update
• Registered Workers from CWRB database	Dec 2013	Jun 2015
+ Registered General Workers (RGW) possessing trade skills from phone surveys	2013	2014
+ New entrants projected from CIC Training places	2014	2015
↳ Graduation & Retention	Overall	By trades
– Workers currently not engaged in the construction industry (from CWRB phone surveys)	2013	2015
– Underemployed workers	May 2014	Jun 2015
– Workers in Macao	Feb 2014	Jul 2015
• Effect of population changes (younger age group)	✘	✓



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Projected Manpower Mismatch

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Estimation of Additional Skilled Workers Required in Coming Years

Year end	2016	2017	2018	2019	2020
2015 Update	About 10,000–15,000	About 10,000–15,000	About 10,000–15,000	About 10,000–15,000	About 10,000–15,000
2014 Update	About 10,000–15,000	About 10,000–15,000	About 10,000–15,000	N/A	N/A

Notes

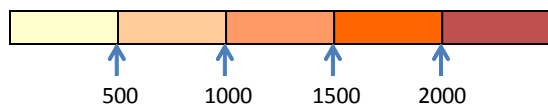
- Figures (in the unit of man-year) are absolute at the end of corresponding years and non-cumulative.
- With potential workforce better utilised, including unemployed workers, underemployed workers and industry leavers.

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Skill Trades (new works oriented) with Demand > Supply

No.	Trade Classification	Year									
		2016	2017	2018	2019	2020	2021	2022	2023	2024	
1	Bar Bender & Fixer [or Steelbender] *										
2	Concretor *										
3	Drainlayer										
6	Scaffolder *										
7	Carpenter *										
9	Plant & Equipment Operator (Load Shifting [or Plant Operator (exc. Driver, bulldozer driver, etc.)])										
13	Metal Worker *										

Unit: man-year

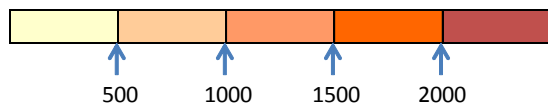


* On the list of shortage trades provided by Task Force on Short-term Labour Supply in February 2014

Skill Trades (new works oriented) with Demand > Supply

No.	Trade Classification	Year								
		2016	2017	2018	2019	2020	2021	2022	2023	2024
16	Plasterer Terrazzo & Granolithic Worker *									
20	Structural Steel Welder *									
21	Structural Steel Erector *									
22	Rigger/Metal Formwork Erector*									
28	Refrigeration/AC/Ventilation Mechanic *									
46	Tunnel Worker *									

Unit: man-year



* On the list of shortage trades provided by Task Force on Short-term Labour Supply in February 2014

Way Forward

- To enrich and constantly update relevant data (incl. multipliers, CWRB data, RGW survey, ratio of workers performing RMAA works, number of workers in Macao, training data, etc).
- To further investigate on problematic trades, e.g. to conduct additional surveys to determine distribution of trade workers who will straddle between new and RMAA works.
- Better utilise CWRB database for forecasting purpose.

Trade Classification

Trade No.	Trade Name (English)	工種名稱 (中文)
1	Bar Bender & Fixer [or Steelbender]	鋼筋屈紮工
2	Concretor	混凝土工
3	Drainlayer	地渠工
4	Plumber	水喉工
5	Leveler	平水工
6	Scaffolder	棚架工
7	Carpenter	木模板工
8	Joiner	細木工
9	Plant & Equipment Operator (Load Shifting) [or Plant Operator (exc. driver, bulldozer driver, etc.)]	機械設備操作工
10	Truck Driver	貨車駕駛員
11	Rock-Breaking Driller [or Pneumatic Driller]	鑽破工

Trade Classification

Trade No.	Trade Name (English)	工種名稱 (中文)
12	General Welder	普通焊接工
13	Metal Worker	金屬工
14	Glazier	玻璃工
15	Painter & Decorator	髹漆及裝飾工
16	Plasterer Terrazzo & Granolithic Worker	批盪工
17	Bricklayer	砌磚工
18	Marble Worker	雲石工
19	Mason (incl. rubble mason, splitting mason and ashlar mason)	砌石工
20	Structural Steel Welder	結構鋼材焊接工
21	Structural Steel Erector	結構鋼架工
22	Rigger / Metal Formwork Erector	索具工 (叻噪) / 金屬模板裝嵌工

Trade Classification

Trade No.	Trade Name (English)	工種名稱 (中文)
23	Asphalter (Road Construction)	瀝青工 (道路建造)
24	Construction Plant Mechanic [or Fitter]	建造機械技工
25	Diver	潛水員
26	Electrical Fitter (incl. Electrician)	電氣裝配工
27	Mechanical Fitter	機械打磨裝配工
28	Refrigeration / AC / Ventilation Mechanic	空調製冷設備技工
29	Fire Service Mechanic	消防設備技工
30	Lift and Escalator Mechanic	自動梯技工 / 升降機技工
31	Building Services Maintenance Mechanic	樓宇工程設備維修技工
32	Cable Jointer (Power)	強電流電纜接駁技工
33	Asphalter (Waterproof)	瀝青工 (防水)

Trade Classification

Trade No.	Trade Name (English)	工種名稱 (中文)
34	Tiler	鋪瓦工
35	Roofer	屋面工
36	Waterproofing	防水工
37	Material Lab Labour	物料實驗室技工
38	Gas Piper	氣體裝置技工
39	Drywall	清水牆工
40	False Ceiling Worker	假天花工
41	Landscape Worker	園藝工
42	Track worker	鋪軌工
43	Piling Worker	打樁工
44	Pipelayer	敷喉管工

工種分類表

編號	工種名稱 (英文)	工種名稱 (中文)
45	Shotfirer	爆石工
46	Tunnel Worker	隧道工
47	Marine Craft Crew	海面建造機械操作工
48	Diver's Linesman	潛水架線工
49	Miner	礦工
50	Shotcretor (Nozzleman)	噴射混凝土工
51	Stevedore	搬運工人
52	General Worker	普通工人
53	General ABWF Workers	普通樓宇及翻新工人
54	General E&M Workers	普通機電工人
55	General Civil / Airfield Workers	普通土木/機場工人

工種分類表

編號	工種名稱 (英文)	工種名稱 (中文)
56	Specialist Plant Operator - Marine (Reclamation)	專門機械設備操作工 - 海上(填海)
57	Specialist Plant Operator - Land (Reclamation)	專門機械設備操作工 - 陸上(填海)
58	APM/BHS/Airport System Workers	旅客捷運系統/行李處理系統/機場系統工人