

# Tested in Hong Kong Certified in Hong Kong

Review Report of the Hong Kong Council for  
Testing and Certification 2013



**REVIEW REPORT OF THE HONG KONG  
COUNCIL FOR TESTING AND CERTIFICATION 2013**

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**Tested in Hong Kong**

**Certified in Hong Kong**

The Honourable C Y Leung, GBM, GBS, JP  
The Chief Executive  
Hong Kong Special Administrative Region  
People's Republic of China

28 March 2013

Dear Sir,

Testing and certification is an industry where Hong Kong enjoys clear advantages. The Hong Kong Council for Testing and Certification was set up in September 2009 to advise the Chief Executive on strategies to strengthening the competitiveness and expanding the scope of the industry. Our vision is for Hong Kong to develop into a testing and certification hub in the region by reinforcing the branding of "Tested in Hong Kong, Certified in Hong Kong".

The Council submitted a three-year market-oriented development plan for the testing and certification industry to Government three years ago. All recommendations in the plan were accepted by Government in April 2010. Since then, Government departments and public bodies have been cooperating with relevant professional organisations, the business sector and the testing and certification industry in making a concerted effort to implement the three-year industry development plan. With the passage of three years, it is generally agreed that the Council has provided an effective platform to foster collaboration among the various sectors and to explore new business opportunities in different domains. Members of the Council have been able to closely monitor and deliberate the changing circumstances faced by the industry. Timely actions have been taken to enhance the professional standards and international recognition of the industry.

The Council has completed a comprehensive review of the implementation progress and made recommendations to support further development of the testing and certification industry.

On behalf of Council Members, I have the pleasure to submit this Review Report to you. When formulating this Review Report, many Government departments, organisations and individuals have provided valuable input. The Council would like to express its deepest gratitude to them for their contribution.



(Prof. Ching Pak-chung)  
Chairman  
Hong Kong Council for Testing and Certification

## Toys Testing



*Flammability test on toys*



*Torque test for toys*

## Medical Testing



*Culture for bacterial pathogens*



*Preparation of blood samples for analysis*



## Textiles & Clothing Testing



*Testing of zipper strength*

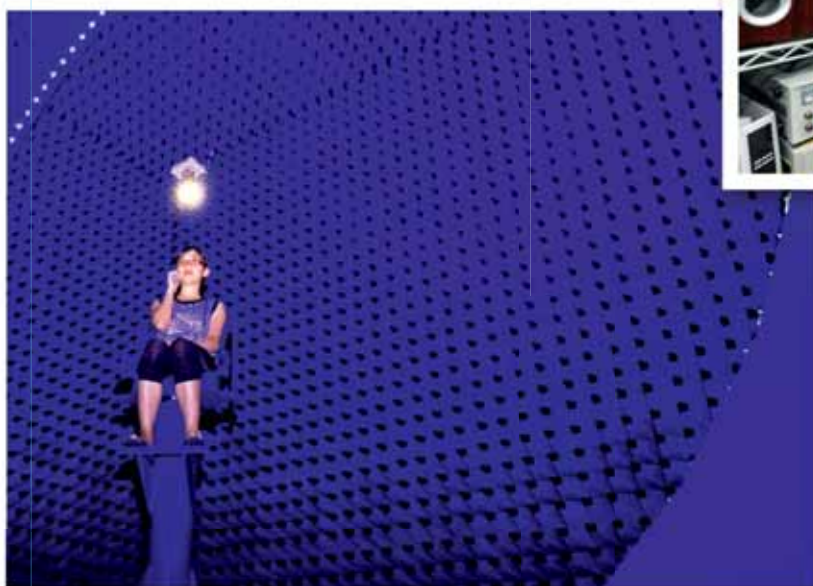


*Fabric colour fastness analysis*

## Electrical & Electronic Products Testing

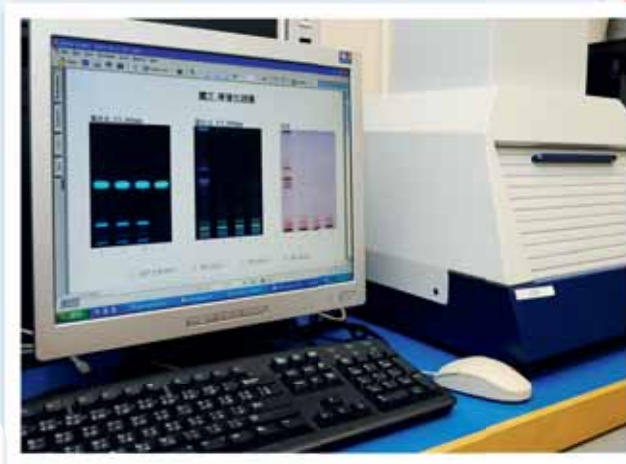


*Sound measurement for audio and video equipment*



*Measurement of Radiated RF Power of mobile phone*

## Chinese Medicines Testing



*Identification of Chinese Materia Medica by thin layer chromatography*

*Hong Kong Chinese Materia Medica Standards*



## Construction Materials Testing



*Measurement of carbonation depth in concrete sample*



*Thickness measurement of weld using weld gauge*



## Food Testing



*Determination of pesticide residues*

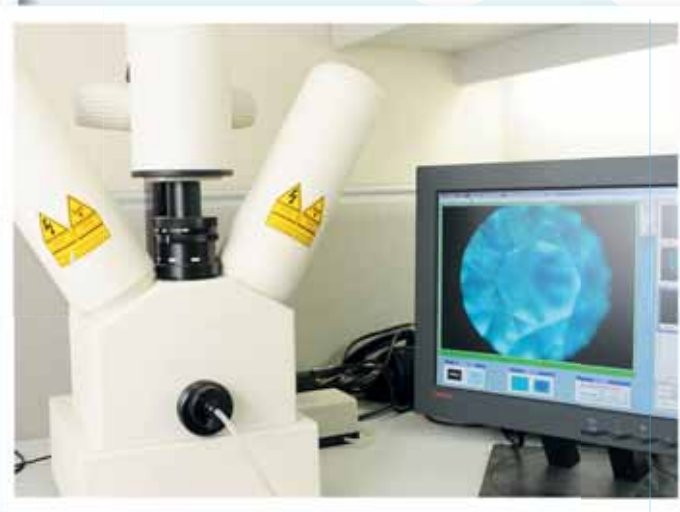


*Preparation of vegetable sample for testing*

## Jewellery Testing

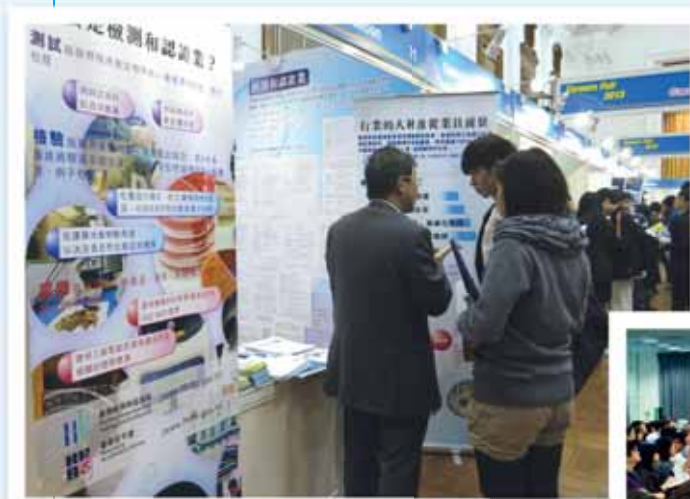


*Analysis of Fei Cui using Polariscope*



*Authenticity identification of diamond*

## Enhancing Manpower



*Introducing career opportunities in testing and certification industry to university students*



*European Union Officials invited to explain the latest toy testing requirement in seminar*

## Shared Facilities



*EMC anechoic chamber of Hong Kong Productivity Council*



*Equipment set-up for testing of an LED lamp in Science Park*



## Seeking Wider Recognition of Hong Kong's Assessment Results



Seminar on CEPA liberalization initiative for testing and certification industry

**香港檢測及認證業新機遇**  
**參與內地 CCC 測檢工作**

《CEPA補充協議七》允許香港檢測機構參與中國強制性產品認證(CCC)的檢測工作。上月底,香港檢測和認證局、工業貿易署、香港認可處主辦的「中國內地檢測和認證的高機」研討會,邀請本港和內地的官員簡介計劃的相關程序及要求,並由業界交流內地提供檢測認證服務的經驗,以助本港檢測機構把握內地的商機。

據香港檢測和認證局主席李國強表示,該研討會是為本地檢測機構提供一個與內地官員交流的機會,並有助他們進入內地市場。他指出,「這不僅是一個研討會,更是一個讓本地檢測機構與內地官員建立聯繫的平台,以便他們能更有效地與內地官員溝通。」

**本地機構參與資格**

有意參與CCC檢測工作的香港檢測實驗室,須先取得香港認可處頒發的認可證書(CCC和強制性產品認證),獲得該證書後,可向CCC指定該機構為合格合作機構,雙方合作協議簽署後,該機構可參與CCC的檢測工作。

李國強表示,該研討會的主題是「中國內地檢測和認證的高機」,旨在為本地檢測機構提供一個與內地官員交流的機會,並有助他們進入內地市場。他指出,「這不僅是一個研討會,更是一個讓本地檢測機構與內地官員建立聯繫的平台,以便他們能更有效地與內地官員溝通。」

**交流內地檢測經驗**

大會為與會者安排了多項交流活動,包括參觀內地的檢測實驗室,並與內地的檢測機構負責人進行交流。李國強表示,這些活動將有助於本地檢測機構了解內地的檢測標準和程序,並為他們進入內地市場提供寶貴的經驗。

**投資研發基金計劃可助檢測和認證業**

政府已於2010年4月1日實施「投資研發基金計劃」,以鼓勵企業進行研發活動。李國強表示,該計劃將為檢測和認證業提供資金支持,以幫助他們提高技術水平和競爭力。

**例子**

| 項目      | 金額      |
|---------|---------|
| 公司的研發基金 | 500,000 |
| 研發的研發基金 | 60,000  |
| 研發的研發基金 | 60,000  |
| 研發的研發基金 | 60,000  |

Newspaper advertorial reporting that Hong Kong testing laboratories can provide testing for the China Compulsory Certification (CCC) System



Pacific Accreditation Cooperation Plenary Meeting in Hong Kong in June 2012

## Promotion



Promotion in a Hong Kong trade fair



Promotion in a Mainland trade fair

Promotion pamphlet







*Advertorial in a trade publication*



*Advertorial in a newspaper*



*Introducing testing and certification  
industry to the public*



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# CHAPTER 1

## INTRODUCTION

1.1 This report reviews the implementation progress of the three-year market-oriented industry development plan proposed by the Hong Kong Council for Testing and Certification (HKCTC) in March 2010. This report also makes recommendations on the way forward to support further development of the testing and certification industry for the Administration's consideration.

### Establishment of HKCTC

1.2 Testing and certification is an industry with good development potentials and a sector where Hong Kong enjoys clear advantages. Over the years, the industry has established a good foundation, based on a robust accreditation system, high professional standards and an excellent reputation.

1.3 To spearhead the development of the industry, Government established HKCTC in September 2009 to advise on the overall strategy to support the development of the industry. HKCTC is a non-statutory advisory body with Members appointed by the Chief Executive. Its terms of reference are at Annex 1. HKCTC is chaired by Professor Ching Pak-chung, Pro-Vice-Chancellor of the Chinese University of Hong Kong. Members come from the testing and certification industry, business sector, relevant professional bodies, public organisations as well as Government departments.

HKCTC's membership list is at Annex 2.

1.4 A dedicated team has been set up in the Innovation and Technology Commission (ITC) to provide support to HKCTC and serve as its Secretariat. The Secretariat currently comprises nine civil servants and is headed by Secretary-General (Testing and Certification), an Administrative Officer Staff Grade C (AOSGC) post. An organisational chart of HKCTC's secretariat is at Annex 3.

## **The Three-Year Market-Oriented Industry Development Plan**

1.5 In March 2010, HKCTC proposed a three-year market-oriented development plan for the testing and certification industry. Government accepted all the recommendations (details of the recommendations are at *Annex 4*) in April 2010. Since then, Government has been working closely with HKCTC in adopting a dual approach to support the development of the industry – making general improvements to the accreditation service and factors of production of the industry, whilst focusing particular attention on specific trades with good potentials in using testing and certification services.

## **Review of Implementation Progress**

1.6 HKCTC started a comprehensive review of the implementation progress of the three-year industry development plan in October 2012. It has reviewed the major progress in the following areas, which is summarised in the relevant chapters of this report –

- (a) improvements to the accreditation system;
- (b) improvements to the factors of production;
- (c) focused effort on specific trades;
- (d) seeking wider recognition of Hong Kong's assessment results; and
- (e) promotion.

1.7 HKCTC has also engaged a professional contractor to conduct a survey to collect views from the testing and certification industry on the implementation of the various initiatives in the three-year industry development plan. The survey was conducted from October 2012 to December 2012. Target respondents were private independent establishments in the testing and certification industry. Completed questionnaires were collected from 124 private establishments. They employed about 11 200 persons, representing about 85% of the employment by private establishments in the industry. Findings of the survey on individual initiatives are discussed

in the relevant chapters of this report. A summary of the survey prepared by the contractor is at Annex 5.

1.8 HKCTC has also reviewed its long-term status, taking into account the implementation experience of the three-year industry development plan.



## CHAPTER 2

### HONG KONG'S TESTING AND CERTIFICATION INDUSTRY

2.1 This chapter provides –

- (a) a brief summary on the role of the testing and certification industry in the society; and
- (b) statistics comparing the profile of the industry in 2009 and 2011.

#### Role of the Industry

2.2 The testing and certification industry plays an important role in the daily life of the Hong Kong community. For example, medical testing provides essential support to the medical sector in the diagnosis of illnesses. The industry also assists the community in assuring the quality of food they consume and the goods they procure, such as testing to check for phthalates (plasticisers) in food and artificial treatment in jadeite jade.

2.3 It is estimated that about 60% of the business of the industry is related to international trade. In support of Hong Kong's extensive trade with other economies, the local testing and certification industry has been providing large amount of testing, inspection and certification services for consumer products manufactured in Hong Kong and the Pearl River Delta Region. The industry has a role at various stages of the overall supply chain for consumer products –

| Stage             | Services from the testing and certification industry  |
|-------------------|---|
| Supplier sourcing | Factory audits and management system certification with reference to quality, social responsibility, safety and environmental standards |

| Stage                          | Services from the testing and certification industry  |
|--------------------------------|---|
| Research and development (R&D) | Risk assessment and product evaluation to ensure regulatory compliance and to reduce time to market |
| Manufacturing                  | Pre-production testing of components and raw materials; third-party process monitoring              |
| Pre-shipment                   | Quantity and quality verification by inspection and testing   |
| Retail                         | Random post-production testing of products  |

## Profile of the Industry

2.4 When HKCTC prepared its first report in 2010, the Census and Statistics Department provided valuable support by conducting an ad hoc survey, the “2009 Survey of Testing and Certification Activities”, to allow a better understanding of the industry profile. Subsequently, collection of data on the testing and certification industry pertaining to private independent establishments has been integrated into Census and Statistics Department’s regular surveys to facilitate monitoring of the industry’s development. In addition, information related to laboratories in Government departments/public organisations is collected through a special data collection exercise conducted annually. A comparison of the profile of the industry in 2009 and 2011 (the latest available statistics) is set out below.

### *Number of Establishments*

2.5 There were about 700 establishments engaging in testing, inspection and certification activities in 2011, of which 600 were private independent establishments. The coverage and breakdown compared to 2009 are set out below –

| Category  | 2009 | 2011 | Change |
|---|------|------|--------|
| Private independent establishments engaging in testing, inspection and certification activities as their major economic activity  | 570  | 600  | +5.3%  |
| Manufacturers and exporters engaging 100 persons or more and with in-house laboratories for testing activities  | 70   | 45   | -35.7% |
| Laboratories in Government departments/public organisations (including those in hospitals of the Hospital Authority and those accredited by the Hong Kong Accreditation Service (HKAS) at local universities) | 50   | 55   | +10.0% |
| Total   | 690  | 700  | +1.4%  |

### *Persons Engaged*

2.6 The total number of persons engaged by private independent establishments was 13 110 in 2011, an increase of about 3.4% compared to 12 680 in 2009. Of the 13 110 persons engaged in 2011, about 6 220 (47%) were professionals and associate professionals whose main duties were to carry out testing, inspection and certification services.

### *Private Establishments*

2.7 The breakdown of the private independent establishments and persons engaged in these establishments by size of establishment is tabulated below –

| Establishment Size | 2009          |                  | 2011          |                  |
|--------------------|---------------|------------------|---------------|------------------|
|                    | Number        | Persons Engaged  | Number        | Persons Engaged  |
| Fewer than 50      | 530<br>(94%)  | 3 930<br>(31%)   | 570<br>(94%)  | 3 980<br>(30%)   |
| 50 or above        | 40<br>(6%)    | 8 750<br>(69%)   | 40<br>(6%)    | 9 130<br>(70%)   |
| Total              | 570<br>(100%) | 12 680<br>(100%) | 600<br>(100%) | 13 110<br>(100%) |

Note: Figures may not add up to the corresponding totals due to rounding.

## *Business Receipts*

2.8 The total business receipts of the private independent establishments in the industry were \$10.8 billion in 2011, an increase of about 25.0% compared to about \$8.6 billion in 2009. The breakdown of business receipts by size of establishments is set out below –

| Establishment Size | 2009   |                    | 2011              |                    |
|--------------------|--------|--------------------|-------------------|--------------------|
|                    | Number | Receipts (HK\$ Mn) | Number            | Receipts (HK\$ Mn) |
| Fewer than 50      | 530    | 2,236              | 570<br>(+8%)      | 2,617<br>(+17%)    |
| 50 or above        | 40     | 6,386              | 40<br>(no change) | 8,163<br>(+28%)    |
| Total              | 570    | 8,622              | 600<br>(+5%)      | 10,780<br>(+25%)   |

Note: Figures may not add up to the corresponding totals due to rounding.

2.9 The breakdown of business receipts by type of services provided is set out below –

| Category                            | 2009 (HK\$ Mn) | 2011 (HK\$ Mn) | Change |
|-------------------------------------|----------------|----------------|--------|
| Testing                             |                |                |        |
| (a) Textiles, clothing and footwear | 1,418          | 1,436          | +1%    |
| (b) Toys and games                  | 1,450          | 1,640          | +13%   |
| (c) Medical                         | 1,212          | 1,394          | +15%   |
| (d) Electrical products             | 822            | 887            | +8%    |
| (e) Others                          | 1,070          | 1,372          | +28%   |
| Sub-total                           | 5,972 (69%)    | 6,729 (62%)    | +13%   |
| Inspection                          | 1,316 (15%)    | 1,656 (15%)    | +26%   |
| Certification                       | 517 (6%)       | 395 (4%)       | -24%   |
| Others                              | 818 (9%)       | 2,000 (19%)    | +144%  |
| Total                               | 8,622 (100%)   | 10,780 (100%)  | +25.0% |

Note: Figures may not add up to the corresponding totals due to rounding.

### *Overall*

2.10 The vast majority (around 94%) of the private independent establishments engaged in testing, inspection and certification activities were small and medium enterprises (SMEs) engaging less than 50 persons. However, the majority of employment (70%) and business receipts (76%) were accounted for by some 40 establishments engaging 50 persons or above.

2.11 In 2011, the majority (62%) of business receipts were from testing activities. Some 80% of business receipts from testing were related to four areas, namely –

- (a) testing of textiles, clothing and footwear;
- (b) testing of toys and games;
- (c) medical testing; and
- (d) testing of electrical products.

2.12 With the industry's extensive involvement in supporting Hong Kong's external trade, the industry could be affected by the macro economic climate of major economies outside Hong Kong. Indeed, the industry has overcome a lot of challenges in the past few years to maintain a steady growth in business against the background of continuous uncertainties in the US and European markets.



## **CHAPTER 3**

### **IMPROVEMENTS ON THE GENERAL FRONT – ACCREDITATION SYSTEM**

3.1 This chapter –

- (a) reviews the implementation progress of HKCTC's recommendations on enhancement to the accreditation service;
- (b) reports the changes in number of accredited organisations and their views on the service of the Hong Kong Accreditation Service (HKAS); and
- (c) makes further recommendations to improve the accreditation service.

#### **HKCTC's Recommendations in 2010**

3.2 HKCTC made the following recommendations in 2010 –

- (a) the mode of Government providing accreditation service should be retained; and
- (b) HKAS to ensure that its services meet changing needs through –
  - (i) having adequate manpower resources to handle the workload so that requests for accreditation can be dealt with promptly;
  - (ii) providing training to its staff to ensure high professional standards in performing assessment; and
  - (iii) acquiring the necessary expertise to facilitate provision of new accreditation services in response to demand from the industry.

## **Implementation Progress**

3.3 Accreditation is an official recognition of competence. It facilitates testing and certification service users in identifying and using reliable service providers. One of Hong Kong's competitive edges in developing the testing and certification industry is its robust accreditation system. Through accreditation, HKAS is able to upgrade the standard of conformity assessment services provided by testing laboratories, inspection bodies and certification bodies.

3.4 Accepting HKCTC's recommendations, HKAS has continued to strengthen its capability and provide quality accreditation service to organisations in the testing and certification industry.

### *Strengthening Capability*

3.5 HKAS has strengthened its manpower. Its establishment has increased to 40, a 38% increase since April 2010. In Financial Year (FY) 2012-13, 13 time-limited contract posts in HKAS were converted into permanent civil service posts, representing a long-term commitment to sustain the enhancement to HKAS' services.

3.6 Since April 2010, HKAS has provided many training, both local and overseas, to its accreditation officers, in particular on the accreditation standards for new accreditation services. Examples of these training include –

- (a) ISO 17025 and ISO 15189 – requirements for testing, calibration and medical laboratories;
- (b) ISO 17043 – requirements for proficiency testing providers;
- (c) ISO 17021 – requirements for bodies providing certification of management systems; and
- (d) ISO Guides 65 and 67 – requirements for bodies operating product certification systems.

### *Meeting the Changing Needs of the Industry*

3.7 HKAS has introduced many new accreditation services to meet the changing needs of the industry and the community at large. A list of new services introduced since April 2010 is at Annex 6.

3.8 New accreditation services have been introduced to address the needs of the industry, e.g. accreditation for laboratories to carry out testing for the China Compulsory Certification (CCC) System to support Hong Kong's industry to explore the Mainland market.

3.9 On the certification side, in the past HKAS focused its accreditation service on a number of certification activities with high market demand, e.g. certification of quality management system to the ISO 9001 standard. To support local companies in providing a more diversified scope of certification services (in particular to support SMEs that cannot afford the high cost of seeking accreditation from overseas accreditation bodies), the types of certification services that can be accredited by HKAS have expanded from four to nine (+125%) since April 2010. Examples of new certification services that can be accredited by HKAS include energy management system certification to the ISO 50001 standard and occupational health and safety management system certification to the OHSAS 18001 standard.

3.10 New services have also been introduced promptly to meet the needs of the Hong Kong community. For example, in response to public concern over the presence of phthalates (plasticisers) in food in 2011, HKAS introduced accreditation for laboratory testing of phthalates in food.

3.11 In addition to introduction of new accreditation services, the time to process applications for accreditation has been shortened. Nowadays, HKAS is able to conduct assessment within 30 days upon receipt of all necessary documents for some 90% of the applications.

### **Accredited Organisations**

3.12 As at end-2012, there were 235 organisations accredited by HKAS.

This compared to 202 as at end-2009. The following table sets out the breakdown and changes –

| Category           | Number of Accredited Organisations |              |     |      |        |
|--------------------|------------------------------------|--------------|-----|------|--------|
|                    | 2009                               | Terminations | New | 2012 | Change |
| Testing Laboratory | 167                                | 15           | 44  | 196  | +17%   |
| Inspection Body    | 20                                 | 3            | 3   | 20   | -      |
| Certification Body | 15                                 | 0            | 4   | 19   | +27%   |
| Total              | 202                                | 18           | 51  | 235  | +16%   |

3.13 HKAS conducts a survey every two years to collect views on its services from accredited organisations. The last survey was conducted in May 2012, with 33% of the accredited organisations having responded to the survey. All respondents were satisfied with HKAS' accreditation service and the majority expressed "very satisfied". The vast majority of the respondents were satisfied with HKAS' performance in individual aspects. None of them expressed "very dissatisfied" in any of the individual aspects. Nonetheless, there are some areas where the respondents expressed "somewhat dissatisfied", e.g. the frequency of training, frequency of proficiency testing programmes and processing time of proficiency testing programmes. These areas are supporting services provided by HKAS to enhance the technical competence of accredited organisations and will be discussed further in Chapter 4.

## Recommendations

3.14 HKCTC is glad to see the progress made by HKAS since April 2010 and to learn that accredited organisations were satisfied with HKAS' overall performance.

3.15 HKCTC recommends the following for continuing the enhancement to the accreditation service –

- (a) HKAS to continue to upgrade the standard of conformity assessment

services provided by testing laboratories, inspection bodies and certification bodies;

- (b) HKAS to continue to introduce new accreditation services in response to demand from the industry and the community;
- (c) HKAS to continue to provide necessary training to its staff to ensure high professional standards in performing assessment and to acquire the necessary expertise to facilitate provision of new accreditation services in response to demand from the industry; and
- (d) HKAS to further enhance its website to facilitate users of testing and certification services in identifying accredited conformity assessment bodies.



## **CHAPTER 4**

### **IMPROVEMENTS ON THE GENERAL FRONT – FACTORS OF PRODUCTION**

4.1 This chapter reports the implementation progress of HKCTC's recommendations on enhancing the following four factors of production, summarises the industry's feedback and makes further recommendations –

- (A) manpower;
- (B) technology;
- (C) capital; and
- (D) land.

#### **(A) Manpower**

##### ***HKCTC's Recommendations in 2010***

4.2 HKCTC made the following recommendations in 2010 –

- (a) ITC to assist the industry in attracting talent by –
  - (i) cooperating with universities, the Vocational Training Council (VTC) and the industry to organise seminars, workshops and career talks to enable students to gain more understanding about the industry and possible career opportunities; and
  - (ii) helping to link up universities, VTC and the industry to promote more internship opportunities for students;
- (b) VTC to be encouraged to develop short courses to equip practitioners with the necessary technical skills in case there is a sudden surge in demand arising from major changes in testing requirements in

overseas markets;

- (c) HKAS and VTC to enhance the professionalism of the practitioners in the trade by working together in close partnership with the industry and relevant stakeholders to organise seminars/workshops on various subjects including technical and ethics training;
- (d) HKCTC to render assistance where necessary should local trade associations wish to develop voluntary professional recognition on a general or specific front;
- (e) to ensure adequate supply of quality assessors,
  - (i) Government departments, local universities and VTC should encourage their qualified employees to participate as part-time assessors; and
  - (ii) HKAS should review and strengthen the recognition provided to assessors and simplify the assessment procedures to attract more assessors; and
- (f) to ensure that the supply of manpower can support the further development of the industry in terms of both quality and quantity, HKCTC will act as a focal point and maintain close liaison with Government and the relevant stakeholders to closely monitor the situation and to relay the industry's needs and suggestions regarding the training of students to the relevant educational institutes.

### ***Implementation Progress***

4.3 The two main target groups of HKCTC's effort in the manpower aspect are students and practitioners.

#### ***Students***

4.4 Practitioners working in the testing and certification industry come from a wide range of disciplines, including science, applied science, engineering, fashion and textiles. Each year, universities train over 10 000

— graduates in these relevant disciplines (details at [Annex 7](#)). Two universities have launched degree programmes focusing on testing and certification –

- (a) the Hong Kong Baptist University launched a “Bachelor of Science (Hons) in Analytical and Testing Services” programme in September 2012; and
- (b) the Open University of Hong Kong launched a distance-learning “Bachelor of Science in Product Design, Testing and Certification” programme in April 2010 and a part-time “Master of Science in Testing and Certification” programme in April 2012. It is planning to launch a full-time “Bachelor of Science (Hons) in Analytical and Testing Services” programme in 2013.

4.5 HKCTC has provided a useful liaison channel between universities and the industry. It has made referrals of industry contacts to universities to facilitate cooperation, e.g. providing advice to assist in curriculum design.

4.6 Separately, VTC has also trained talent that is required by the industry. In April 2010, VTC offered 11 Higher Diploma programmes with testing and certification elements in applied science and engineering disciplines. Following the 3+3+4 Education Reform, these programmes were revamped into ten new ones in September 2012 (details at [Annex 8](#)). The average number of graduates each year is some 490, with a high percentage taking up jobs related to testing and certification. With the increasing popularity of the Higher Diploma programmes, VTC has increased new student intake in Academic Year 2013-14 to 1 025.

4.7 Actions have been taken to increase awareness and understanding of the testing and certification industry by students in relevant disciplines –

- (a) participating in career fairs and career talks

since April 2010, ITC has been coordinating industry representatives to deliver career talks in seven local universities with relevant disciplines. Starting from 2011, ITC has also set up promotional booths in career fairs of universities. Separately, VTC has organised regular career talks on the industry for its full-time graduates in

applied science and engineering disciplines; and

(b) coordinating internship opportunities

starting from 2011, ITC has invited accredited organisations to offer summer internship opportunities each year. Offers received have been passed to universities and VTC for follow-up. The initiative has generated additional internship opportunities and facilitated establishment of more long-term internship arrangement. Separately, from April 2010 to December 2012, VTC launched more than 60 internship programmes for its students, allowing them to gain hands-on experience in testing laboratories.

*Practitioners*

4.8 From April 2010 to December 2012, HKAS, VTC and the Government Laboratory (Gov Lab) organised more than 190 technical seminars, training workshops and short courses to equip practitioners with necessary knowledge. Some of these were arranged to meet ad hoc needs arising from safety concern of the local community. For example, after the nuclear plant incident in Japan in 2011, a technical seminar and a series of workshops on radiation detection and measurement were arranged by Gov Lab and HKAS. Amid public concern over possible phthalates (plasticisers) in food imported from Taiwan in the same year, a technical seminar on testing for phthalates in food was organised by Gov Lab and HKAS.

4.9 To support development of professionalism, Government's SME Development Fund has supported the Hong Kong Association for Testing, Inspection and Certification (HKTIC) to develop a voluntary Professional Certification Scheme for Testing Personnel. The first stage of the Scheme was launched in September 2011, covering six types of testing personnel. As at December 2012, more than 280 professionals were recognised under the Scheme. HKTIC is now working to expand the coverage of the Scheme to four additional types of testing personnel.

4.10 Separately, VTC has been commissioned by the Qualifications Framework Secretariat to develop Specification of Competency Standards for the testing and certification industry since July 2011. The whole set of

Specification of Competency Standards will be ready by July 2013, which will set out competency standards of the practitioners required at different levels under the Qualifications Framework. Specification of Competency Standards can be used by training providers to develop recognised training programmes and related qualifications to promote lifelong learning for sustainable manpower development in the industry.

4.11 High professional integrity of practitioners has been well recognised as one of the major competitive edges of Hong Kong's testing and certification industry. To uphold this edge, the Independent Commission Against Corruption (ICAC) has developed a "Corruption Prevention Guide for Testing and Certification Industry" which provides a host of good practices to enhance integrity management and internal control. ICAC has been working closely with HKCTC and ITC in promoting the Guide. ICAC has also spoken on professional ethics and corruption prevention at various meetings and seminars of HKCTC, HKAS, HKTIC and the Association of Construction Materials Laboratories. Moreover, in adopting ICAC's recommended good practices, HKAS now requires all its accredited organisations to develop and implement a code of conduct based on the Guide.

4.12 To enhance prospective practitioners' integrity, ICAC has conducted workshops on professional ethics for VTC's several Higher Diploma Programmes and the Open University of Hong Kong's "Master of Science in Testing and Certification" programme. Furthermore, examination questions on the Prevention of Bribery Ordinance and professional ethics have been featured in HKTIC's Professional Certification Scheme for Testing Personnel and HKAS' assessment interviews with Approved Signatories and Approved Operators who belong to the construction material testing field.

#### *Supply of Technical Assessors/Experts*

4.13 HKAS depends on part-time technical assessors/experts to provide the technical expertise in the accreditation process. It has been successful in attracting more experts from various fields. The number of part-time technical assessors/experts increased from 370 in April 2010 to 500 in December 2012 (+35%).



## ***Industry's Feedback***

### ***Manpower Supply***

4.14 Considering the number of graduates in relevant disciplines from universities and VTC, the manpower supply should generally be sufficient. The challenge for the industry is how to compete with other sectors to attract talent. However, in some specialised areas, such as medical laboratory technologists, the industry still faces shortage in supply. HKCTC will reflect the industry's needs through ITC in the next academic planning exercise for the higher education institutions funded by the University Grants Committee for their reference.

### ***Attracting Talent***

4.15 In HKCTC's end-2012 survey, most respondents (over 80%) agreed that the two initiatives, i.e. participating in career fairs and career talks as well as coordinating internship opportunities, could help the industry to attract talent.

4.16 It is noted that while invitations to offer internship opportunities were sent to all accredited organisations, about 40% of the accredited organisations among the respondents in HKCTC's end-2012 survey were not aware of the initiative. A possible reason was that the invitation had not been drawn to the attention of the management of the relevant organisations. Further improvements to the invitation process should be explored in future.

### ***Enhancing Practitioners' Professionalism***

4.17 The vast majority of respondents (86%) considered ICAC's "Corruption Prevention Guide for Testing and Certification Industry" helpful. About two-thirds of the respondents also found HKTIC's Professional Certification Scheme for Testing Personnel helpful and said that they would give preference to candidates recognised by the Scheme in recruitment.

### *Technical Training*

4.18 Practitioners in the industry were eager to upgrade their technical knowledge. Technical seminars, training workshops and short courses organised by HKAS, VTC and Gov Lab were well-received. As an illustration, the industry asked for more training from HKAS despite the already significant increase in number since April 2010 (63 training workshops organised by HKAS in FY 2011-12 as compared to 32 in FY 2009-10).

4.19 In response to industry demand, HKAS, VTC and Gov Lab will continue to organise more training to practitioners in future, in particular on areas like new certification services and improvements to laboratory operation. Training capacity will also be increased where feasible.

### ***Recommendations***

4.20 In view of the progress made and the industry's feedback, HKCTC recommends –

- (a) ITC to continue to assist the industry in attracting talent by cooperating with universities, VTC and the industry to participate in career talks and career fairs and to promote more internship opportunities for students;
- (b) HKAS and VTC to continue to work with the industry and ICAC in enhancing professionalism of practitioners, e.g. through providing technical and ethics training; and
- (c) Government departments, local universities and VTC to continue to encourage their qualified employees to participate as part-time assessors of HKAS.

4.21 To ensure that the supply of manpower can support further development of the industry in terms of both quality and quantity, HKCTC will continue to act as a focal point and maintain close liaison with Government and the relevant stakeholders.

## **(B) Technology**

### ***HKCTC's Recommendations in 2010***

4.22 HKCTC made the following recommendations in 2010 –

- (a) ITC to encourage the industry to make wider use of the Innovation and Technology Fund (ITF) to enhance technical capability by –
  - (i) promoting ITF to the industry; and
  - (ii) considering making provisions in the ITF mechanism to promote the research and development (R&D) of testing methodologies in future;
- (b) ITC to assist the industry in linking to technological institutions in Hong Kong to identify more collaboration opportunities, e.g. in developing new testing methodologies, in setting up of testing sites;
- (c) HKAS and Gov Lab to arrange more technical seminars and workshops to promote the transfer of technical know-how to the industry. Where appropriate, experts from local universities and overseas should be invited to participate;
- (d) the Product Standards Information Bureau (PSIB) to –
  - (i) step up the promotion of its services, including public standards library, standards sales services, website, and free technical enquiry services; and
  - (ii) invite representatives from the industry to join International Organisation for Standardisation (ISO)'s Technical Committees in future; and
- (e) ITC to disseminate information about the R&D Cash Rebate Scheme to the industry to encourage more investment in R&D.

## ***Implementation Progress***

### *Funding Support to R&D Activities*

4.23 ITC has encouraged wider use of ITF and the R&D Cash Rebate Scheme to support R&D on testing and certification through websites, seminars, advertorials and HKAS newsletters. When ITC improved the ITF mechanism in 2011, “testing and certification” was featured prominently in the revised ITF application form. In February 2012, to improve the effectiveness and attractiveness of the R&D Cash Rebate Scheme, ITC increased the cash rebate level from 10% to 30%. ITC also wrote to trade associations in the testing and certification industry on various initiatives undertaken by ITC to reinforce innovation and technology development in Hong Kong, including the enhanced cash rebate and improvements to the Small Entrepreneur Research Assistance Programme (SERAP) under ITF.

4.24 From April 2010 to December 2012, seven R&D projects related to testing and certification were supported by ITF with total approved funding of some \$13.8 million. For example, a project was supported to develop DNA-based methods to identify Chinese herbal medicines.

### *Participation in International Standard Setting*

4.25 PSIB has encouraged local experts to contribute to international standard setting by joining ISO’s various Technical Committees. Invitations have been issued to testing and certification organisations accredited by HKAS, universities, R&D Centres as well as trade associations. Participation increased from 72 experts in 43 Technical Committees in April 2010 to 121 experts in 68 Technical Committees in December 2012.

### *Support from Gov Lab*

4.26 In Hong Kong, Gov Lab is the only organisation that develops metrology in chemistry, the measurement science that strives towards international recognition and acceptance of reliable chemical and biochemical measurements. Gov Lab has been included as a Designated Institute in the field of metrology in chemistry for Hong Kong, China under the International Committee for Weights and Measures since 2005. Its expertise and standing

in chemical and biochemical measurements are well recognised by the international testing community and the local testing and certification industry.

4.27 Gov Lab has arranged local and international seminars and workshops to enhance technical know-how of the industry, e.g. a local seminar on illicit drug testing in March 2011 and an international symposium on food safety and biopharmaceutical testing in November 2012. It has also contributed speakers to seminars organised by HKAS to share technical knowledge with the industry.

4.28 To support local food testing laboratories, since April 2010 Gov Lab has organised eight proficiency testing programmes and commissioned the production of three certified reference materials that are not readily available commercially. These types of support help private testing laboratories to evaluate and maintain their technical competencies in the relevant chemical measurements.

### ***Industry's Feedback***

#### *Funding Support to R&D Activities*

4.29 It is encouraging to see successful applications for ITF and the R&D Cash Rebate Scheme on R&D for testing and certification, suggesting that collaboration among the industry, universities and R&D Centres has started. HKCTC also collected views through its end-2012 survey on why other companies in the industry had not made use of the funding support. About 50% of the respondents said that they were not familiar with or not aware of the funding schemes. About 30% of the respondents explained that they did not need financial assistance or that they had not carried out R&D activities.

#### *Services from PSIB*

4.30 PSIB offers the following services to enhance knowledge of product standards and technical regulations –

- (a) maintaining a product standards library;
- (b) providing standards sales services;

- (c) providing free technical enquiry/advisory services; and
- (d) nominating representatives to join ISO's Technical Committees.

While PSIB has been introducing its services to the industry through various websites, seminars and publications such as pamphlets and HKAS newsletters since April 2010, awareness remained low (around 20-40% for different services). However, most of the respondents (around 70%-80%) considered the services helpful to the industry when briefed about the services.

#### *Support from Gov Lab*

4.31 The industry has reflected their views to HKAS and Gov Lab that they would welcome more metrology-in-chemistry support that is not readily available in the market, including –

- (a) more proficiency testing programmes for tests related to regulations on health and food safety, e.g. marker analysis in Chinese medicines and veterinary drug residues in animal tissues; and
- (b) certified pure chemical standards or matrix reference materials, e.g. pesticide standards and phthalates (plasticisers) in food matrix.

#### ***Recommendations***

4.32 To support the continuous technological upgrading of the industry, HKCTC recommends –

- (a) ITC to strengthen promotion of ITF and the R&D Cash Rebate Scheme to the industry;
- (b) PSIB to strengthen promotion of its services; and
- (c) Gov Lab to consider providing more support on metrology in chemistry to the industry.

## **(C) Capital**

### ***HKCTC's Recommendations in 2010***

4.33 HKCTC made the following recommendations in 2010 –

- (a) ITC to promote wider use of SERAP to SMEs in the industry; and
- (b) the Hong Kong Productivity Council (HKPC) and the Hong Kong Science and Technology Parks Corporation (HKSTP) to step up promotion of their facilities available for shared use.

### ***Implementation Progress***

4.34 ITC has been introducing SERAP to the industry through websites, seminars and HKAS newsletters. From April 2010 till December 2012, five R&D projects relating to testing and certification were supported by SERAP with approved funding of \$9.4 million. An example is the development of transgenic fish for biological testing to monitor heavy metals, toxins and persistent organic pollutants.

4.35 HKPC and HKSTP have facilities that are available for use by private testing laboratories. They have been promoting their shared facilities to the industry through various channels, including seminars and laboratory visits, meetings with trade associations and media interviews. In 2011, HKPC set up a new electromagnetic compatibility anechoic chamber with Government funding of \$9.9 million. The new chamber enables local laboratories to test products according to the latest electromagnetic compatibility requirements in the European market.

### ***Industry Feedback***

4.36 SERAP is part of ITF. HKCTC's end-2012 survey findings that about 50% of the respondents were not familiar with or not aware of ITF, and that about 30% of the respondents did not need financial assistance or they had not carried out R&D activities, also apply to SERAP.

4.37 In addition to support on funding R&D, respondents suggested



Government to provide support in terms of loan guarantee for equipment procurement and subsidy for promotion. HKCTC notes that two of Government's existing SME Funding Schemes, i.e. the SME Export Marketing Fund and the SME Loan Guarantee Scheme, have already been providing the relevant support. Information about the various SME Funding Schemes has also been included in HKCTC's website and disseminated at some seminars organised for the testing and certification industry.

4.38 On the shared facilities of HKPC and HKSTP, many are high-technology equipment that would be used by laboratories providing services in a specialised area, instead of common testing services. Despite the nature, some 20% of the respondents from HKCTC's end-2012 survey indicated that they had made use of the shared facilities. The vast majority (>80%) of those that had used the facilities considered the service helpful in saving their capital investment. For respondents that had not used the shared facilities before, the main reasons included not being familiar with or not being aware of the facilities (48%) and that the respondents' own facilities were adequate (40%)<sup>1</sup>.

### ***Recommendations***

4.39 HKCTC recommends –

- (a) ITC to strengthen promotion of SERAP and the SME Funding Schemes, with the assistance of the Trade and Industry Department, to SMEs in the testing and certification industry; and
- (b) HKPC and HKSTP to strengthen promotion of their shared facilities.

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<sup>1</sup> Some respondents who said that they were not familiar with or not aware of the shared facilities also indicated that they did not need the service since their own facilities were adequate.

## **(D) Land**

### ***HKCTC's Recommendations in 2010***

4.40 HKCTC made the following recommendations –

- (a) HKSTP to facilitate the setting up of testing laboratories with special accommodation needs in the Industrial Estates where necessary;
- (b) HKCTC to monitor closely the impact of Government initiatives to revitalise industrial buildings on the testing and certification industry; and
- (c) HKCTC to keep in view Government's plans to increase land supply for the testing and certification industry.

### ***Implementation Progress***

4.41 Since April 2010, HKSTP has received a few enquiries from the testing and certification industry but no application for land in the Industrial Estates.

4.42 Testing laboratories are generally located in industrial buildings, except for medical testing laboratories which are usually located in commercial buildings. Inspection and certification bodies are generally accommodated in rented premises of commercial buildings.

4.43 As at end-2011, the average vacancy rate of industrial and commercial buildings was 6.7%, equivalent to a total vacant area of about 2.64 million m<sup>2</sup>. In view of the size of vacant building stock as compared to only some 600 private establishments in the industry, of which the vast majority are SMEs engaging less than 50 persons, the supply of premises should generally cope with the demand.

4.44 HKCTC was consulted by Government on the planning and engineering studies of several new developments, including the Lok Ma Chau Loop and the Northeast New Territories New Development Areas. It advised Government that the industry was interested in additional supply of land in the

new development areas with testing and certification as one of the permitted land uses. However, good infrastructure, including convenient transportation network, should be provided.

4.45 HKCTC was also briefed by ITC on the following –

- (a) Science Park Phase 3 will be completed in phases between 2014 and 2016. An additional 100,000 m<sup>2</sup> of floor space will be available for organisations with substantive R&D activities; and
- (b) HKSTP is exploring the feasibility of expanding the Yuen Long Industrial Estate by an additional 16 hectares of land.

### ***Industry's Feedback***

4.46 The majority (60%) of the respondents in HKCTC's end-2012 survey considered the overall supply of industrial and commercial premises in Hong Kong adequate to meet the industry's needs. Among the rest, they mainly opined that rents were high.

4.47 However, some large testing establishments reflected that they faced challenges in identifying suitable and large premises for relocation and expansion. To facilitate industry players in looking for accommodation, the Hong Kong Property Reviews published annually by the Rating and Valuation Department were uploaded to HKCTC's website. The publications contain information about the stock and vacancy rates of industrial and commercial premises with breakdown by district.

### ***Recommendations***

4.48 HKCTC will continue to keep in view the availability of vacant premises. It also recommends HKSTP to continue to facilitate the setting up of testing laboratories with special accommodation needs in the Industrial Estates where necessary.

4.49 Separately, HKCTC recommends Government to continue to take into account the needs of the testing and certification industry in future land use planning and provide the industry with assistance where appropriate.

## **CHAPTER 5**

### **FOCUSED EFFORT ON SPECIFIC TRADES**

5.1 This chapter reports the progress of and makes recommendations on effort to promote testing and certification services in the following three areas –

- (a) mature trades;
- (b) selected trades (i.e. Chinese medicines, construction materials, food and jewellery); and
- (c) emerging trades (i.e. environmental protection and information and communications technologies (ICT)).

#### **HKCTC's Recommendations in 2010**

5.2 In 2010, HKCTC made the following recommendations –

##### ***Mature Trades***

- (a) as these are already well served by existing services, should any problem arise that affects the mature trades, i.e. textiles, clothing and footwear; toys and games; electrical products; and medical testing, HKCTC will promptly examine the situation and make recommendations to Government as appropriate;

##### ***Selected Trades***

- (b) for each of the four selected trades, i.e. Chinese medicines, construction materials, food and jewellery, HKCTC will adopt a systematic approach in assisting the testing and certification industry in seizing further business opportunities –

- (i) to establish a platform for cooperation with relevant stakeholders in the trade;
- (ii) to research into the possibility of introducing new testing or certification and develop any new schemes with input from local stakeholders/overseas experts where appropriate;
- (iii) to conduct appropriate trial schemes;
- (iv) to liaise with HKAS to make available the necessary accreditation services; and
- (v) to promote any new testing or certification schemes both within and outside Hong Kong.

In the implementation stage, the approach will be modified and adapted to suit the individual circumstances and needs of each selected trade; and

### ***Emerging Trades***

- (c) HKCTC will monitor closely developments in two emerging trades, i.e. environmental protection and ICT, and work further with the relevant trades.

### **Progress in the Mature Trades**

5.3 A significant portion<sup>2</sup> of the business receipts of private independent establishments was attributed to testing of textiles, clothing and footwear; toys and games; electrical products; and medical testing. The market for testing and certification services in these more mature areas is comparatively well-explored.

5.4 Support to testing and certification services for the mature trades has been provided through the implementation of HKCTC's 2010

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<sup>2</sup> Representing 80% of the business receipts from testing and 50% of the total business receipts of private establishments in the industry in 2011.

recommendations on the general front and on promotion. For example, technical seminars and training were organised for the mature trades. Moreover, the majority of the trade fairs where the “Tested in Hong Kong, Certified in Hong Kong” branding was being promoted were related to textiles, clothing and footwear, toys, and electronic and electrical products.

5.5 The European Union has required that the new toy safety legislative requirements set out in its Toy Safety Directive 2009/48/EC be implemented in full by mid-2013. To help the industry to better understand this major development, HKAS assisted HKCTC in co-organising a seminar with the European Commission in Hong Kong in October 2012. European officials attended the seminar as speakers.

5.6 HKAS assisted HKCTC in producing a booklet on toy testing to facilitate promotion. This was produced in cooperation with HKTIC and with valuable contributions from many experienced practitioners in the industry. Copies of the booklet were distributed at trade fairs and disseminated to the toy trade through the Hong Kong Toys Council and to testing laboratories through HKTIC. Based on the good experience, cooperation among stakeholders has commenced to prepare a similar booklet on electronic and electrical product testing, which is another mature trade.

### ***Recommendations***

5.7 In view of the significant contributions to the business receipts of the industry from providing testing and certification services in the mature trades, HKCTC recommends that attention should continue to be paid to meet the needs of the mature trades in implementing measures to support the development of the industry on the general front and on promotion.

## **Progress in the Four Selected Trades**

5.8 A dedicated Panel has been set up by HKCTC for each of the following selected trades –

- (A) Chinese medicines;
- (B) Construction materials;
- (C) Food; and
- (D) Jewellery.

5.9 The Panels comprise members from the relevant trades, testing and certification industry, academia, relevant Government departments and public bodies. They provide cooperation platforms to facilitate development of testing and certification services. The terms of reference of the Panels are at Annex 9. The membership lists are at Annexes 10-13.

### ***(A) Chinese Medicines***

#### ***Considerations in Selecting the Trade in 2010***

5.10 The Chinese medicines trade was selected by HKCTC in 2010 because there was potential demand arising from Hong Kong being a well-established market and trading hub for Chinese medicines. In addition, Hong Kong possessed the following competitive advantages –

- (a) proximity to the Mainland which is a major exporter of Chinese medicines;
- (b) reasonably wide acceptance of the general population on the use of Chinese medicines;
- (c) good technical expertise in the testing of Chinese medicines; and
- (d) Hong Kong is the “meeting point” of the East and West.



HKCTC considers that the circumstances have not changed since 2010.

Focused Effort

5.11 To bring about the benefits mentioned above, the Panel on Promoting Testing and Certification Services in Chinese Medicines Trade (Chinese Medicines Panel) has focused its effort on the following areas –

(a) Develop new testing and certification services

(i) Authentication based on the Hong Kong Chinese Materia Medica Standards (HKCMMS)

HKCMMS, developed by the Department of Health, provide good references for testing laboratories in carrying out authentication for Chinese medicines through microscopic examination, chemical and physicochemical methods. Upon endorsement by HKCMMS' International Advisory Board, the Department of Health has accepted the Chinese Medicines Panel's suggestion on developing HKCMMS for *Bulbus Fritillariae Cirrhosae* (川貝母) and *Herba Dendrobii* (石斛) to meet authentication needs of the Chinese medicines trade.

The Chinese Medicines Panel organised a seminar in July 2012 to introduce the various techniques used in authentication of Chinese medicines. The seminar was attended by about 240 persons, including practitioners in the testing and certification industry and representatives from trade associations in the Chinese medicines trade.

HKAS has expanded accreditation services to cover authentication of Chinese medicines based on HKCMMS. As of February 2013, two laboratories were accredited and one accreditation application was being processed; and

(ii) Product certification scheme for Chinese Materia Medica

HKPC is developing a product certification scheme for Chinese

Materia Medica. The initiative has the support of the Chinese Medicines Panel. The scheme aims to provide traders and suppliers with an effective means of attracting consumers through enhanced quality assurance. The scheme is developed with funding support mainly from ITF's General Support Programme, together with contributions from both the testing and certification industry and the Chinese medicines trade. Accredited certification bodies will be able to provide certification services based on the scheme. A trial run of the scheme started in February 2013 and will be completed in July 2013. The scheme will be improved and finalised with experience gained from the trial;

(b) Enhance technical capability of testing laboratories

(i) Inter-laboratory comparison exercise

The Chinese Medicines Panel organised an inter-laboratory comparison exercise for assay testing based on HKCMMS in 2012. Testing laboratories participating in the exercise could assess their technical competence by comparing testing results with other laboratories. Participation in this type of exercise is also required if testing laboratories want to apply for accreditation from HKAS. Twelve local laboratories participated and all showed consistent test results within acceptable ranges, demonstrating the technical competence of local testing laboratories; and

(ii) Training course on microscopic examination

In response to the needs of testing laboratories to enhance practitioners' expertise in authentication of Chinese medicines by microscopic examination, the Chinese Medicines Panel organised a part-time training course for practitioners from April to August 2012. Twenty persons joined and completed the course;

(c) Step up promotion and publicity

The Chinese Medicines Panel has provided support and advice on various promotion and publicity activities organised by ITC –

- (i) participation in the annual International Conference and Exhibition of the Modernisation of Chinese Medicine and Health Products in Hong Kong since 2011;
  - (ii) a representative sent to brief attendees of the Seminar on Chinese Medicines held in September 2012 on various testing and certification services available in Hong Kong. The Seminar was attended by about 400 persons;
  - (iii) six advertorials in selected local newspapers to introduce testing and certification services for Chinese medicines; and
  - (iv) production of promotional pamphlets which were distributed at trade fairs and to Chinese medicines traders to introduce testing and certification services to potential users; and
- (d) Act as an information sharing platform on the latest developments in Chinese medicines testing

Industry experts and university professors have been invited to share new testing methods (e.g. DNA authentication), relevant research projects at universities (e.g. a project to develop quality control standards for processed Chinese Materia Medica) and support to be provided by universities (e.g. a project from both the Hong Kong University for Science and Technology and the University of Hong Kong to provide chemical markers, with funding support from the Hong Kong Jockey Club Charities Trust) at meetings of the Chinese Medicines Panel. The wide representation of the Chinese Medicines Panel enables it to act as a sharing platform to disseminate the latest information to various stakeholders.

### Industry's Feedback

5.12 The testing and certification industry gave positive feedback on the work of the Chinese Medicines Panel. Twelve respondents in HKCTC's end-2012 survey had provided testing and certification services for Chinese medicines. They were asked whether they were aware of the major initiatives

of the Chinese Medicines Panel and whether they considered the initiatives helpful. The awareness of various initiatives was high (ranging from 67% to 93% of the respondents for different initiatives) and the vast majority considered the initiatives helpful (ranging from 86% to 100%).

### Way Forward

5.13 HKCTC considers that the Chinese Medicines Panel should –

- (a) continue its work in developing new testing and certification services, in particular in monitoring the product certification scheme currently being developed by HKPC and in promoting the services after the scheme is introduced;
- (b) continue to coordinate inter-laboratory comparison exercises to maintain technical competence of testing laboratories;
- (c) continue to promote testing and certification services for Chinese medicines to the Chinese medicines trade and the public, with particular emphasis on new authentication services based on HKCMMS; and
- (d) continue to act as an information sharing platform on the latest developments in Chinese medicines testing, in particular new technologies and specifications developed at local universities.

## ***(B) Construction Materials***

### ***Considerations in Selecting the Trade in 2010***

5.14 The construction materials trade was selected by HKCTC in 2010 because there was potential demand from –

- (a) the initiative of the Housing Authority in requiring product certification for selected construction materials to upgrade the quality of its buildings and to set an example for the local construction industry; and
- (b) the possibility of Hong Kong's testing and certification industry performing a stronger supporting role for the large amount of construction materials produced and exported by the Mainland.

5.15 In addition, in 2010 HKCTC also considered that Hong Kong possessed the following strengths –

- (a) construction materials testing laboratories were the largest category of accredited laboratories in Hong Kong and had built up extensive expertise; and
- (b) testing costs only constituted a small portion of the total product cost. Taking into account the good reputation of local testing laboratories, buyers did not have great incentive to shift testing work to other places because of the cost factor.

HKCTC notes that the current circumstances are similar to those of 2010.

### ***Focused Effort***

5.16 The Panel on Promoting Testing and Certification Services in Construction Materials Trade (Construction Materials Panel) has focused its effort on the following areas –

(a) Introduce new product certification services

The Construction Materials Panel has been closely monitoring the introduction of new product certification services for construction materials. Since April 2010, product certification services accredited by HKAS have expanded to cover –

- (i) cement products;
- (ii) tile adhesives;
- (iii) ceramic tiles; and
- (iv) repair mortar.

Moreover, two accreditation applications for certification of aluminum windows were being processed by HKAS as of February 2013. In addition, certification bodies and professional bodies in the construction industry are also exploring the introduction of accredited certification services for other construction materials, including uPVC pipes and fittings, water closets and mesh reinforcement.

The requirement for product certification for ready-mixed concrete has long been a norm in public works projects. The Housing Authority has been taking the lead in requiring product certification for other construction materials, and has specified the requirement for seven additional types of construction materials<sup>3</sup> in its capital works projects. Following the lead of the Housing Authority, HKSTP has specified that materials with product certification would be preferred for two types of construction materials<sup>4</sup> used in the construction works for Science Park Phase 3. In 2013, the Architectural Services Department will start requiring product certification for more types of construction materials<sup>5</sup>, other than ready-mixed concrete, in its works contracts;

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<sup>3</sup> These include fire rated doors, panel walls for partition, cement products, tile adhesives, ceramic tiles, repair mortar and aluminum windows.

<sup>4</sup> Cement products and tile adhesives.

<sup>5</sup> Will apply to tile adhesives first. Cement products are being actively considered.

(b) Introduce new accreditation services for building diagnostic tests

HKAS launched new accreditation services for eight non-destructive tests for building diagnosis in July 2012 –

- (i) carbonation test;
- (ii) covermeter survey;
- (iii) half-cell potential measurement;
- (iv) infrared thermography;
- (v) resistivity measurement;
- (vi) surface hardness measurement;
- (vii) surface penetration radar survey; and
- (viii) ultrasonic pulse velocity measurement.

The launch of these accreditation services facilitates building inspection and assessment of Government's various initiatives (e.g. the Mandatory Building Inspection Scheme), as registered personnel can obtain objective evidence on building conditions (such as the condition of concrete or reinforcement) from accredited testing laboratories.

A forum and a seminar with local and overseas experts as speakers were held in December 2011 and August 2012 respectively to prepare the industry for the new accreditation services. VTC also offered part-time courses on two types of non-destructive tests that are relatively new to practitioners in the testing and certification industry, i.e. infrared thermography and surface penetration radar survey. The two courses were well received and a total of 290 industry practitioners completed the course as of February 2013;



(c) Support promotion and publicity activities

The Construction Materials Panel has provided support and advice to ITC and relevant parties on various promotion and publicity activities on testing and certification services for construction materials –

- (i) briefings for architects and engineers in Government;
- (ii) briefings for important organisations and professional bodies in the construction industry, such as the Construction Industry Council and the Hong Kong Institute of Architects;
- (iii) briefings for trade associations, including the Hong Kong Construction Association, the Chinese Manufacturers' Association of Hong Kong and the Federation of Hong Kong Industries;
- (iv) a seminar in November 2011 with overseas experts invited to share experience of product certification for construction materials in other economies;
- (v) a dedicated webpage introducing product certification in the websites of HKCTC, the Housing Authority and the Architectural Services Department;
- (vi) letters issued to tertiary educational institutes offering construction-related courses appealing for incorporating the concept of quality assurance into their curricula;
- (vii) participation in the annual Hong Kong International Building and Decoration Materials and Hardware Fair, a trade fair, since 2011;
- (viii) production of pamphlets which were distributed to the construction industry and at trade fairs; and
- (ix) seven advertorials in selected local newspapers; and

(d) Explore the application of radio frequency identification (RFID)

The Housing Authority had pilot implementation of RFID in its works projects, including the use of RFID in several testing laboratories for tracking of concrete samples to enhance the reliability of test results. HKAS will explore with the Housing Authority on wider sharing of the experience in using RFID technologies with the testing and certification industry.

5.17 Because of the increase in construction works in Hong Kong in recent years, the capacity of testing laboratories for construction materials has been tight. Some testing laboratories reflected that it was challenging for them to compete with the construction industry for the necessary manpower to meet expansion in services. Against this background, the Construction Materials Panel has not yet put a lot of effort in exploring a more active role for Hong Kong's testing and certification industry in the export of construction materials from the Mainland. Nevertheless, some liaison work has started, such as taking the opportunity of trade fairs to link up local testing laboratories with trade associations of construction materials from the Mainland.

Industry's Feedback

5.18 The testing and certification industry gave positive feedback on the work of the Construction Materials Panel. Thirty-four respondents in HKCTC's end-2012 survey had provided testing and certification services for construction materials. They were asked whether they were aware of the major initiatives of the Construction Materials Panel and whether they considered the initiatives helpful. The awareness was high (ranging from 74% to 80% of the respondents for different initiatives) and the vast majority of respondents considered the initiatives helpful (over 80% for all initiatives).

Way Forward

5.19 HKCTC considers that the Construction Materials Panel should –

- (a) continue to support the introduction of product certification services for more types of construction materials, e.g. provide training to certification bodies and manufacturers for new certification schemes;

- (b) continue its promotion and publicity work, in particular in promoting wider adoption of product certification for construction materials by sharing information of certified products to potential users; and
- (c) build up technical capabilities of laboratories for construction materials testing, e.g. support more laboratories to obtain accreditation for building diagnostic tests, use of RFID or similar technologies to improve reliability.

### ***(C) Food***

#### ***Considerations in Selecting the Trade in 2010***

5.20 The food trade was selected by HKCTC in 2010 because of –

- (a) potential demand for testing arising from Government's outsourcing of food testing and the progressive introduction of legal standards and regulatory framework for nutritional content and harmful substances, which would also help to build up local testing laboratories' expertise;
- (b) potential demand from Hong Kong's external trade for processed food; and
- (c) emerging demand for authenticity testing and certification of high-value food, together with the competitive edge from the high level of professionalism, integrity and reputation of Hong Kong's testing and certification industry.

HKCTC notes that there have been no major changes in circumstances in the food trade.

#### ***Focused Effort***

5.21 The Panel on Promoting Testing and Certification Services in Food Trade (Food Panel) has focused its effort on the following areas –

- (a) Introduce new testing and certification services
  - (i) ISO 22000 food safety management system certification

HKAS conducted a survey in early 2011 on certification of food safety management system to the ISO 22000 standard. It was found that the certification was not widely adopted in the food trade. Further study found that the ISO 22000 requirements could be challenging for small and medium-sized food establishments;

- (ii) Develop an HACCP-based food hygiene management system certification scheme

In view of the study on ISO 22000 certification, the Food Panel supported an initiative from the Hong Kong Polytechnic University to develop a food hygiene management system certification scheme that would meet the operational needs of the local catering industry. The scheme would be based on the internationally accepted Hazard Analysis and Critical Control Points (HACCP) system.

The scheme is being developed with funding support from ITF and contributions from the testing and certification industry as well as the local catering industry. A trial run of the scheme commenced in February 2013 and would be completed in May 2013. The scheme would be improved and finalised with experience gained from the trial; and

- (iii) Introduce authentication service for high-value food

With funding support mainly from ITF together with contributions from the testing and certification industry, the Chinese University of Hong Kong has conducted R&D in authentication of selected high-value food, such as dried abalone, dried scallop, dried sea cucumber and bird's nest, through DNA sequencing analysis. With the completion of the project in January 2013, a database is now available that can support private testing laboratories with DNA sequencing equipment in providing authentication service for the selected food;

(b) Enhance technical competence

To support development of food testing and certification services, HKAS has launched the following new accreditation services since April 2010 –

- (i) ISO 22000 certification;
- (ii) determination of phthalates (plasticisers) in food; and

- (iii) measurement of radioactivity in food.

To enhance technical competence of food testing and certification in Hong Kong, HKAS organised 19 technical seminars/workshops from April 2010 to February 2013. Some were organised to support the industry in response to changes in overseas regulatory needs or sudden surges in demand in society. Examples include –

- (i) a seminar on legislative requirements for importing food contact materials into the European Union;
- (ii) a technical seminar on measurement of radioactivity in food;
- (iii) a technical seminar on determination of phthalates (plasticisers) in food; and
- (iv) a technical seminar on pesticide and veterinary drug residues analysis;

(c) Support promotion and publicity

The Food Panel has provided support and advice on various promotion and publicity activities on food testing and certification organised by ITC –

- (i) three seminars to promote ISO 22000 certification, food authentication and other food testing and certification services;
- (ii) participation in the annual Food Expo organised by the Hong Kong Trade Development Council (HKTDC) since 2011;
- (iii) production of pamphlets which were distributed at seminars, trade fairs and to food premises, food processing factories and food traders with the assistance of the Food and Environmental Hygiene Department; and
- (iv) eight advertorials in selected local newspapers; and

(d) Act as an information sharing platform

The wide representation of the Food Panel allows it to act as an information sharing platform on matters related to food testing and certification. Information on the following has been shared at the meetings of the Food Panel –

- (i) future developments on legal standards and regulatory framework of food safety in Hong Kong;
- (ii) testing requirements arising from the US Food and Drug Administration (FDA) Food Safety Modernisation Act for food to be exported to the US;
- (iii) testing and certification requirements for processed food to be exported to the Mainland;
- (iv) R&D projects related to food testing funded by ITF; and
- (v) testing of food contact materials in Hong Kong.

Industry's Feedback

5.22 The testing and certification industry gave positive feedback on the work of the Food Panel. Twenty-five respondents in HKCTC's end-2012 survey had provided food testing and certification services. They were asked whether they were aware of the major initiatives of the Food Panel and whether they considered the initiatives helpful. The vast majority (84%) of them were aware of HKAS' new accreditation services for food related testing and certification. More than half of the respondents were already aware of the new HACCP-based food hygiene management system certification scheme and the food authentication technology through DNA sequencing analysis even though these new services were still being developed and had not yet been launched at the time of the survey. The vast majority (79%-95%) of the respondents considered these initiatives helpful in promoting the development of testing and certification services in the food trade.



### Way Forward

5.23 HKCTC considers that the Food Panel should –

- (a) continue to support the development of the HACCP-based food hygiene management system certification scheme and, after the launch of the scheme, assist in promoting the certification service;
- (b) continue to explore other testing and certification services in the food trade, such as testing of food contact materials and new certification schemes for food products;
- (c) continue its promotion and publicity work, in particular to step up promotion of the authentication service for selected high-value food recently developed by the Chinese University of Hong Kong; and
- (d) continue to act as an information sharing platform on matters related to food testing and certification, such as regulatory changes and new technological advances.

***(D) Jewellery***

***Considerations in Selecting the Trade in 2010***

5.24 The jewellery trade was selected by HKCTC in 2010 because –

- (a) the jewellery trade had a successful experience in the use of accredited testing services for jadeite jade to improve business; and
- (b) there was potential demand for jewellery testing and certification services as Hong Kong was a key exporter of jewellery in the world and the demand for jewellery by tourists visiting Hong Kong was also significant.

5.25 Moreover, the following factors were also the competitive edge of Hong Kong in developing jewellery testing and certification services –

- (a) Hong Kong's position as a major centre for jewellery, in particular for Fei Cui (jade), pearl and small stone fashion jewellery;
- (b) Hong Kong enjoyed good recognition in the Mainland market; and
- (c) the introduction of an accreditation scheme for jadeite jade enhanced the technical competence and operation of local testing laboratories.

5.26 HKCTC considers that the favourable circumstances have basically not changed.

***Focused Effort***

5.27 The Panel on Promoting Testing and Certification Services in Jewellery Trade (Jewellery Panel) has focused its effort on the following areas –

- (a) Explore new testing and certification services
  - (i) Develop standard testing methods for two types of Fui Cui

On the recommendation of the Jewellery Panel, HKCTC has sponsored the Gemmological Association of Hong Kong (GAHK) to develop a consolidated set of standard testing methods for kosmochlor and omphacite. This will supplement the existing standard testing methods for jadeite jade so that a complete set of standard testing methods will be available for all three types of Fei Cui. The initiative is also strongly supported by the Customs and Excise Department. As of February 2013, GAHK has devised the draft standard testing methods and conducted consultation with relevant stakeholders, including the jewellery trade, gemstone testing laboratories and experts within and outside Hong Kong. The standard testing methods would be finalised in view of the feedback from the consultation; and

(ii) Pearl testing

After exploring with key gemstone testing laboratories with the assistance of GAHK, the Jewellery Panel agreed that it was not necessary to develop a set of standard testing methods for pearl. Instead, the Jewellery Panel supported HKAS to provide accreditation service for pearl testing based on readily available standards or laboratories' in-house methods;

(b) Enhance technical competence

HKSTP has introduced possible application of its advanced equipment for gemstone testing to the Jewellery Panel. Gemologists in the Panel consider it worthwhile to introduce new technologies to practitioners in the industry. Hence, HKSTP worked with GAHK to roll out a training course on gemstone identification and analysis for GAHK members in 2012. Course contents covered different methods to identify gemstones, such as X-ray fluorescence spectroscopy, fourier transform infrared spectroscopy and ultraviolet visible spectroscopy, using advanced equipment. Additional training courses are planned to roll out in 2013; and

(c) Support promotion and publicity

The Jewellery Panel has provided support and advice on various promotion and publicity activities on jewellery testing and certification –

- (i) introduction to Hong Kong's jewellery testing and certification services at various forums, e.g. at the Gemstone Industry and Laboratory Conference organised by the International Colored Gemstone Association, at trade associations' regular meetings;
- (ii) participation in the annual Hong Kong International Jewellery Show, a trade fair, since 2011;
- (iii) upload of information on testing services for jadeite jade and diamond accredited by HKAS to the Consumer Council's dedicated website for Mainland tourists;
- (iv) production of pamphlets which were distributed at border entry points to reach out to tourists, at trade fairs and to retail jewellery shops through trade associations; and
- (v) arranging three advertorials in selected local newspapers.

Industry's Feedback

5.28 Twelve respondents in HKCTC's end-2012 survey had provided jewellery testing and certification services. They were asked whether they were aware of the work of the Jewellery Panel and whether they considered the initiatives helpful. Close to two-thirds (67%) of the respondents were aware of the promotion effort of the Jewellery Panel. The majority (58%) were also aware of the development of new standard testing methods for two types of Fei Cui, even though GAHK had not yet started its comprehensive consultation with the jewellery trade on the draft standard testing methods being developed at the time of the survey. About half (50%) were also aware that HKAS would explore the provision of accreditation service for pearl testing.

5.29 The testing and certification industry gave positive feedback on the work of the Jewellery Panel. The vast majority (ranging from 80% to 100% for different initiatives) of the respondents considered the initiatives helpful in promoting the development of testing and certification services in the jewellery trade.

#### Way Forward

5.30 HKCTC considers that the Jewellery Panel should –

- (a) continue to monitor the development of the standard testing methods for Fei Cui, and support the promotion after the methods are finalised;
- (b) continue to promote to and support providers of jewellery testing and certification services to seek accreditation;
- (c) enhance technical competence of practitioners by encouraging sharing and introducing new testing technologies to them; and
- (d) explore further enhancement in promotion, e.g. attend international conferences to raise the profile of Hong Kong's jewellery testing and certification services, arrange featured articles in trade publications.

## **Progress in the Two Emerging Trades**

5.31 HKCTC set up two dedicated Panels to further explore business opportunities for testing and certification services in the two emerging trades of environmental protection and ICT in mid-2012, when the work of the Panels of the four selected trades was in good progress.

5.32 The terms of reference of the two new Panels are the same as those of the Panels for the selected trades and are set out at Annex 9. The membership lists of the two new Panels are at Annexes 14-15.

### ***(A) Environmental Protection***

#### ***Considerations in Identifying the Trade in 2010***

5.33 In 2010, HKCTC identified environmental protection as an emerging trade that had potentials for further exploration because –

- (a) the general public was putting increasing emphasis on environmental protection;
- (b) more opportunities might arise, e.g. accounting and reporting of greenhouse gas (GHG) emissions and removals, as well as the validation and verification of such claims; and
- (c) many laboratories in Hong Kong had already been accredited to perform environmental-related tests, demonstrating that the industry had the capability and capacity to support further development in this area.

5.34 In mid-2012, HKCTC set up the Panel on Promoting Testing and Certification Services in Environmental Protection Trade (EP Panel) after considering that the above considerations were still valid.

#### ***Focused Effort in Future***

5.35 Since its setup, the EP Panel has held three meetings and agreed to

focus future effort on the following areas –

(a) Promotion of validation and verification of GHG assertions

The society is gradually becoming more aware of the concept of accounting and reporting of GHG emissions and removals. Government has taken the lead in carrying out energy-cum-carbon audits for Government buildings. It also encourages the business sector to carry out carbon audits through various initiatives including the Carbon Audit Pilot Fund under the CarbonSmart Programme and organising carbon audit workshops for listed companies. Some local organisations have been exploring the development of certification services for carbon emissions for consumer products and construction materials. This encouraging trend is expected to bring about potential opportunities for testing and certification services.

To support development of new services in this area, HKAS introduced new accreditation service for GHG validation and verification based on the ISO 14064 standard in December 2012. Training has been arranged for validation and verification bodies to equip them with the relevant technical know-how.

As an initial step in promotion, the Environmental Protection Department with the support of HKCTC and HKAS organised a seminar on quality carbon audit practices in March 2013. Concepts of GHG accounting, validation and verification as well as the relevant accreditation service were introduced at the seminar;

(b) Promotion of energy management system certification to the ISO 50001 standard

ISO 50001 is a relatively new international standard issued in 2011. It specifies requirements for establishing, implementing, maintaining and improving an energy management system. It enables an organisation to follow a systemic approach in achieving continual improvement of energy performance, such as enhancing energy efficiency and reducing energy consumption.

Certification to the ISO 50001 standard helps an organisation to show its compliance with international standard and build up its green image. There is also increasing demand from overseas buyers for suppliers to be certified to the ISO 50001 standard. Hence, HKPC is cooperating with the Hong Kong Electronic Industries Association in carrying out a support programme for SMEs to adopt an ISO 50001-based energy management system. The certification industry expects high potential demand for ISO 50001 certification in the long run.

To support development of certification services in this area, HKAS introduced new accreditation service for ISO 50001 certification in December 2012. Training has been arranged for certification bodies to equip them with the relevant technical know-how; and

(c) Promotion of testing and certification services for green procurement

“Green procurement” generally refers to the purchase of products and services with due environmental considerations. In 2000, Government already updated its procurement regulations requiring departments to take into account environmental considerations when procuring goods and services. Since then, Government has been developing green specifications for commonly used items, currently covering over 100 items. These green specifications are available on Government’s website and the private sector can adopt them.

With increase in awareness of green procurement, there would be potential demand for testing services to verify claims of product compliance with green specifications. Moreover, to facilitate easy identification of “green” products by consumers, some organisations have introduced product certification services such as “green” labels. The EP Panel will encourage and support green-related testing and certification services to seek accreditation, and promote such accredited services to the public.



***(B) ICT***

***Considerations in Identifying the Trade in 2010***

5.36 In 2010, HKCTC identified ICT as an emerging trade that had potentials for further exploration because –

- (a) ICT was widely adopted in modern society. It was a wide and diverse field that was worth further exploring given its importance; and
- (b) some sectors within the ICT trade, in particular the sectors related to computer and software development, had expressed interest in exploring the development of new testing and certification services.

5.37 In mid-2012, HKCTC set up the Panel on Promoting Testing and Certification Services in Information and Communications Technologies Trade (ICT Panel) after considering that the above considerations were still valid.

***Focused Effort in Future***

5.38 Since its setup, the ICT Panel has held four meetings and agreed to focus future effort on the following areas –

- (a) Development of certification service for cloud computing

Potential users of cloud computing, especially SMEs, sometimes face big challenges in selecting reliable and suitable cloud computing services as they may not have the relevant expertise and experience, and access to facilities of the service providers. Certification for cloud computing can contribute to enhancing the quality of cloud computing services and facilitate users in service selection.

The ICT Panel is now studying certification services for cloud computing in the market that are currently available or being developed, to determine if the Panel should support the development of certification service that meets the needs of potential users in Hong Kong. The Office of the Government Chief Information Officer

(OGCIO), HKPC, the Asia Cloud Computing Association and the British Standards Institution have been invited to share with the ICT Panel on various guidelines, good practices, standards and certification services for cloud computing;

(b) Promotion of information security management system certification

ISO 27001 provides a robust model for establishing, implementing, operating, monitoring, reviewing, maintaining and improving an information security management system, which is designed to ensure the selection of adequate and proportionate security controls that protect information assets.

Certification of an information security management system to the ISO 27001 standard allows an organisation to achieve greater assurance that its information assets are adequately protected against information security risks and give confidence to business partners, authorities and other interested parties.

To support development of certification services in this area, HKAS introduced new accreditation service for ISO 27001 certification in November 2011. Training has been arranged for certification bodies to equip them with the relevant technical know-how.

Despite increasing concern over information security in society, ISO 27001 certification is not widely adopted in Hong Kong. This may possibly be due to lack of awareness and misconception that the requirements are difficult to meet, in particular in the case of SMEs. Hence, the ICT Panel plans to step up promotion effort for ISO 27001 certification; and

(c) Exploring third-party testing services for software products

The objective of software testing is to ensure that the software in question functions as expected, and is free from any design and programming errors, performance bottlenecks and security loopholes. Effective software testing improves the quality, reliability and security of software. With increasing reliance on ICT in performing

their day-to-day business functions, enterprises are increasingly aware of the importance of software testing.

The importance of and increasing demand for software testing have led to the emergence of third-party software testing laboratories in other economies. These laboratories, staffed by software testing professionals and adopting internationally recognised testing standards, methodologies and tools, can help to perform software testing in a more efficient and effective manner.

There are already testing laboratories accredited to the ISO 17025 standard providing third-party testing services for software products in major Asia-Pacific economies, including the Mainland, Japan, Korea, Australia and the US. Hong Kong is comparatively new to the development in this area.

With the support and advice of the ICT Panel, ITC, HKPC and OGCIO co-organised a seminar on software testing service in January 2013. Experts from the Mainland, Korea and Australia were invited to share experience on third-party software testing. The ICT Panel will continue to enhance awareness of the concept of third-party software testing in the ICT trade.

To support the development of third-party testing services in Hong Kong, OGCIO has included “independent testing service” in its invitation of tenders under the Standing Offer Agreement for Quality Professional Services scheme issued in December 2012.

## **CHAPTER 6**

### **SEEKING WIDER RECOGNITION OF HONG KONG'S ASSESSMENT RESULTS**

6.1 This chapter –

- (a) reviews the implementation progress of HKCTC's recommendations on seeking wider recognition of Hong Kong's assessment results;
- (b) reports the views collected from the industry on the implementation progress; and
- (c) makes further recommendations on enhancing recognition.

#### **HKCTC's Recommendations in 2010**

6.2 In 2010, HKCTC recommended –

- (a) HKAS to continue to participate actively in the international accreditation community so as to uphold its international status and enlist greater recognition;
- (b) HKAS to conduct further research into the regulatory regimes in the US, the European Union, the Mainland and other economies as necessary to gain a better understanding of them, so as to facilitate promotion of wider acceptance of results from Hong Kong's accredited conformity assessment bodies; and
- (c) Commerce and Economic Development Bureau (CEDB) to continue pursuing discussions with the Mainland authorities through the Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA) to seek their agreement to accept testing reports of accredited laboratories in Hong Kong.

## **Implementation Progress**

### *Participation in the International Accreditation Community*

6.3 HKAS is a member of the International Laboratory Accreditation Cooperation (ILAC) and the International Accreditation Forum (IAF) at international level; and the Asia Pacific Laboratory Accreditation Cooperation (APLAC) and the Pacific Accreditation Cooperation (PAC) at regional level. HKAS has been active in contributing to the international accreditation community –

- (a) the Executive Administrator of HKAS is the Convener of ILAC Working Group for Developing Requirements and Guidelines for Use of Accreditation Symbols and Claims of Accreditation Status, a member of APLAC Board of Management, the Vice-Chair of APLAC Mutual Recognition Arrangement (MRA) and the Chair of APLAC Sub-committee for Reference Materials. He is also an APLAC Leader Evaluator responsible for leading MRA evaluation teams;
- (b) staff from HKAS have participated as members in various Committees, Working Groups and Task Forces of ILAC, IAF, APLAC and PAC, e.g. the Accreditation Issues Committee of ILAC, the Technical Committee of IAF, the Training Committee of APLAC and the Technical Committee of PAC;
- (c) HKAS has coordinated four APLAC proficiency testing programmes since April 2010;
- (d) HKAS hosted the 19th PAC Plenary Meeting in Hong Kong in 2012. Over 100 delegates from more than 30 economies attended the meeting;
- (e) HKAS has provided speakers and trainers to workshops, seminars and training courses of regional accreditation cooperations and other accreditation bodies; and
- (f) HKAS has contributed articles to newsletters of ILAC, IAF, APLAC and PAC.

6.4 In 2012, HKAS invited the Chairman of ILAC to visit Hong Kong in order to show him the latest development of Hong Kong's testing and certification industry.

6.5 Through joining multilateral MRAs administered by ILAC, IAF, APLAC and PAC, the accreditation granted by HKAS to testing and certification organisations is recognised by over 80 accreditation bodies in about 65 economies, including Hong Kong's major trading partners.

6.6 Since April 2010, HKAS has further expanded the scope of its MRAs to cover –

- (a) environmental management system certification;
- (b) product certification;
- (c) reference material production; and
- (d) inspection.

*Research into the Regulatory Regimes in other Economies*

6.7 Many testing service providers in Hong Kong were uncertain whether their testing reports required endorsement by European “notified bodies” for the European market. HKAS raised the issue through Government's structured dialogue meetings with the European Commission in November 2010 and December 2011. The European Commission clarified that products tested by Hong Kong laboratories for exports to the European Union generally did not require the involvement of “notified bodies”.

6.8 HKAS is also monitoring a plan by the US FDA to establish a programme for laboratory accreditation for food testing required by the US FDA Food Safety Modernisation Act. ILAC is lobbying the US FDA to accept accreditation granted by overseas accreditation bodies which are signatories to ILAC's MRA.

### *Wider Recognition in the Mainland Market*

6.9 Since April 2010, CEDB has been in discussion with relevant Mainland government authorities in seeking wider recognition of the assessment results of Hong Kong's testing and certification industry in the Mainland through the platform of CEPA.

6.10 Under Supplement VII to CEPA signed in May 2010, laboratories in Hong Kong were allowed to cooperate with designated Mainland organisations to test products for the China Compulsory Certification (CCC) System on a pilot basis for selected products processed in Hong Kong. These laboratories had to be accredited by HKAS to be capable of performing the relevant testing. Four types of products processed in Hong Kong were included in the pilot –

- (a) toys;
- (b) switches, protective devices and connection devices for electrical installations;
- (c) information technology equipment; and
- (d) lighting apparatus.

6.11 Through Supplement VIII to CEPA signed in December 2011, the pilot was extended to cover all 22 types of products under CCC System that were processed in Hong Kong.

6.12 Supplement IX to CEPA, signed in 2012, has further expanded on a pilot basis in Guangdong Province the scope of certification services that can be undertaken by Hong Kong testing laboratories to cover food. The implementation details of this CEPA liberalisation measure have just been announced in January 2013.

### *Promoting Cooperation with the Mainland*

6.13 Hong Kong's testing and certification industry has close relationship with the Mainland. It has been providing large amount of testing, inspection and certification services for consumer products manufactured in the Pearl

River Delta Region. In the National 12th Five-Year Plan, the Mainland has expressly supported Hong Kong's development of the testing and certification industry, among others. HKCTC considers that it is also important to promote cooperation between Hong Kong and the Mainland on testing and certification, in addition to seeking further market liberalisation measures under CEPA.

6.14 ITC has been promoting exchanges and cooperation with Guangdong Province, including the Shenzhen Municipality. The Framework Agreement on Hong Kong/Guangdong Co-operation signed in April 2010 provides for the setup of a Standards Working Group to facilitate exchange of information on standards, regulations and conformity assessment requirements between Hong Kong and Guangdong. In December 2010, ITC signed agreements with the Market Supervision Administration of Shenzhen Municipality and the Shenzhen Entry-Exit Inspection and Quarantine Bureau to facilitate exchanges and cooperation between Hong Kong and Shenzhen.

6.15 Since 2010, both sides have been inviting representatives from the other side to participate in technical seminars, net-working activities and inter-laboratory comparison exercises. To foster cooperation, in September 2012 HKCTC visited the relevant authorities in Shenzhen and exchanged views with representatives of Shenzhen's testing and certification industry.

### **Industry's Feedback**

6.16 In HKCTC's end-2012 survey, the majority of the respondents (76%) were aware of the MRAs signed by HKAS and considered them helpful (91%) in promoting wider recognition of Hong Kong's assessment results. Fewer respondents (51%) were aware of the expansion in the scope of MRAs in recent years but most respondents (83%) considered the expansion helpful.

6.17 On the CEPA measure, the majority (64%) of the respondents were aware of the liberalisation regarding CCC testing but only slightly more than half of the respondents (57%) considered the measure helpful in promoting wider recognition of Hong Kong's assessment results in the Mainland. This was probably because the CCC-related measure only applies to products processed in Hong Kong.



6.18 Only 33% of the respondents were aware of the further liberalisation measure in Supplement IX to CEPA. Nevertheless, the majority of the respondents (73%) considered the measure helpful when informed of it. To enhance understanding of the new measure, a seminar was organised in February 2013. Mainland speakers were invited to give briefings on food-related certification in the Mainland market and the testing required. Over 260 practitioners from the testing and certification industry and the food industry attended.

## **Recommendations**

6.19 HKCTC notes that the industry generally agreed that the existing initiatives in seeking wider recognition of Hong Kong's conformity assessment results were helpful, though further actions have to be taken to improve awareness of the expansion in the scope of MRAs and the new measure in Supplement IX to CEPA.

6.20 While the acceptance of Hong Kong's testing results for the Mainland's CCC System applies only to products processed in Hong Kong, HKCTC acknowledges that this is a first step in seeking wider acceptance from the Mainland and wishes that the acceptance would be expanding gradually through the CEPA platform.

6.21 HKCTC considers its 2010 recommendations (at para. 6.2) still valid. Moreover, it recommends –

- (a) HKAS to continue to actively promote its scope of MRAs to relevant establishments in the testing and certification industry;
- (b) CEDB to enhance promotion of CEPA measures to the testing and certification industry; and
- (c) ITC to promote further cooperation on testing and certification between Hong Kong and the Mainland, in particular with Guangdong Province (including the Shenzhen Municipality).

## **CHAPTER 7**

### **PROMOTION**

7.1 This chapter –

- (a) reviews the implementation progress of HKCTC's recommendations on promotion of Hong Kong's testing and certification industry;
- (b) reports the views collected from the industry on the promotion effort; and
- (c) makes recommendations on future promotion measures.

#### **HKCTC's Recommendations in 2010**

7.2 In 2010, HKCTC made the following recommendations –

- (a) the focus of promotion should be on accredited establishments in the industry and the world-class standard of accreditation service by HKAS. The "Tested in Hong Kong, Certified in Hong Kong" branding should be the theme of promotional activities; and
- (b) regarding local promotion –
  - (i) HKAS to encourage and facilitate more establishments in the industry to obtain accreditation;
  - (ii) HKAS to facilitate Government departments and various sectors to make good use of the services provided by the industry; and
  - (iii) HKCTC, with the assistance of HKAS, etc. to raise the profile and public awareness of the industry.

Regarding promotion outside Hong Kong –

- (i) HKTDC to work together with HKCTC and trade associations in the industry to enhance the awareness of the “Tested in Hong Kong, Certified in Hong Kong” branding and connect the industry to potential customers through HKTDC’s various platforms, e.g. publications and major trade fairs;
- (ii) HKPC to work together with HKCTC and trade associations in the industry to strengthen the industry’s connection with manufacturers in the Pearl River Delta Region;
- (iii) HKAS to participate in major trade fairs to promote the status of HKAS accreditation and the merits of accredited testing and certification services in Hong Kong; and
- (iv) Government’s Economic and Trade Offices (ETOs) in the Mainland and overseas to assist in the promotion of Hong Kong’s testing and certification industry through their regular liaison work.

## **Implementation Progress**

### ***Focus of Promotion***

7.3 To focus promotion on accredited establishments in the industry and build up the “Tested in Hong Kong, Certified in Hong Kong” branding, all promotion effort coordinated by HKAS and HKTDC has highlighted both the logo of HKAS and the “Tested in Hong Kong, Certified in Hong Kong” message as far as fit.

### ***Local Promotion***

7.4 To promote Hong Kong’s testing and certification services to Government departments and various sectors, HKAS –

- (a) introduced the benefits of using accredited third-party testing and certification services through briefings and meetings with selected Government departments, e.g. briefings to supply officers in Government on how they could make use of accredited testing and certification services to implement Government's green procurement policy;
- (b) together with HKCTC liaised with major Chambers of Commerce, various trade associations and professional associations in Hong Kong to introduce Hong Kong's testing and certification services at their meetings or seminars organised for their members, e.g. at the Seminar on Testing and Certification organised by the Association of Engineering Professionals in Society in October 2012;
- (c) cooperated with HKCTC and the industry in producing promotional pamphlets targeted at specific trades and distributed them through relevant trade associations in the specific trades, e.g. pamphlets to promote gemstone testing services which were distributed through major jewellery trade associations; and
- (d) arranged interviews or contributed articles for trade publications of Chambers of Commerce and prominent organisations in various sectors. For example, HKAS contributed an article to the March 2012 Issue of the Newsletter of the Hong Kong Construction Industry Council. Another example was an article in the Spring 2011 Issue of the "Hong Kong Echo" published by the French Chamber of Commerce and Industry in Hong Kong.

7.5 To raise the profile and public awareness of the industry, HKAS has supported HKCTC in –

- (a) arranging more than 60 advertorials in selected local newspapers to introduce various aspects of the industry to the public;
- (b) setting up a promotional booth in the annual InnoCarnival, which had more than 200 000 visits during the nine-day event in 2012. Concepts of testing and certification in different facets of daily life were introduced to the general public through interactive games and

talks; and

- (c) introducing the industry to secondary schools, e.g. arranging laboratory visits for secondary school teachers.

### ***Promotion outside Hong Kong***

7.6 HKTDC has been working closely with HKAS and HKCTC to promote Hong Kong's testing and certification services through its various platforms. Major activities are as follows –

- (a) dedicated promotional booths were set up in major trade fairs in Hong Kong (15 trade fairs in FY 2012-13). During the fairs, promotional videos were displayed and advertisements were placed in lightboxes and HKTDC's publications where applicable;
- (b) speakers from HKAS were invited by HKTDC to deliver talks on the benefits of Hong Kong's accredited testing and certification services at seminars held during selected trade fairs;
- (c) meetings with journalists outside Hong Kong were arranged during local trade fairs for HKAS to introduce Hong Kong's testing and certification services, leading to reports in overseas publications and websites;
- (d) HKTDC helped to promote the "Tested in Hong Kong, Certified in Hong Kong" branding in Hong Kong Pavilion set up by HKTDC in selected major overseas trade fairs (21 trade fairs in FY 2012-13);
- (e) materials (e.g. pamphlets) were passed to HKTDC's branch offices in the Mainland and overseas to facilitate promotion;
- (f) a dedicated portal was set up in HKTDC's website to facilitate search of testing and certification services; and
- (g) HKTDC worked with HKCTC to identify success stories from the local testing and certification industry. In June 2012, two TV episodes featuring such success stories were broadcast in Guangdong

to promote Hong Kong's testing and certification industry in the Mainland.

7.7 HKPC assisted in introducing Hong Kong's testing and certification services through its connections in the Pearl River Delta Region, e.g. at meetings with trade associations in Shenzhen, Zhuhai and Dongguan. HKAS also took initial steps to explore opportunities to give briefings in the Mainland. For example, a briefing was given at a seminar in Shenzhen organised by the European Union Chamber of Commerce in China in October 2012.

7.8 To support promotion by Government's ETOs in the Mainland and overseas, ITC conducted briefings for ETO officers and provided them with promotional materials, e.g. pamphlets, advertorials and videos.

### **Industry's Feedback**

7.9 HKCTC's end-2012 survey found that most of the respondents (79%) were aware of at least one of the promotion initiatives and considered these initiatives helpful in promoting Hong Kong's testing and certification services to potential users (78%), enhancing the industry's professional image (84%) and enhancing public awareness of the industry (80%). Some respondents pointed out that promotion effort needed to be sustained for a longer period of time to be effective.

7.10 On trade promotion, there were suggestions from the industry for HKAS to strengthen its promotion effort by conducting outreach activities to major buyers in North America and Europe to introduce services of HKAS-accredited testing laboratories and certification bodies. There were also suggestions to give more briefings to local trade associations in various sectors, enabling them to have a better understanding of the benefits of testing and certification services.

7.11 On promoting public awareness, there were suggestions to strengthen effort targeted at students to enhance their understanding of the testing and certification industry.

## **Recommendations**

7.12 In view of the positive response from the industry, HKCTC recommends that previous recommendations to promote the industry as set out in para. 7.2 should continue to be pursued. HKCTC also recommends enhancement in the following areas –

- (a) HKAS to work with HKTDC, overseas ETOs and industry associations in introducing Hong Kong's testing and certification services to major overseas buyers;
- (b) HKAS to increase briefings on testing and certification services for local Chambers of Commerce and trade associations; and
- (c) HKCTC, with the assistance of HKAS, to enhance promotion to students to raise their awareness and understanding of the industry.

## CHAPTER 8

### WAY FORWARD

8.1 Having reviewed the implementation progress of HKCTC's three-year market-oriented development plan for the testing and certification industry since April 2010, HKCTC recommends to further support the development of the industry in order to realise HKCTC's vision for Hong Kong to develop into a testing and certification hub in the region.

8.2 This chapter provides a summary of the recommendations made by HKCTC after conducting the review, and the way forward in implementing them. This chapter also includes an analysis and recommendation on HKCTC's long-term status.

#### **Recommendations**

8.3 A summary of the recommendations made by HKCTC to further support the development of the industry is set out below –

#### ***Recommendations on the General Front***

##### Improvements to the Accreditation System

- (a) HKAS to continue to upgrade the standard of conformity assessment services provided by testing laboratories, inspection bodies and certification bodies through accreditation;
- (b) HKAS to continue to introduce new accreditation services in response to demand from the industry and the community;
- (c) HKAS to continue to provide necessary training to its staff to ensure high professional standards in performing assessment and to acquire the necessary expertise to facilitate provision of new accreditation services in response to demand from the industry; and



- (d) HKAS to further enhance its website to facilitate users of testing and certification services in identifying accredited conformity assessment bodies;

### Improvements to the Factors of Production

#### *Manpower*

- (e) ITC to continue to assist the industry in attracting talent by cooperating with universities, VTC and the industry to participate in career talks and career fairs and to promote more internship opportunities for students;
- (f) HKAS and VTC to continue to work with the industry and ICAC in enhancing professionalism of practitioners;
- (g) Government departments, local universities and VTC to continue to encourage their qualified employees to participate as part-time assessors of HKAS;
- (h) to ensure that the supply of manpower can support further development of the industry in terms of both quality and quantity, HKCTC will continue to act as a focal point and maintain close liaison with Government and the relevant stakeholders;

#### *Technology*

- (i) ITC to strengthen promotion of ITF and the R&D Cash Rebate Scheme to the industry;
- (j) PSIB to strengthen promotion of its services;
- (k) Gov Lab to consider providing more support on metrology in chemistry to the industry;

#### *Capital*

- (l) ITC to strengthen promotion of SERAP and the SME Funding

Schemes, with the assistance of the Trade and Industry Department, to SMEs in the testing and certification industry;

- (m) HKPC and HKSTP to strengthen promotion of their shared facilities;

#### *Land*

- (n) HKCTC will continue to keep in view the availability of vacant premises;
- (o) HKSTP to continue to facilitate the setting up of testing laboratories with special accommodation needs in the Industrial Estates where necessary;
- (p) Government to continue to take into account the needs of the testing and certification industry in future land use planning and provide the industry with assistance where appropriate;

#### *Focused Effort on Specific Trades*

##### Mature Trades

- (q) competitiveness-enhancement measures and trade promotion effort should continue to take into account the needs of the mature trades, i.e. textiles, clothing and footwear; toys and games; electrical products; and medical testing;

##### Selected Trades

- (r) HKCTC's Chinese Medicines Panel should –
  - (i) continue its work in developing new testing and certification services, in particular in monitoring the product certification scheme currently being developed by HKPC and in promoting the services after the scheme is introduced;
  - (ii) continue to coordinate inter-laboratory comparison exercises to maintain technical competence of testing laboratories;

- (iii) continue to promote testing and certification services for Chinese medicines to the Chinese medicines trade and the public, with particular emphasis on new authentication services based on HKCMMS; and
  - (iv) continue to act as an information sharing platform on the latest developments in Chinese medicines testing, in particular new technologies and specifications developed at local universities;
- (s) HKCTC's Construction Materials Panel should –
- (i) continue to support the introduction of product certification services for more types of construction materials, e.g. provide training to certification bodies and manufacturers for new certification schemes;
  - (ii) continue its promotion and publicity work, in particular in promoting wider adoption of product certification for construction materials by sharing information of certified products to potential users; and
  - (iii) build up technical capabilities of laboratories for construction materials testing;
- (t) HKCTC's Food Panel should –
- (i) continue to support the development of the HACCP-based food hygiene management system certification scheme and, after the launch of the scheme, assist in promoting the certification service;
  - (ii) continue to explore other testing and certification services in the food trade, such as testing of food contact materials and new certification schemes for food products;
  - (iii) continue its promotion and publicity work, in particular to step up promotion of the authentication service for selected

high-value food recently developed by the Chinese University of Hong Kong; and

- (iv) continue to act as an information sharing platform on matters related to food testing and certification, such as regulatory changes and new technological advances;
- (u) HKCTC's Jewellery Panel should –
  - (i) continue to monitor the development of the standard testing methods for Fei Cui, and support the promotion after the methods are finalised;
  - (ii) continue to promote to and support providers of jewellery testing and certification services to seek accreditation;
  - (iii) enhance technical competence of practitioners by encouraging sharing and introducing new testing technologies to them; and
  - (iv) explore further enhancement in promotion;

#### Emerging Trades

- (v) HKCTC's EP Panel will focus its future effort on –
  - (i) promotion of validation and verification of GHG assertions;
  - (ii) promotion of energy management system certification to the ISO 50001 standard; and
  - (iii) promotion of testing and certification services for green procurement;
- (w) HKCTC's ICT Panel will focus its future effort on –
  - (i) development of certification service for cloud computing;
  - (ii) promotion of information security management system

certification; and

- (iii) exploring third-party testing services for software products;

***Seeking Wider Recognition of Hong Kong's Assessment Results***

- (x) HKAS to continue to participate actively in the international accreditation community so as to uphold its international status and enlist greater recognition;
- (y) HKAS to continue to conduct research into the regulatory regimes in other economies as necessary to gain a better understanding of them, so as to facilitate promotion of wider acceptance of results from Hong Kong's accredited conformity assessment bodies;
- (z) CEDB to continue pursuing discussions with the Mainland authorities through CEPA to seek their agreement to accept testing reports of accredited laboratories in Hong Kong;
- (aa) HKAS to continue to actively promote its scope of MRAs to relevant establishments in the testing and certification industry;
- (ab) CEDB to enhance promotion of CEPA measures to the testing and certification industry;
- (ac) ITC to promote further cooperation on testing and certification between Hong Kong and the Mainland, in particular with Guangdong Province (including the Shenzhen Municipality);

***Promotion***

- (ad) the focus of promotion should be on accredited establishments in the industry and the world-class standard of accreditation service by HKAS. The "Tested in Hong Kong, Certified in Hong Kong" branding should be the theme of promotional activities;
- (ae) regarding local promotion –

- (i) HKAS to encourage and facilitate more establishments in the industry to obtain accreditation;
  - (ii) HKAS to facilitate Government departments and various sectors to make good use of accredited testing and certification services, in particular to increase briefings for local Chambers of Commerce and trade associations; and
  - (iii) HKCTC, with the assistance of HKAS, etc. to raise the profile and public awareness of the industry; and
- (af) regarding promotion outside Hong Kong –
- (i) HKTDC to work together with HKCTC and trade associations in the industry to enhance the awareness of the “Tested in Hong Kong, Certified in Hong Kong” branding and connect the industry to potential customers through HKTDC’s various platforms, e.g. publications and major trade fairs;
  - (ii) HKPC to work together with HKCTC and trade associations in the industry to strengthen the industry’s connection with manufacturers in the Pearl River Delta Region;
  - (iii) HKAS to participate in major trade fairs to promote the status of HKAS accreditation and the merits of accredited testing and certification services in Hong Kong;
  - (iv) Government’s ETOs in the Mainland and overseas to assist in the promotion of Hong Kong’s testing and certification industry through their regular liaison work; and
  - (v) HKAS to work with HKTDC, overseas ETOs and industry associations in introducing Hong Kong’s testing and certification services to major overseas buyers.

## **Implementation of Recommendations**

8.4 Subject to Government's acceptance of the recommendations set out above, HKCTC will continue to advise and support Government's coordination of the implementation of the recommendations.

8.5 While the dedicated Panels for the four selected trades, i.e. Chinese medicines, construction materials, food and jewellery, have been formed for more than two years, some key initiatives taken forward by the Panels have just been completed or are scheduled for completion in the coming years with promotional activities planned ahead. HKCTC will monitor the progress regularly and conduct a review as fit to decide whether there is a need to "graduate" some of the existing Panels and to form new ones.

8.6 As for the dedicated Panels for the two emerging trades, they have been formed for less than a year and so work will continue in the coming few years.

## **HKCTC's Long-term Status**

8.7 HKCTC is an advisory body with Members from the testing and certification industry, business sector, relevant professional bodies, public organisations as well as Government departments appointed by the Chief Executive. With the passage of three years and the experience gained from the implementation of HKCTC's industry development plan, consideration has been given to HKCTC's long-term status.

8.8 Experience since its setup in 2009 suggests that HKCTC has served as a good platform in promoting collaboration among the stakeholders. Its operation has been flexible in catering for the diverse and changing needs of the testing and certification industry. Members from various sectors have been able to closely monitor and deliberate the changing circumstances faced by the industry. Timely actions have been taken to enhance the professional standards and international recognition of the industry, with a view to creating more business opportunities.

8.9 All along, HKCTC has been working closely and smoothly with

HKAS. With the concerted effort of stakeholders, a dual approach has been effectively pursued to spearhead the development of the industry. On the general front, continued enhancement has been made to the accreditation service and the factors of production of the industry. On the six specific trades, targeted effort has been made to develop and promote new testing and certification services.

8.10 HKCTC is of the view that HKAS has been effective in assisting Hong Kong's testing and certification industry to seek international recognition. Regarding the Mainland market, CEDB has been seeking wider acceptance of Hong Kong's testing and certification results through the CEPA platform. Since 2010, the Mainland has been gradually opening up its market to Hong Kong's testing laboratories.

8.11 On promotion, HKCTC has been effectively supported by HKAS and HKTDC, among others, in reaching out to potential users of Hong Kong's testing and certification services and in enhancing public awareness of the industry. The "Tested in Hong Kong, Certified in Hong Kong" branding has been reinforced through a variety of channels, including local and overseas trade fairs, briefings to trade associations, trade publications and websites.

8.12 As reflected by HKCTC's end-2012 survey, the testing and certification industry is very satisfied with the implementation progress of HKCTC's proposed three-year industry development plan as the vast majority agree that the initiatives have been helpful to the industry (e.g. 82% of respondents considered the initiatives to assist the industry in attracting fresh graduates helpful; 84% considered the various promotional activities to enhance the professional image of the industry helpful; and 90% considered HKAS' new accreditation services for food testing and certification helpful).

8.13 In view of the above, HKCTC recommends that its current mode of operation should continue and no change should be necessary.

## **Resources**

8.14 Over the years, Government has been providing necessary financial resources to promote the development of the testing and certification industry.



Its allocation on quality support mainly for providing accreditation and calibration services, information on international standards for the testing and certification industry, as well as secretariat support for HKCTC increased from \$76 million in FY 2010-11 to \$99 million in FY 2012-13. In particular, HKAS has increased its manpower by 38% to strengthen its accreditation services to the industry.

8.15 The industry may also make use of ITF for its projects that contribute to the upgrading of the industry and applied R&D in testing and certification. As at end-January 2013, some \$1.4 billion was available under ITF.

8.16 For FY 2013-14, Government will allocate about HK\$106 million to ITC for quality support.

**Terms of Reference of  
the Hong Kong Council for Testing and Certification**

**From 17 September 2009 to 16 September 2011**

To advise the Chief Executive on –

- (a) a three-year development plan for the industry;
- (b) the long-term operational model of the Hong Kong Council for Testing and Certification, including its status, functions and staffing plan; and
- (c) exploring new opportunities for the industry to develop and to enhance its professional standards.

**Since 17 September 2011**

To advise the Chief Executive on –

- (a) the overall development strategy of the industry;
- (b) new business opportunities worth exploring for the industry, having regard to latest developments in the Mainland and overseas markets; and
- (c) measures needed to raise the professional standing and community awareness of the industry.

**Membership List of  
the Hong Kong Council for Testing and Certification**

**Chairman**

Professor CHING Pak-chung

**Members**

Dr. CHOY Wai-fun, Priscilla (from 17 Sep 2011)

Mr. FUNG Lap-chung, Richard

Prof. KWAN Hoi-shan

Mr. LAM Chun-hong, Dominic

Dr. LAM Po-hing, Michael

Mr. LAU Man-wai, Joseph

Ms. LAW Sau-mui, Christina

Mr. LEE Wai-kwok, Michael

Mrs. LEUNG YANG Shih-ti, Marianne

Ir. Dr. LO Wai-kwok

Ms. Evelyn LU (till 16 Sep 2011)

Dr. SHUM Wan-lung, Aaron (from 17 Sep 2011)

Mrs. Helen SUN (from 17 Sep 2011)

Prof. YAM Wing-wah, Vivian (from 17 Sep 2011)

Mr. YEUNG King-chung, Spencer

Executive Director of Hong Kong Productivity Council or representative

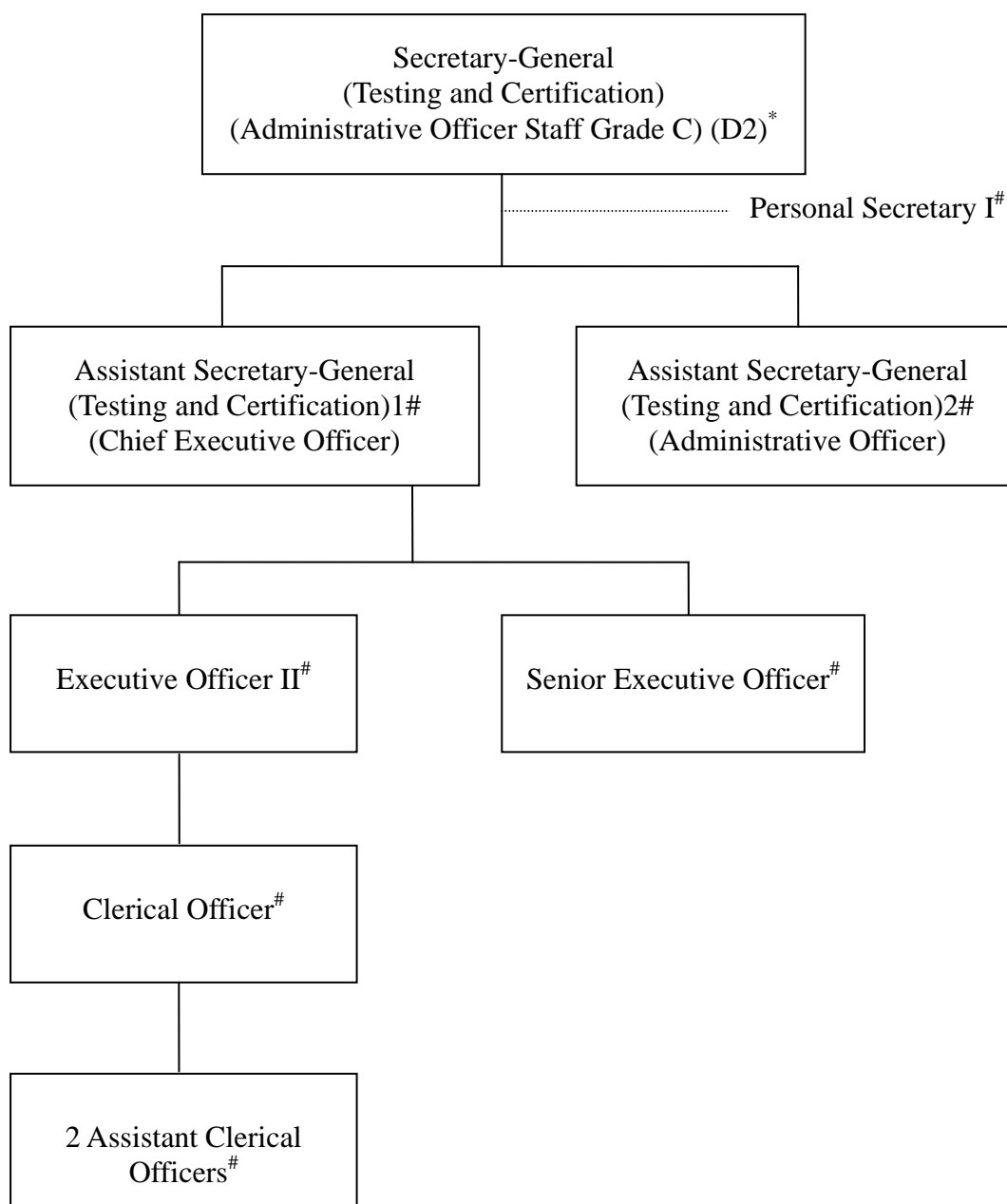
Executive Director of Hong Kong Trade Development Council or  
representative

Executive Director of Vocational Training Council or representative

Director-General of Trade and Industry or representative

Commissioner for Innovation and Technology or representative

**Organisational Chart of the Secretariat for  
the Hong Kong Council for Testing and Certification**



\* Supernumerary post to be lapsed after 31 March 2014

# Non-directorate time-limited posts to be lapsed after 31 March 2014

**Recommendations in the Three-Year Market-Oriented Development Plan  
for the Testing and Certification Industry proposed by  
the Hong Kong Council for Testing and Certification in March 2010**

**Recommendations on the General Front**

***Enhancement of the Accreditation System***

- (a) The current mode of Government providing accreditation service should be retained;
- (b) the Hong Kong Accreditation Service (HKAS) to ensure that its services meet changing needs through –
  - (i) having adequate manpower resources to handle the workload so that requests for accreditation can be dealt with promptly;
  - (ii) providing training to its staff to ensure high professional standards in performing assessment; and
  - (iii) acquiring the necessary expertise to facilitate the provision of new accreditation service in response to demand from the industry;

***Enhancement of the Factors of Production***

***Manpower***

- (c) Innovation and Technology Commission (ITC) to assist the industry in attracting talent by –
  - (i) cooperating with universities, the Vocational Training Council (VTC) and the industry to organise seminars, workshops and career talks to enable students to gain more understanding about the industry and possible career opportunities; and

- (ii) helping to link up universities, VTC and the industry to promote more internship opportunities for students;
- (d) VTC to be encouraged to develop short courses to equip practitioners with the necessary technical skills in case there is a sudden surge in demand arising from major changes in testing requirements in overseas markets;
- (e) HKAS and VTC to enhance the professionalism of the practitioners in the trade by working together in close partnership with the industry and relevant stakeholders to organise seminars/workshops on various subjects including technical and ethics training;
- (f) the Hong Kong Council for Testing and Certification (HKCTC) to render assistance where necessary should local trade associations wish to develop voluntary professional recognition on a general or specific front;
- (g) to ensure adequate supply of quality assessors,
  - (i) Government departments, local universities and VTC should encourage their qualified employees to participate as part-time assessors; and
  - (ii) HKAS should review and strengthen the recognition provided to assessors and simplify the assessment procedures to attract more assessors;
- (h) to ensure that the supply of manpower can support the further development of the industry in terms of both quality and quantity, HKCTC will act as a focal point and maintain close liaison with Government and the relevant stakeholders to closely monitor the situation and to relay the industry's needs and suggestions regarding the training of students to the relevant educational institutes;

### *Technology*

- (i) ITC to encourage the industry to make wider use of the Innovation and

Technology Fund (ITF) to enhance technical capability by –

- (i) promoting ITF to the industry; and
  - (ii) considering making provisions in the ITF mechanism to promote the research and development (R&D) of testing methodologies in future;
- (j) ITC to assist the industry in linking to technological institutions in Hong Kong to identify more collaboration opportunities, e.g. in developing new testing methodologies, in setting up of testing sites, etc.;
- (k) HKAS and the Government Laboratory to arrange more technical seminars and workshops to promote the transfer of technical know-how to the industry. Where appropriate, experts from local universities and overseas should be invited to participate;
- (l) The Product Standards Information Bureau to –
- (i) step up the promotion of its services, including public standards library, standards sales services, website, and free technical enquiry services; and
  - (ii) invite representatives from the industry to join International Organisation for Standardisation's Technical Committees in future;
- (m) ITC to disseminate information about the R&D Cash Rebate Scheme to the industry to encourage more investment in R&D;

### *Capital*

- (n) ITC to promote wider use of the Small Entrepreneur Research Assistance Programme to small and medium enterprises in the industry;
- (o) the Hong Kong Productivity Council and the Hong Kong Science and Technology Parks Corporation to step up promotion of their facilities available for shared use;

### *Land*

- (p) the Hong Kong Science and Technology Parks Corporation to facilitate the setting up of testing laboratories with special accommodation needs in the Industrial Estates where necessary;
- (q) HKCTC to monitor closely the impact of Government initiatives to revitalise industrial buildings on the testing and certification industry;
- (r) HKCTC to keep in view the Government's plans to increase land supply for the testing and certification industry;

## **Recommendations on the Selection of Specific Trades**

### *Mature Trades*

- (s) as these are already well served by existing services, should any problem arise that affects the mature trades, i.e. textiles, clothing and footwear; toys and games; electrical products; and medical testing, HKCTC will promptly examine the situation and make recommendations to Government as appropriate;

### *Selected Trades*

- (t) for each of the four selected trades, i.e. Chinese medicines, construction materials, food and jewellery, HKCTC will adopt a systematic approach to assist the testing and certification industry in seizing further business opportunities –
  - (i) to establish a platform for cooperation with relevant stakeholders in the trade;
  - (ii) to research into the possibility of introducing new testing or certification schemes and develop any new schemes with input from local stakeholders/overseas experts where appropriate;
  - (iii) to conduct appropriate trial schemes;



- (iv) to liaise with HKAS to make available the necessary accreditation services; and
- (v) to promote any new testing or certification schemes both within and outside Hong Kong.

In the implementation stage, the approach will be modified and adapted to suit the individual circumstances and needs of each selected trade;

#### *Emerging Trades*

- (u) HKCTC will monitor closely developments in the two emerging trades, i.e. environmental protection and information and communications technologies, and work further with the relevant trades;

#### **Recognition of Assessment Results**

- (v) HKAS to continue to participate actively in the international accreditation community so as to uphold its international status and enlist greater recognition;
- (w) HKAS to conduct research into the regulatory regimes in the US, the European Union, the Mainland and other economies as necessary to gain a better understanding of them, so as to facilitate promotion of wider acceptance of results from Hong Kong's accredited conformity assessment bodies;
- (x) the Commerce and Economic Development Bureau to continue pursuing discussions with the Mainland authorities through the Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA) to seek their agreement to accept testing reports of accredited laboratories in Hong Kong;

#### **Promotion**

- (y) the focus of promotion should be on accredited establishments in the industry and the world-class standard of accreditation service by HKAS.

The “Tested in Hong Kong, Certified in Hong Kong” branding should be the theme of promotional activities; and

- (z) regarding local promotion –
  - (i) HKAS to encourage and facilitate more establishments in the industry to obtain accreditation;
  - (ii) HKAS to facilitate Government departments and various sectors to make good use of the services provided by the industry; and
  - (iii) HKCTC, with the assistance of HKAS, etc. to raise the profile and public awareness of the industry.

Regarding promotion outside Hong Kong –

- (i) the Hong Kong Trade Development Council (HKTDC) to work together with HKCTC and trade associations in the industry to enhance the awareness of the “Tested in Hong Kong, Certified in Hong Kong” branding and connect the industry to potential customers through HKTDC’s various platforms, e.g. publications and major trade fairs;
- (ii) HKPC to work together with HKCTC and trade associations in the industry to strengthen the industry’s connection with manufacturers in the Pearl River Delta Region;
- (iii) HKAS to participate in major trade fairs to promote the status of HKAS accreditation and the merits of accredited testing and certification services in Hong Kong; and
- (iv) the Government’s Economic and Trade Offices in the Mainland and overseas to assist in the promotion of Hong Kong’s testing and certification industry through their regular liaison work.

**Summary of Survey Findings on Views Collected from  
the Testing and Certification Industry on the Implementation of  
the Three-Year Industry Development Plan**

**Background & Survey Objective**

- ❖ Hong Kong Council for Testing and Certification (HKCTC) proposed a three-year market-oriented industry development plan in March 2010 – Government accepted all the recommendations and has been working with HKCTC in implementing the plan
- ❖ HKCTC commissioned Mercado Solutions Associates Ltd. to collect the industry's views on –
  - implementation of the various recommendations in the development plan; and
  - suggestions on the way forward

## **Methodology**

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**Target  
respondent:**

- Private organisations in the industry that –
- have been accredited by HKAS
  - have not been accredited by HKAS, but have provided contact information to the Secretariat of HKCTC in the past
  - were invited via 3 trade associations and 4 major chambers of commerce

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**Data  
collection:**

- An integrated electronic and mailed self-administered questionnaire, supported by telephone follow-up and/or interviews
- Fieldwork from mid-Oct to early-Dec 2012

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**Sample size:** 124 completed questionnaires collected as at 3 Dec

2

## **Background of Enumerated Companies**

## Background

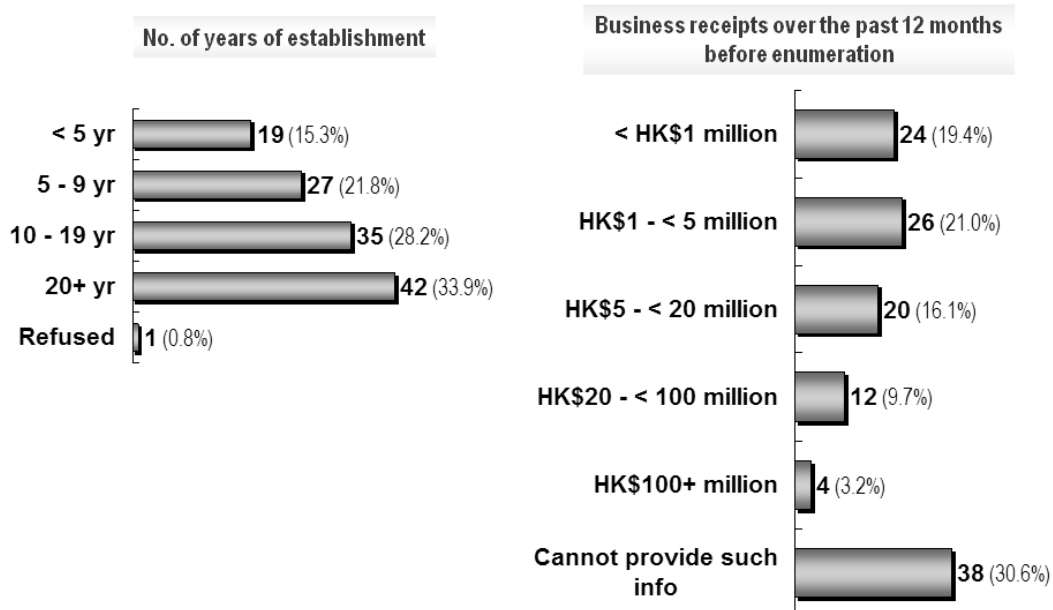
|                                | Industry Profile<br>(Census & Statistics<br>Dept 2010 figures) | Profile of Respondents<br>to HKCTC 2012 Survey |
|--------------------------------|--|--|
| <u>Private Establishments:</u> |  |  |
| <50 persons                    | 580  | 87   |
| >= 50 persons                  | 40   | 35   |
| (refused to disclose)          |  | 2  |
| -----                          | -----  | -----  |
| <b>Total</b>                   | <b>610*</b>  | <b>124</b>                                     |
| Persons Engaged                | 12 390   | 11 219   |

**\* Figures do not add up due to rounding**

4

Base: All enumerated companies (n = 124) [Ref.: Q35]

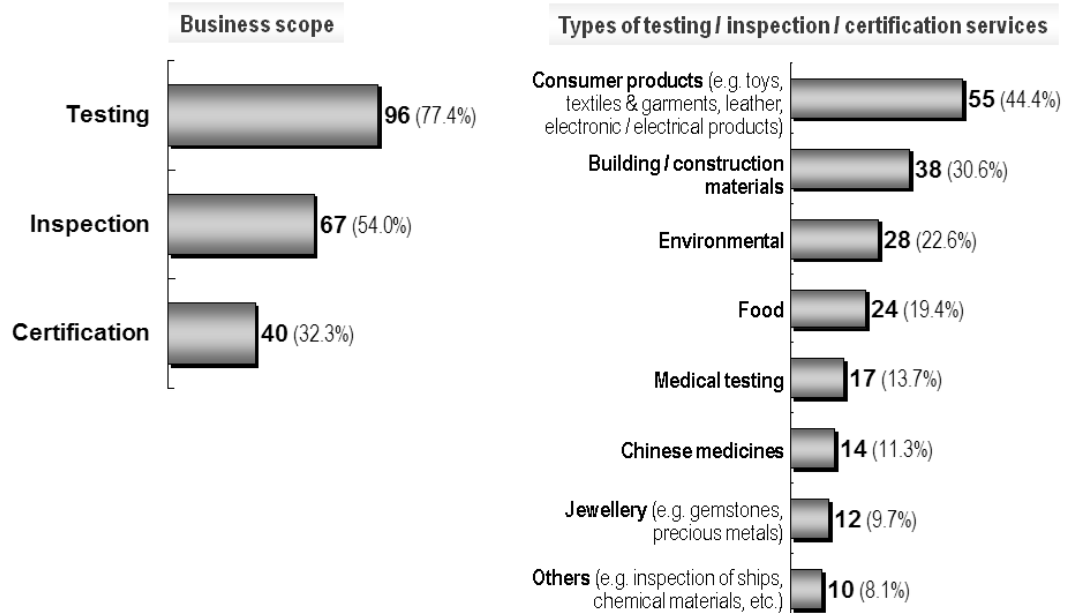
## Years of Establishment & Business Receipts



5

Base: All enumerated companies (n = 124) [Ref.: Q34, Q36]

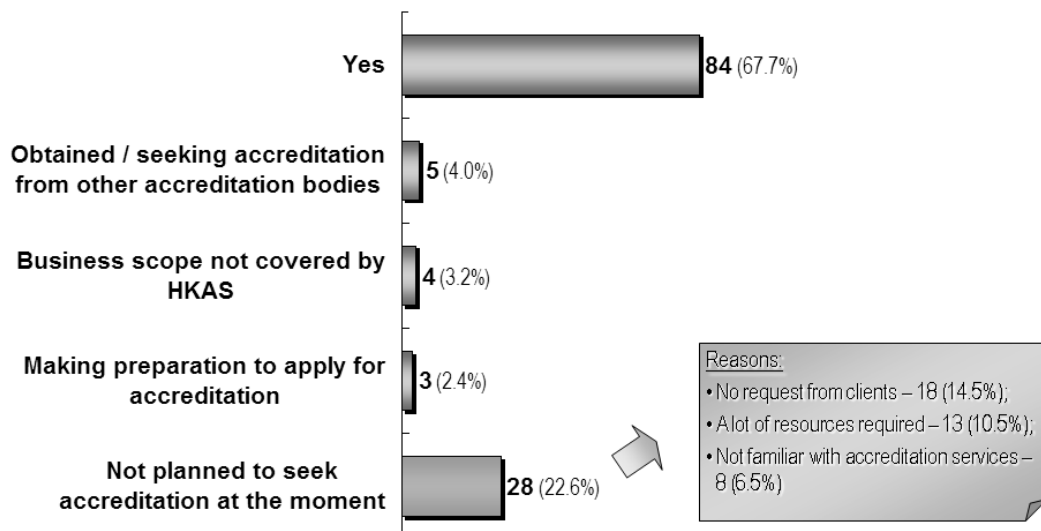
## Business Scope & Types of Services



Base: All enumerated companies (n = 124) [Ref.: Q1a & b]

6

## Whether Accredited by Hong Kong Accreditation Service (HKAS)



Base: All enumerated companies (n = 124) [Ref.: Q3]

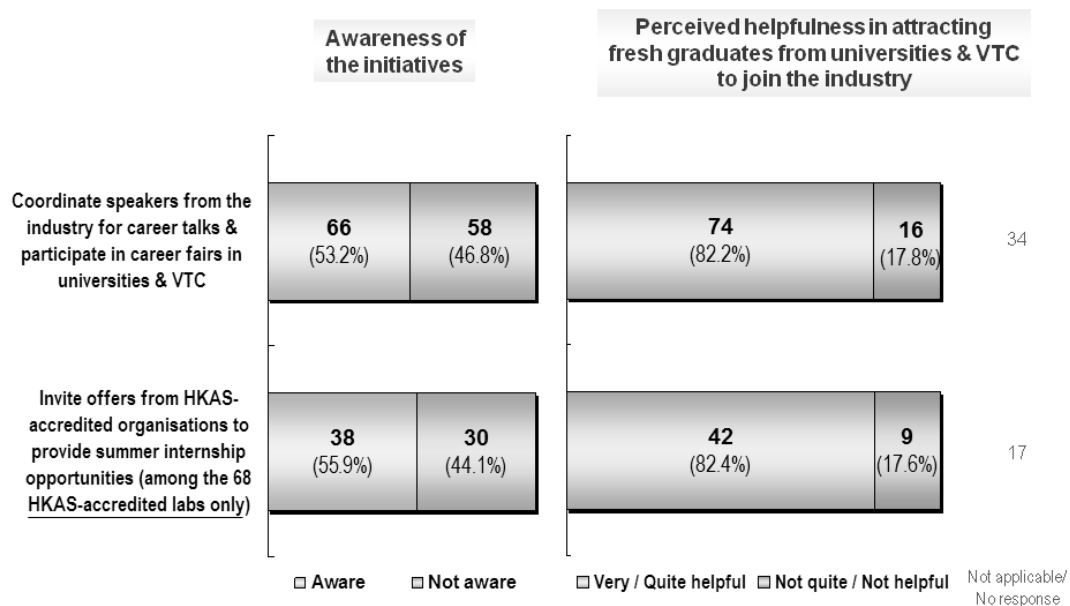
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## Major Findings

### Enhancing Factors of Production



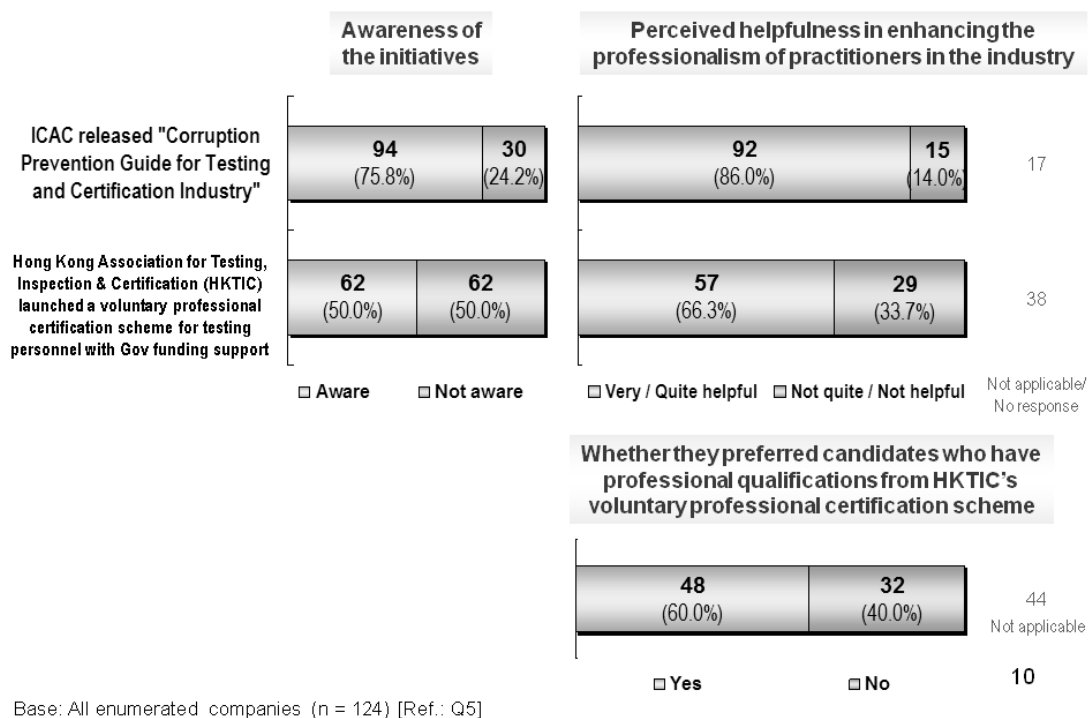
## Attracting Fresh Graduates to Join the Industry



9

Base: All enumerated companies (n = 124) [Ref.: Q4]

## Enhancing Practitioners' Professionalism



## Other Comments / Recommendations on Manpower

### ❖ Other areas of training need:

- Latest information on development of the industry
- Laboratory management
- Mainland regulations and standards
- Metals (e.g. steel, aluminium)
- Jewellery
- Food safety

### ❖ Other opinions / views:

- More (free) training courses
- Attract talents from the Mainland / overseas
- More career talks
- Assist in setting up of trade associations for specific trades
- Implement a qualifications framework / licensing system for practitioners

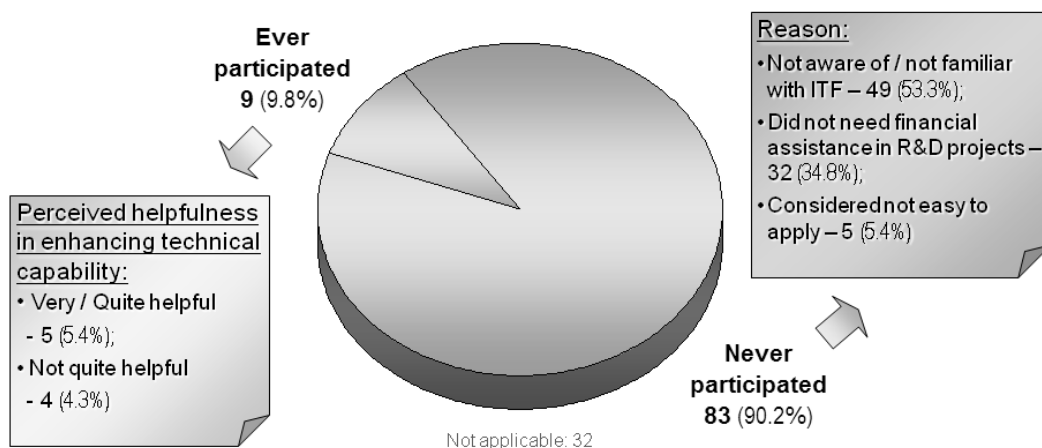


## Major Findings

### Enhancing Factors of Production

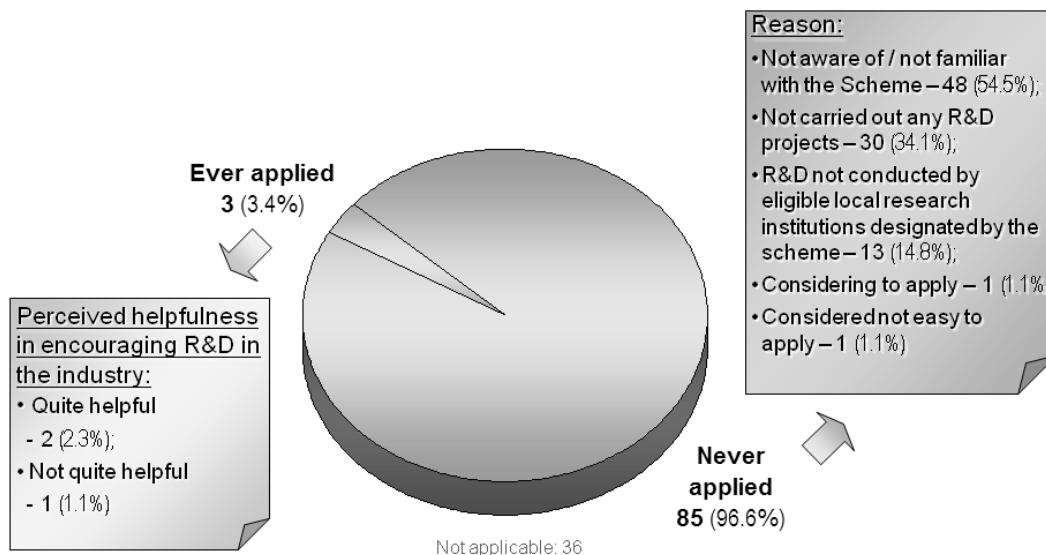


## R&D Projects Funded by Innovation and Technology Fund (ITF)



Base: All enumerated companies (n = 124) [Ref.: Q8]

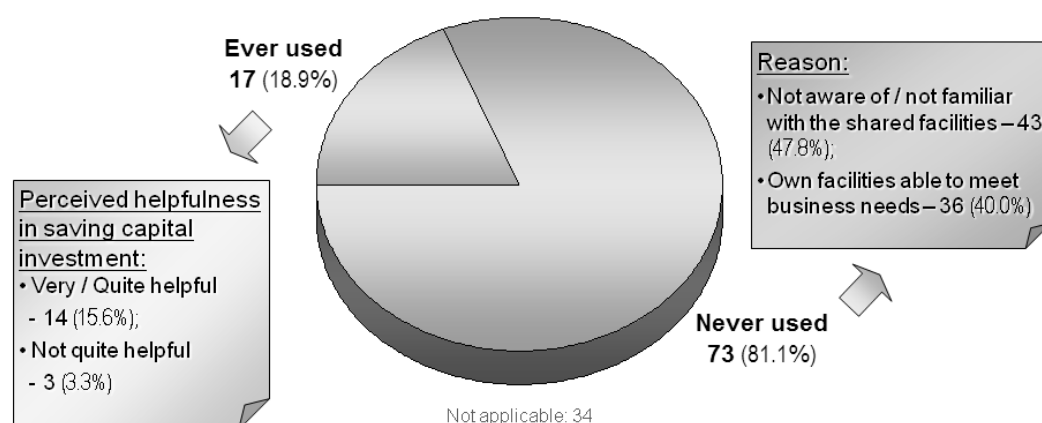
## R&D Cash Rebate Scheme



Base: All enumerated companies (n = 124) [Ref.: Q9]

14

## Shared Facilities of Hong Kong Productivity Council (HKPC) and Science Park



Base: All enumerated companies (n = 124) [Ref.: Q10]

15

## Enhancing Knowledge of Product Standards & Technical Regulations

|   | Awareness of<br>the services of PSIB |                                    | Perceived helpfulness in<br>enhancing knowledge of local and overseas<br>product standards & technical regulations |  |                                |
|---|--------------------------------------|------------------------------------|--|--|--------------------------------|
| Product standards library   | 48<br>(38.7%)                        | 76<br>(61.3%)                      | 46<br>(73.0%)  | 17<br>(27.0%)                                    | 61                             |
| Standards sales service   | 47<br>(37.9%)                        | 77<br>(62.1%)                      | 42<br>(67.7%)  | 20<br>(32.3%)                                    | 62                             |
| Website (www.psib.gov.hk)   | 45<br>(36.3%)                        | 79<br>(63.7%)                      | 49<br>(80.3%)  | 12<br>(19.7%)                                    | 63                             |
| Free technical enquiry /<br>advisory service                            | 28<br>(22.6%)                        | 96<br>(77.4%)                      | 45<br>(81.8%)  | 10<br>(18.2%)                                    | 69                             |
| Nomination of representatives<br>to join Technical<br>Committees of ISO | 38<br>(30.6%)                        | 86<br>(69.4%)                      | 38<br>(74.5%)  | 13<br>(25.5%)                                    | 73                             |
|   | <input type="checkbox"/> Aware       | <input type="checkbox"/> Not aware | <input type="checkbox"/> Very / Quite helpful  | <input type="checkbox"/> Not quite / Not helpful | Not applicable/<br>No response |
|   |                                      |                                    |  |  | 16                             |

Base: All enumerated companies (n = 124) [Ref.: Q11]

## Other Comments / Recommendations on Technology & Capital

### ❖ Technology:

- Organise more international conferences / seminars in Hong Kong
- Organise study visits
- Government Laboratory to share more technical knowledge with industry

### ❖ Capital:

- Low-interest / interest-free loans for purchase of equipment
- Loan guarantee from lending institutions
- Tax benefits
- Training subsidy for practitioners

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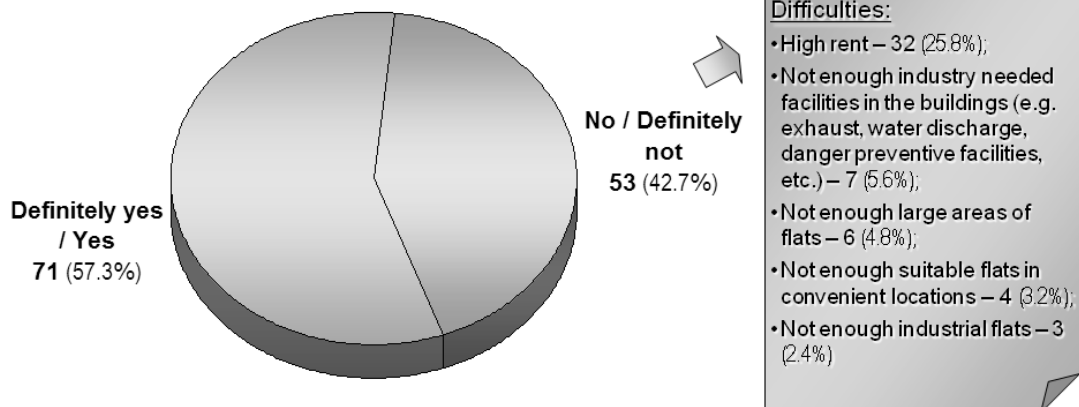
## Major Findings

### Enhancing Factors of Production



## Supply of Industrial & Commercial Premises

Whether considered the overall supply of industrial & commercial premises meets the requirement of the industry



Base: All enumerated companies (n = 124) [Ref.: Q13]

19

## **Other Comments / Recommendations for Enhancing Supply of Accommodation / Land**

### **❖ Accommodation:**

- Provide facilities for ventilation, sewage treatment, etc. in industrial premises where applicable
- Build more complexes / reconstruct buildings into complexes (to facilitate tenants to share ventilation/sewage treatment fees)
- Impose a rent ceiling in industrial areas
- Review existing policy of revitalising industrial buildings, with a view to preventing increase in rental in industrial areas

### **❖ Land:**

- Provide rent reduction incentives for lease of government sites
- Broaden land uses of Science Park

20

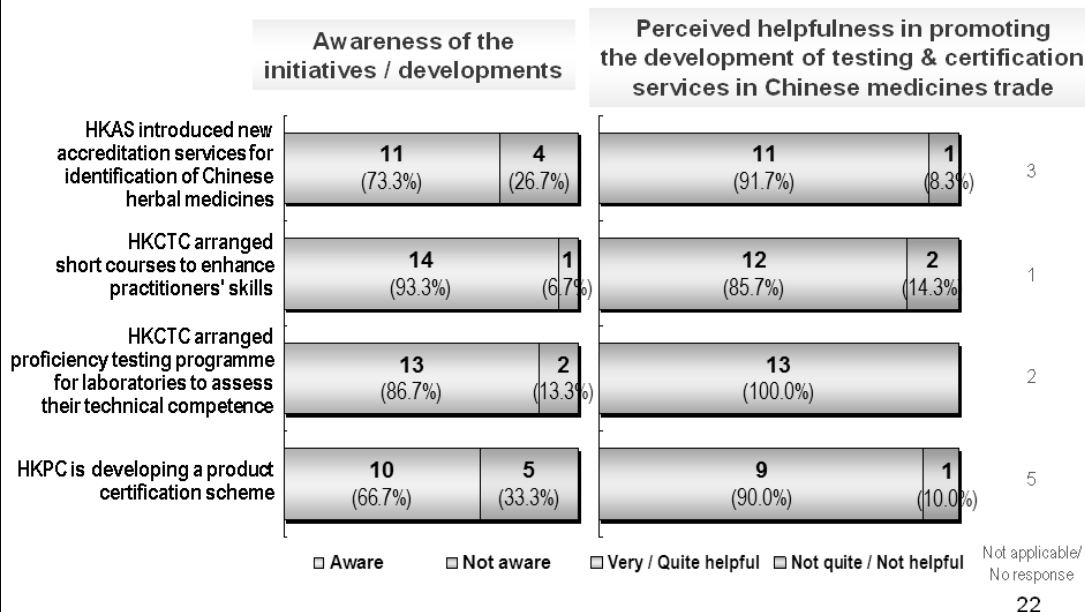
## **Major Findings**

### **Development Work for Selected Trades**

**Chinese Medicines**  
**Construction Materials**  
**Food**  
**Jewellery**

## Promoting the Development of Testing & Certification Services in Chinese Medicines Trade

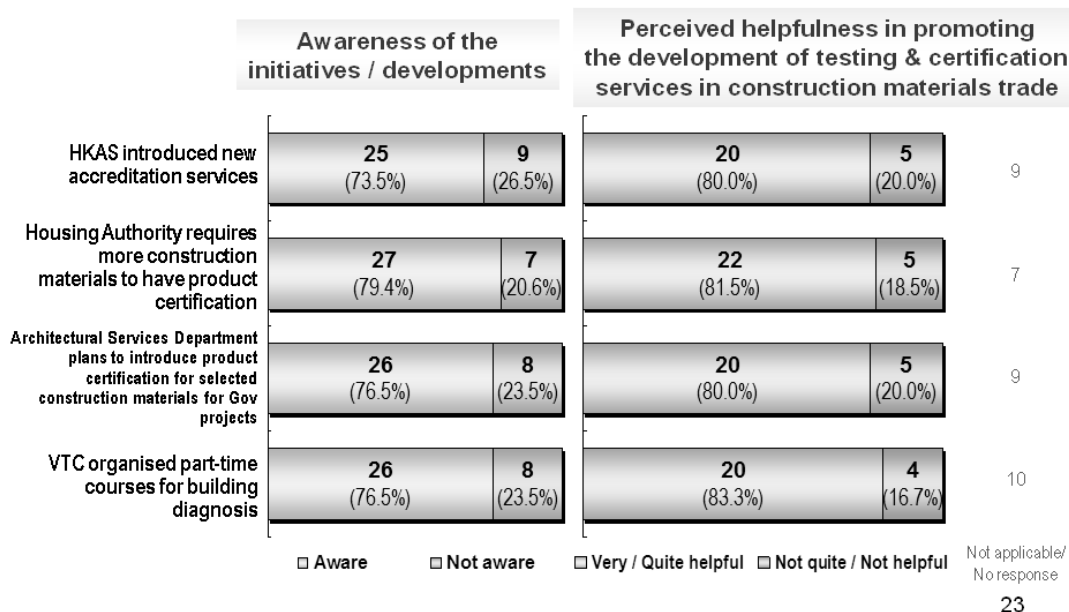
Only 15 enumerated companies provided testing & certification services on Chinese medicines.



Base: n = 15 [Ref.: Q16]

## Promoting the Development of Testing & Certification Services in Construction Materials Trade

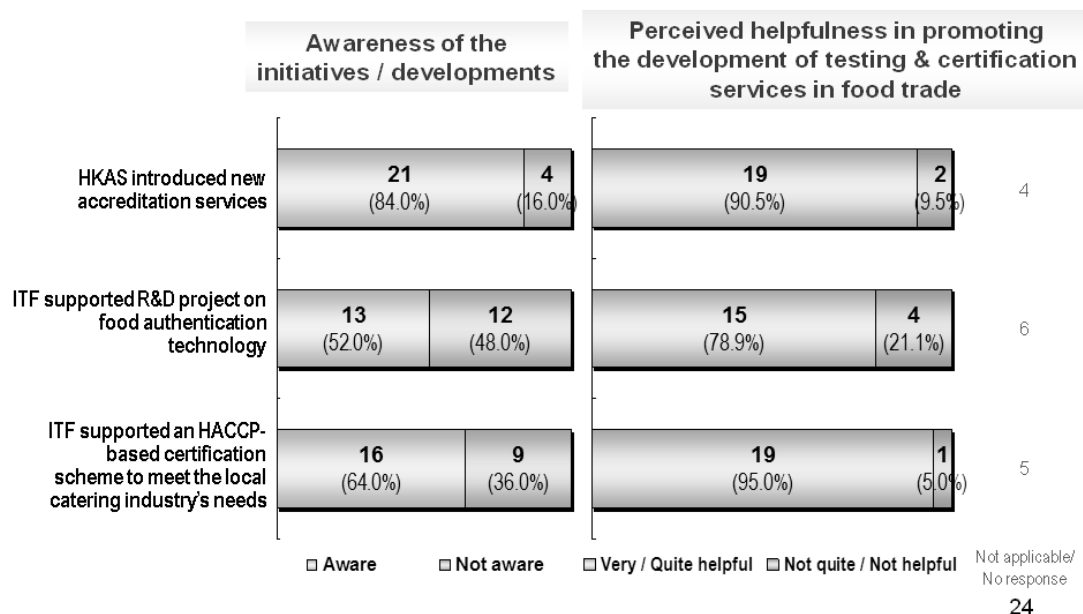
Only 34 enumerated companies provided testing & certification services on construction materials.



Base: n = 34 [Ref.: Q18]

## Promoting the Development of Testing & Certification Services in Food Trade

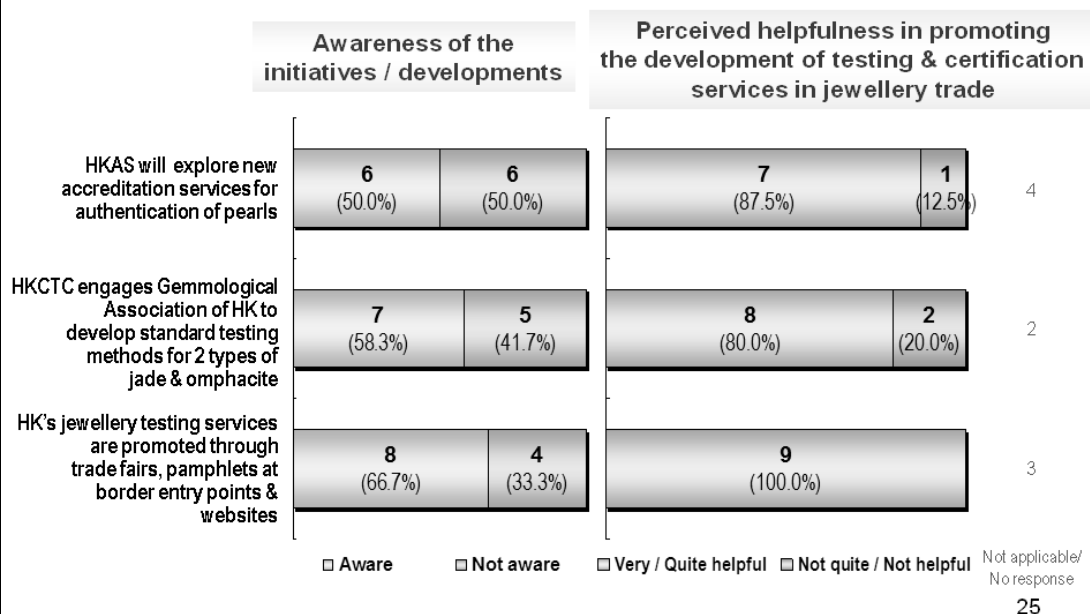
Only **25** enumerated companies provided testing & certification services on food.



Base: n = 25 [Ref.: Q22]

## Promoting the Development of Testing & Certification Services in Jewellery Trade

Only **12** enumerated companies provided testing & certification services on jewellery.



Base: n = 12 [Ref.: Q25]

## **Suggestions on Other Selected Trades**

- ❖ Apart from the 4 selected trades, and the 2 emerging industries that new panels were formed (i.e. environmental protection trade & ICT trade), other trades that require HKCTC's support to explore business opportunities:
  - Medical / drug testing
  - Cosmetics
  - Toys
  - Electronic products
  - Textiles / fabric products

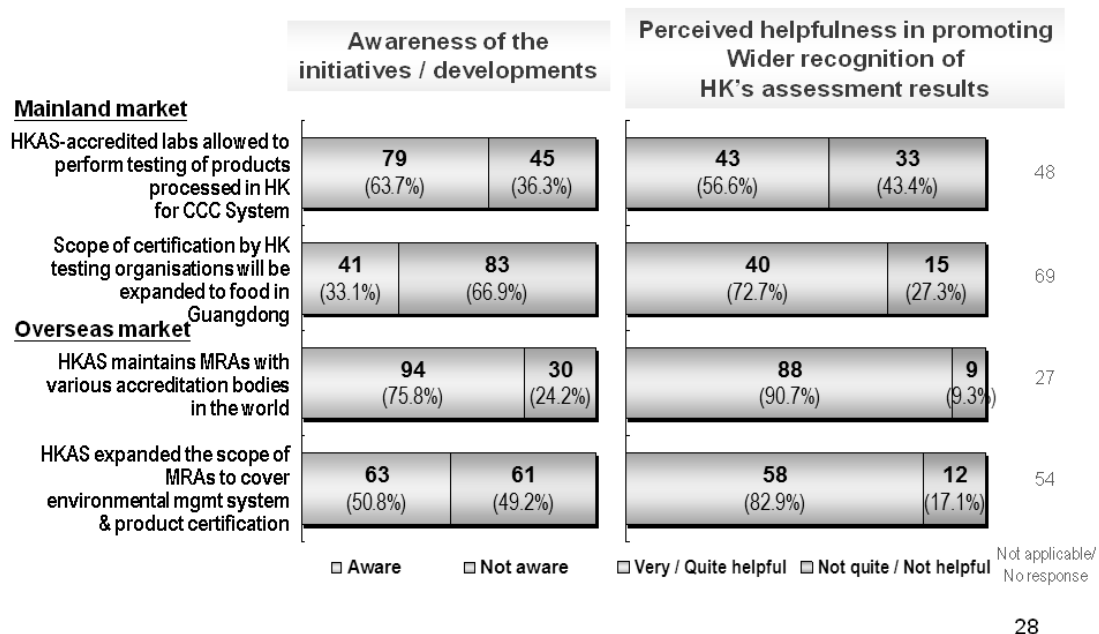
26

## **Major Findings**

### **Seeking Wider Recognition of HK's Assessment Results**



## Promoting Wider Recognition of HK's Assessment Results



Base: All enumerated companies (n = 124) [Ref.: Q28]

## Other Comments / Recommendations on Exploring Mainland & Overseas Markets

### ❖ Mainland:

- Organise visits to the Mainland to facilitate discussion between industry representatives and Mainland government officials
- Invite Mainland government Officials to visit HK to facilitate mutual exchanges
- HK Government to discuss with Mainland authorities –
  - allowing HK organisations to undertake testing of products not confined to those processed in HK under China Compulsory Certification (CCC) System
  - opening up the Mainland market for testing construction materials, with a view to enabling HK organisations to undertake testing under Mainland's construction projects

### ❖ Overseas:

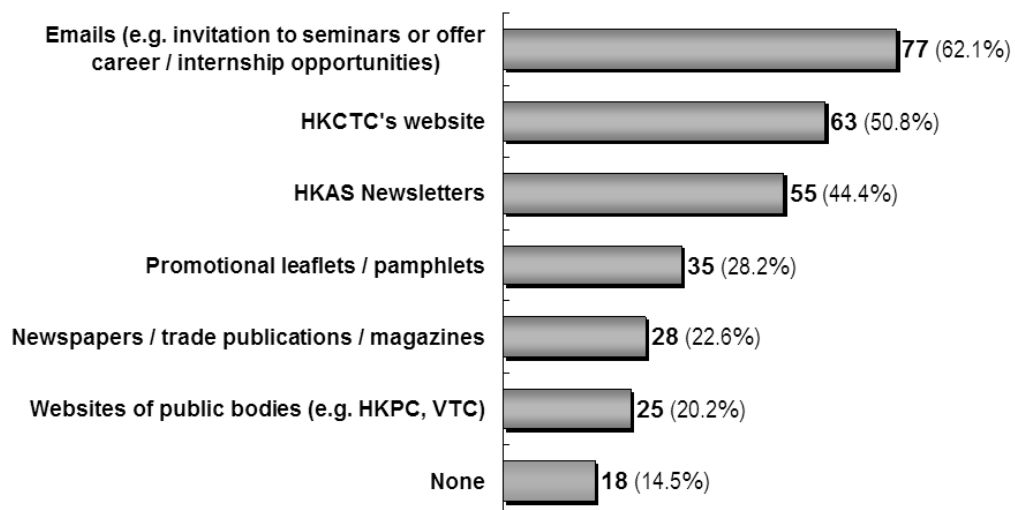
- To invite overseas government officials to visit HK to facilitate mutual exchanges
- To promote HK testing and certification services in Asian region
- To establish a platform for sharing latest information

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## **Major Findings**

### **Promotion**

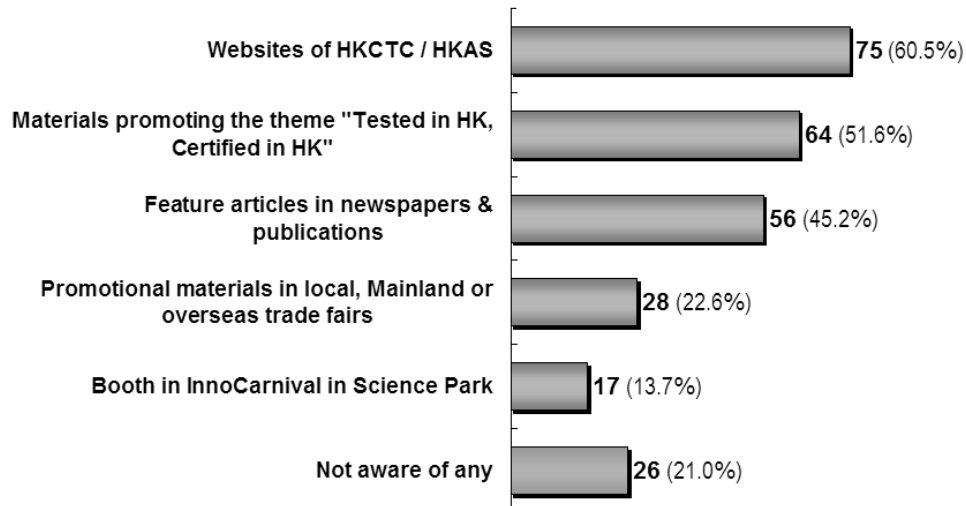
### **Channels of Knowing About HKCTC**



31

Base: All enumerated companies (n = 124) [Ref.: Q2]

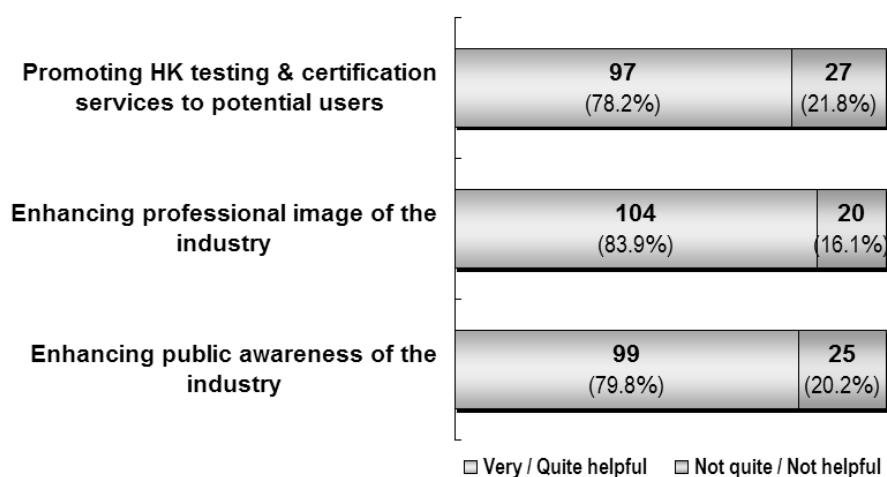
## Awareness of Promotional Activities



32

Base: All enumerated companies (n = 124) [Ref.: Q30]

## Perceived Helpfulness of Promotional Activities



33

Base: All enumerated companies (n = 124) [Ref.: Q31]

## **Other Comments / Recommendations on Promotional Activities**

### **❖ Local:**

- Produce TV advertisements
- Engage in online social networking

### **❖ Overseas:**

- Arrange advertorials in overseas newspapers / magazines / other publications
- Invite HK professionals to give a talk promoting HK's testing and certification services at overseas trade fairs / seminars
- Participate in more international conferences

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## **Major Findings**

## **Other Comments / Recommendations**

## **Suggestions / Recommendations on HKCTC's Work in the Future Development of the Industry**

### **❖ Internal:**

- Organise more talks / seminars / training and join more trade fairs
- Government to have individual / focused group discussions with local testing and certification organisations
- Provide tax reduction incentives and low-interest loans
- Government to outsource more testing services to private organisations
- Explore more business opportunities in testing of electronic products, vehicles, etc.

### **❖ External:**

- Discuss tax reduction / exemption with the Mainland
- Further promote HK professionalism in the Mainland and overseas
- Explore according equal recognition to Hong Kong accreditation as China Metrology Accreditation (CMA)
- Allocate more resources for research on toxic materials in food, drugs, leather, etc.

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**New Accreditation Services Introduced by  
the Hong Kong Accreditation Service since April 2010**

**Testing**

- (a) Identification of Chinese Materia Medica by microscopic examination, chemical and physicochemical methods
- (b) Testing of products for the China Compulsory Certification (CCC) system
- (c) Forensic testing
- (d) New types of pharmaceutical product testing
- (e) Radioactivity measurement for food and qualitative screening of consumer products for radioactivity
- (f) New types of food chemical testing including –
  - (i) determination of nutrient composition for nutrition labeling
  - (ii) determination of phthalate content
  - (iii) determination of aflatoxin content
  - (iv) determination of formaldehyde and primary aromatic amines in plastic food wares
- (g) Authentication of food by species identification using DNA sequencing analysis
- (h) Testing for the US Energy Star product certification program
- (i) Building diagnostic testing on concrete

**Certification**

- (a) Food safety management system to the ISO 22000 standard
- (b) Occupational health and safety management system to the OHSAS 18001 standard
- (c) Information security management system to the ISO 27001 standard
- (d) Product certification for new types of construction and building products
- (e) Energy management system to the ISO 50001 standard
- (f) Verification and validation for greenhouse gas assertions using the ISO 14064 standard

**Annex 7**

**Potential Manpower Supply for  
the Testing and Certification Industry from Local Universities  
(as at November 2012)**

| <b>Discipline</b>            | <b>Number of Graduates from Programmes per year</b>                      |                                    |  |
|------------------------------|--|------------------------------------|--|
|                              | <b>Undergraduate,<br/>Higher Diploma/<br/>Certificate<br/>Programmes</b> | <b>Postgraduate<br/>Programmes</b> | <b>Total Number<br/>of Graduates in<br/>the Discipline</b> |
| a. Science                   | 997  | 436                                | 1,433  |
| b. Applied Science           | 1,499  | 954                                | 2,453  |
| c. Engineering               | 3,531  | 2,218                              | 5,749  |
| d. Fashion and<br>Textile    | 900  | 136                                | 1,036  |
| <i>Subtotal (a to d)</i>     | <i>6,927</i>   | <i>3,744</i>                       | <i>10,671</i>  |
| e. Information<br>Technology | 1,577  | 1,264                              | 2,841  |
| <b><i>Total (a to e)</i></b> | <b><i>8,504</i></b>  | <b><i>5,008</i></b>                | <b><i>13,512</i></b>                                       |

**Remarks:**

Less relevant programmes (e.g. Mathematics, Risk Management and Surveying) are excluded.

**Higher Diploma Programmes Launched by  
the Vocational Training Council in September 2012**

1. Environmental Science
2. Food and Nutritional Science
3. Analytical Science
4. Biotechnology
5. Chemical Technology
6. Environmental Protection and Management
7. Food Business Operations and Management
8. Pharmaceutical Science
9. Biomedical Science
10. Product Testing



**Terms of Reference of Panels on Promoting  
Testing and Certification Services in Six Specific Trades**

1. To act as a platform to promote cooperation and development of testing and certification industry in the specific trade;
2. To research into the possibility of introducing new testing or certification schemes and to develop the new schemes with input from local stakeholders/overseas experts where appropriate;
3. To promote and monitor trial run of new testing and certification schemes;
4. To liaise with Hong Kong Accreditation Service to make available necessary accreditation services for new testing and certification schemes; and
5. To promote testing or certification schemes both within and outside Hong Kong.

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Institute Company Limited

Representative of Hong Kong Cyberport Management Company Limited

Representative of Hong Kong Productivity Council

Representative of Vocational Training Council

**ABBREVIATIONS**

|         |  |
|---------|--|
| APLAC   | Asia Pacific Laboratory Accreditation Cooperation                  |
| CCC     | China Compulsory Certification                                     |
| CEDB    | Commerce and Economic Development Bureau                           |
| CEPA    | Closer Economic Partnership Arrangement                            |
| ETO     | Economic and Trade Office  |
| FDA     | Food and Drug Administration                                       |
| FY      | Financial Year   |
| GAHK    | Gemmological Association of Hong Kong                              |
| GHG     | Greenhouse gas   |
| Gov Lab | Government Laboratory  |
| HACCP   | Hazard Analysis and Critical Control Points                        |
| HKAS    | Hong Kong Accreditation Service                                    |
| HKCMMS  | Hong Kong Chinese Materia Medica Standards                         |
| HKCTC   | Hong Kong Council for Testing and Certification                    |
| HKPC    | Hong Kong Productivity Council                                     |
| HKSTP   | Hong Kong Science and Technology Parks Corporation                 |
| HKTDC   | Hong Kong Trade Development Council                                |
| HKTIC   | Hong Kong Association for Testing, Inspection and<br>Certification |
| IAF     | International Accreditation Forum                                  |
| ICAC    | Independent Commission Against Corruption                          |
| ICT     | Information and communications technologies                        |
| ILAC    | International Laboratory Accreditation Cooperation                 |
| ISO     | International Organisation for Standardisation                     |
| ITC     | Innovation and Technology Commission                               |
| ITF     | Innovation and Technology Fund                                     |
| MRA     | Mutual recognition arrangement                                     |
| OGCIO   | Office of the Government Chief Information Officer                 |
| PAC     | Pacific Accreditation Cooperation                                  |
| PSIB    | Product Standards Information Bureau                               |
| R&D     | Research and development   |
| RFID    | Radio frequency identification                                     |
| SERAP   | Small Entrepreneur Research Assistance Programme                   |



|     |                             |
|-----|-----------------------------|
| SME | Small and medium enterprise |
| US  | United States               |
| VTC | Vocational Training Council |

