Report of

The Hong Kong Council For

Testing and Certification

Tested In Hong Kong
Certified In Hong Kong

Report of the Hong Kong Council for Testing and Certification

---

Tested in Hong Kong
Certified in Hong Kong

HONG KONG COUNCIL FOR TESTING AND CERTIFICATION

The Honourable Donald Tsang, GBM
The Chief Executive
Hong Kong Special Administrative Region
People's Republic of China

31 March 2010

Dear Sir,

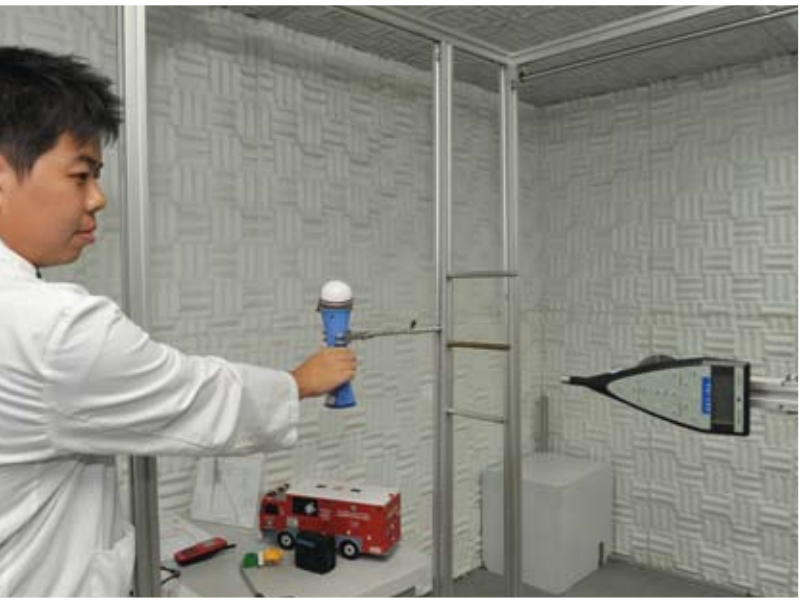
In appointing this Council in September last year, you tasked it to formulate a three-year market-oriented development plan for the testing and certification industry within six months of its establishment. On behalf of Council Members, I have the pleasure to submit this Report to you.

In the process of formulating the three-year development plan, many Government departments, organisations and individuals have provided us with valuable input. Their contribution has been most useful and the Council would like to express its deepest gratitude to them.

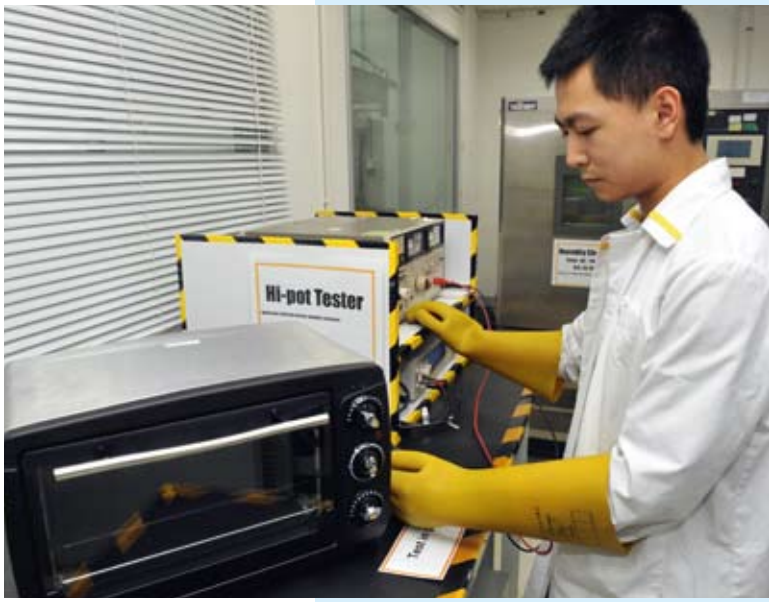
(Prof. CHING Pak-chung)
Chairman
Hong Kong Council for Testing and Certification

Appearance assessment of textile products after washing and drying

Examination of cervical cells



Measuring the sound level of a toy



Electric strength test for an electric oven to ensure consumer safety

Testing of Chinese herbs

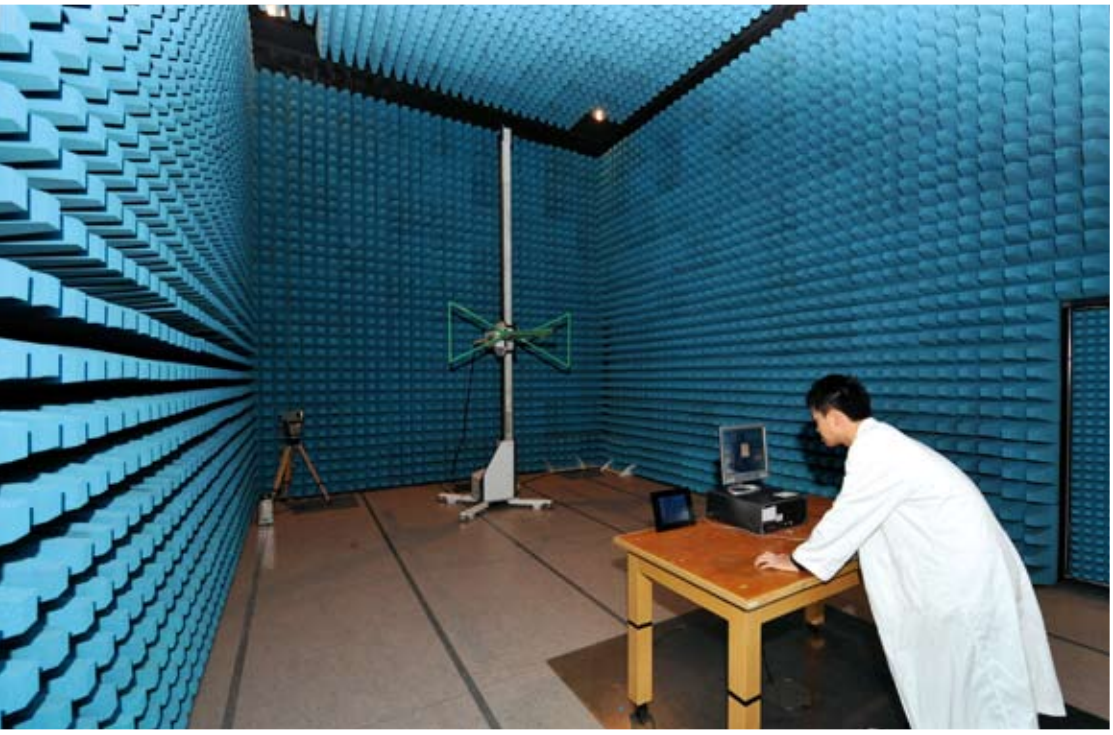
Testing of bacteria counts in food samples

Samples of various raw herbs

Preparation of food samples for analysis

Tensile strength test on carbon steel reinforcing bar

Petrographic examination to evaluate concrete quality



Measuring electromagnetic wave from an electronic photo frame

Inspecting laser inscription on a diamond

Internal defect inspection of 'I' beam connection joint

Analysis of Fei Cui (Jadeite Jade) bangle using Visible Light Spectroscope

CONTENTS

ANNEXES

REPORT OF THE HONG KONG COUNCIL FOR TESTING AND CERTIFICATION

Executive Summary

I. BACKGROUND

1. In October 2008, the Chief Executive established the Task Force on Economic Challenges (TFEC) to monitor and assess the impact of the financial tsunami on local and global markets. TFEC has identified testing and certification as one of the six economic areas where Hong Kong enjoys clear advantages and has good potential for further development.

2. In September 2009, Government established the Hong Kong Council for Testing and Certification (HKCTC) to spearhead the development of the testing and certification industry. The Council's priority task was to work with the industry to formulate a three-year market-oriented development plan within six months of its establishment.

3. In formulating the industry development plan, HKCTC has collected input and views from relevant stakeholders.

4. HKCTC has examined various aspects of the testing and certification industry, including the industry's role and current situation, Government's role and support to the industry, Hong Kong's strengths and challenges for the industry, and the major factors of production. This Executive Summary sums up the findings and sets out recommendations and the proposed way forward.

II. THE EXISTING SITUATION

Role of the Industry

5. Generally, the industry provides three types of services: testing, inspection and certification. In addition to its direct contribution, the industry also supports the manufacturing, export and other service industries, and is thus an integral part of the overall supply chain.

6. Locally, the industry plays an important role in the daily life of the Hong Kong community, e.g. medical testing laboratories provide essential support to the medical sector in the diagnosis of illnesses.

7. For our external trade, the industry has been providing high volume of testing and inspection services for consumer products manufactured in Hong Kong and the Pearl River Delta (PRD) Region. The industry also provides certification service for management systems.

Industry Profile

8. According to the findings of a recent survey by the Census and Statistics Department, there were about 690 establishments engaging in testing, inspection and certification activities in 2009. The total number of persons engaged in these establishments was 15 690 and the number of job vacancies was about 320 (2%).

9. The survey revealed that the vast majority of private independent establishments are small and medium enterprises (SMEs) engaging less than 50 persons. However the majority of employment and business receipts were accounted for by some 20 establishments engaging 100 persons or above.

10. Regarding the testing sector, demand for testing services is generated both locally (40%) and externally(60%).

11. With regard to **local** demand, about half of the business receipts for testing is from medical testing. On **external** demand, testing activities are mostly related to textiles, clothing and footwear; toys and games; and electrical products.

12. Regarding the inspection sector, demand for services can also be generated locally and externally. Local inspection demand can pertain to both statutory and non-statutory inspections. External demand is mainly related to the inspection of goods.

13. On local demand, HKCTC considers that there should be room to explore whether some of the inspections carried out by Government can be transferred to the private sector. Nevertheless, HKCTC also notes that any such transfer would require

careful deliberation by the relevant Government departments.

14. On external demand, the need for goods inspection arises from international trade. With the relocation of the manufacturing industry from Hong Kong to the PRD Region, the general trend is that many goods inspection activities for export to overseas markets have been shifting to the Mainland and are increasingly conducted by Mainland employees even if the inspections are still managed by Hong Kong based inspection bodies.

15. Regarding the certification sector, activities in Hong Kong can be broadly divided into system certification and product certification.

16. On system certification, ISO 9001 is most popular. While the number of ISO 9001 certificates granted has been stable in recent years, there is increasing demand for new types of system certification.

17. The development of product certification in Hong Kong is at an early stage. Since product certification can help enhance the quality of the products concerned and create new business opportunities for the testing and certification industry, HKCTC considers that this should be an area to be further promoted.

18. Overall, the testing and certification industry can be affected by the macro economic climate.

Government's Role and Support

Impact of Government Actions on Demand

19. HKCTC notes that the main purpose of the introduction of regulatory requirements is not to create business for the testing and certification industry, but to achieve other policy objectives, such as to ensure public safety as in the case of the registration of proprietary Chinese medicine. The testing and certification industry is however most ready to render services to concerned trades to facilitate their compliance with regulatory requirements.

20. Government bureaux and departments have been consulted and some of their initiatives may provide new business opportunities to the testing and certification industry.

Support Provided by Government

21. Government is currently providing support to the testing and certification industry in the four aspects set out below.

(a) Accreditation

22. Accreditation is the third-party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks. In Hong Kong, accreditation is open and voluntary. It is provided by the Hong Kong Accreditation Service (HKAS) of the Innovation and Technology Commission.

(b) Information on Standards

23. Products and services similar in nature but produced to different requirements will confuse the market, delay their acceptance and increase costs. International, regional and national standardisation bodies are set up to publish standards to unify requirements.

24. Harmonisation of standards among economies allows products and services complying with a single standard to be sold in different economies and therefore facilitates cross-border trade. Hong Kong generally adopts international standards and other well accepted standards as far as they are suitable.

25. Awareness of standards and their benefits allows product and service designers and manufacturers to streamline the development and manufacturing process by integrating requirements of standards right from the start. The Product Standards Information Bureau (PSIB) of ITC promotes awareness of standards through various channels, e.g. its public standards library, standards sales services, website, etc,

(c) Measurement Traceability

26. Traceability means that the result of a measurement, no matter where it is made, can be related to a national or international measurement standard. In addition, the measuring instrument must be calibrated with a measurement standard that is itself traceable. The concept of traceability is important because it makes possible the comparison of the accuracy of measurements worldwide according to a standardised procedure. Metrology is the study of measurement and there are two major fields: physical metrology and chemical metrology.

27. On physical metrology, the Standards and Calibration Laboratory of ITC is tasked with maintaining the reference standards of physical measurement traceable to the International System of Units (SI) for Hong Kong, promoting the international acceptance of these standards, and providing traceable calibration services to serve the local economy.

28. On chemical metrology, the Government Laboratory (Gov Lab) is the only organisation that develops chemical metrology in Hong Kong. It provides chemical metrology support by organising proficiency testing programmes and developing

standard testing methods.

(d) Other Support

29. There are also other forms of Government support that may help the testing and certification industry. Some examples include the SME Development Fund, the Commercial Information Circulars, the Innovation and Technology Fund (ITF), and the sharing of equipment and facilities from both the Hong Kong Productivity Council (HKPC) and the Hong Kong Science and Technology Parks Corporation (Science Park).

III. ASSESSMENT

Strengths and Challenges

30. In order to formulate the approach and identify measures to support the development of the testing and certification industry in Hong Kong, HKCTC has assessed the strengths enjoyed by Hong Kong and the challenges that we are facing.

31. HKCTC considers that the main strengths enjoyed by Hong Kong include:

(a) From the macro angle

(i) proximity of Hong Kong to the Mainland;
(ii) high integrity and good intellectual property protection;
(iii) good logistics support and communication system;
(iv) sound legal system, low tax rate and simple tax system, good law and order, and good languages skills help to attract foreign conformity assessment bodies to set up branches in Hong Kong; and
(v) well established education and training system;

(b) From the angle of the accreditation system

(i) HKAS runs a robust accreditation system;
(ii) HKAS is independent and free from conflict of interest;
(iii) accreditation of HKAS is widely recognised internationally; and
(iv) HKAS can respond quickly to new market demands; and

(c) From the angle of the local testing and certification industry

(i) good corporate governance and efficient operations;
(ii) high technical competence as well as flexibility to customers; and
(iii) high professional integrity.

32. Hong Kong faces the following challenges:

(a) Competition from the Mainland

(i) lower pricing in the Mainland;
(ii) Mainland testing laboratories are closer to factories; and
(iii) some users trust the performance of large international assessment conformity bodies regardless of where the activities are performed. There is no need to "stick" to Hong Kong;

(b) Competition to attract top talent

(i) less attractive working environment; and

(ii) attraction and retention of top talent is more challenging in view of the comparatively small size of the industry; and

(c) Constraints imposed by the relatively small size of Hong Kong

(i) limited pool of assessors; and
(ii) variety of services provided not comprehensive enough.

Factors of Production

33. HKCTC has looked into the main factors of production in the industry and made recommendations as appropriate.

Manpower

34. In view of the vacancy figure in 2009 and the large number of graduates trained locally in the related courses of the universities and the Vocational Training Council (VTC), HKCTC considers that the manpower supply for professionals and associate professionals should be sufficient. The main challenge of the industry is how to compete with other industries for talent. There is also a need to tackle short term demand surges.

35. HKCTC considers that there is a need to enhance training for students and practitioners and action should be taken to increase the number of assessors.

Technology

36. The testing and certification industry has a high technology requirement. Hong Kong has the technological competence to perform most commonly demanded tests by clients. International testing laboratories in Hong Kong also have the advantage of being able to rely on their global network for technology transfer support. HKCTC's assessment is that the industry does not face major difficulties in the technology aspect. On the other hand, Government's facilitation for R&D in new technology, especially for SMEs, will help to elevate standards and enhance the overall development of the industry.

Capital

37. For testing laboratories, the set-up costs may vary greatly depending on the tests concerned. As for inspection and certification bodies, their set-up cost is similar to other commercial companies as they do not need laboratories. Generally, the industry does not have much difficulty in financing capital investment. For the testing sector, SMEs are coping with the set-up costs through various means, such as specialisation and outsourcing.

Land

38. Testing laboratories can be and are usually accommodated in industrial buildings, except for medical testing laboratories which are usually located in commercial buildings. For inspection and certification bodies, their accommodation needs are generally similar to those of a general office.

39. Given the large amount of building stock in industrial and commercial premises in Hong Kong, the land supply should generally be able to cope with the industry's demand. For those testing laboratories that have special accommodation needs and require purpose-built premises, the Industrial Estates offer a possible solution.

40. In October 2009, Government announced new initiatives to revitalise industrial buildings which would facilitate the conversion/redevelopment of industrial buildings for other uses. HKCTC will closely keep in view developments.

41. HKCTC discussed whether the land in Lok Ma Chau Loop (LMC Loop) would assist the development of the industry. The Council notes that public engagement on the initial development scheme for LMC Loop will be conducted in 2010. HKCTC will revisit the issue again and reflect the industry's views to Government for consideration.

IV. RECOMMENDATIONS

Vision and Strategy

42. The vision of HKCTC 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".

43. To realise the vision, HKCTC aims to assist the testing and certification industry to:

(a) enhance its technical capability;

(b) enhance the professionalism and quality of its labour force; and

(c) enhance public awareness of the industry locally and outside Hong Kong.

44. To support the development of the testing and certification industry in Hong Kong, it is necessary to improve the accreditation service and enhance the various factors of production to build up Hong Kong's capability and capacity.

45. HKCTC recognises that different trades have varied characteristics and the nature of their current and potential needs for testing and certification services differs. HKCTC has looked into specific measures for selected trades where the use of testing and certification services may have greater potential.

46. Taking into account the above, HKCTC **recommends** the adoption of a dual approach in promoting the development of the testing and certification industry – making general improvements to the accreditation service and factors of production whilst putting focused effort to specific trades.

Role of HKCTC

47. In promoting the development of the testing and certification industry, HKCTC considers that it has the following roles:

(a) acting as a focal point of contact among all stakeholders, including the testing and certification industry, the related industries, providers of supporting services (e.g. HKPC, the Hong Kong Trade Development Council (HKTDC), universities, VTC) etc.;

(b) assisting the industry to explore new business opportunities;

(c) co-ordinating effort by the industry to dovetail with Government policy objectives, e.g. enhancing public safety in a particular area;

(d) promoting acceptance of Hong Kong's testing/inspection reports and certificates by overseas/Mainland governments; and

(e) enhancing manpower development and professionalism in the industry.

48. Apart from the above, HKCTC will work with HKAS to explore opportunities for cooperation to ensure that our accreditation system meets the needs of developing Hong Kong into a regional hub for testing and certification.

49. A summary of recommendations to enhance the competitiveness of the testing and certification industry is as follows:

Recommendation on the General Front

Enhancement of the Accreditation System

(a) the current mode of Government providing accreditation service should be retained;

(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;

Enhancement of the Factors of Production

Manpower

(c) ITC to assist the industry to attract talent by:

(i) to cooperate with universities, 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) to help 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 Council 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 ITF to enhance technical capability by:

(i) promoting the ITF to the industry; and

(ii) considering making provisions in the ITF mechanism to promote the R&D of testing methodologies in future;

(j) ITC to assist the industry to link 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 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 and overseas universities should be invited to participate;

(l) 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 ISO'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 Small Entrepreneur Research Assistance Programme (SERAP) to SMEs in the industry;

(o) HKPC and Science Park to step up promotion of their facilities available for shared use;

Land

(p) Science Park to facilitate the setting up of testing laboratories with special accommodation needs in IEs 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 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 medicine, construction materials, food and jewellery, HKCTC will adopt a systematic approach to

assist the testing and certification industry to seize 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 to 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 further research into the regulatory regimes in US, EU, 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) Commerce and Economic Development Bureau to continue pursuing discussions with the Mainland authorities through 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 services 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) HKTDC to be encouraged 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 PRD 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 in the Mainland and overseas to assist in the promotion of Hong Kong's testing and certification industry through their regular liaison work.

V. WAY FORWARD

Implementation of Recommendations

50. Subject to the acceptance of the Report by the Chief Executive, the Council will proceed to its next phase of work – implementation of the various recommendations.

51. At the initial stage, effort will focus on the enhancement of the accreditation system and factors of production since these form the fundamental framework of the testing and certification industry. Thereafter we will proceed to work on the selected trades.

52. For the selected trades, a review will be undertaken after around 12 months to see if satisfactory progress has been made and whether change in strategy is required. The Council will also constantly review the overall situation to see if "new" trades should be added or "old" ones should be "graduated" or taken off the list. We will also continue to keep in view the latest development of the two emerging trades to identify further action to be taken.

53. In implementing the proposals of the Report, the Council will maintain regular dialogues with stakeholders so that their views and suggestions can be taken into account.

Resources

54. A dedicated team has been set up in ITC since September 2009 to serve as HKCTC's Secretariat. It will continue to support HKCTC on the implementation of the three-year industry development plan.

55. Government has allocated HK$41 million in the coming two years to support further development of the testing and certification industry. Moreover, funding will be provided through the ITF channel where appropriate.

Long-Term Status of HKCTC

56. HKCTC considers that its long-term status will depend on its future role, functions and mode of operation. With experience gained in implementing the various recommendations in this Report, it can consider what would be the best way for taking forward the work of the Council in the interest of the industry as well as the community. To deliberate on this important matter, a working group will be formed in due course to examine all related issues comprehensively.

Part I

Background

CHAPTER 1

ESTABLISHMENT OF THE COUNCIL

1.1 In October 2008, the Chief Executive established the Task Force on Economic Challenges (TFEC) to monitor and assess the impact of the financial tsunami on local and global markets. **TFEC has identified six economic areas where Hong Kong enjoys clear advantages and has good potential for further development. The testing and certification industry is one of them.**

1.2 In selecting the testing and certification industry for further development, TFEC noted that Hong Kong has the following advantages:

(a) a robust accreditation system is already in place to meet the needs of enterprises;

(b) the local testing and certification sector has a high local and international reputation and its services are accepted globally; and

(c) Hong Kong is well positioned to act as an independent third party to provide quality certification and product testing services for Mainland enterprises.

1.3 Moreover, as Hong Kong is an international trade, finance and business centre situated strategically at the door of the huge and rapidly growing Mainland market, TFEC considered that Hong Kong has the potential to develop into a major testing and certification centre in the region.

1.4 TFEC also proposed a number of measures to help the development of the six industries. On testing and certification, it recommended Government to implement five measures (*Annex 1*), including the establishment of a Hong Kong Council for Testing and Certification (HKCTC).

1.5 **In September 2009, Government established HKCTC. The Council's priority task was to work with the industry to formulate a three-year market-oriented development plan within six months of its establishment.** The initial terms of reference of HKCTC are at *Annex 2*. **HKCTC is chaired by Professor Ching Pak-chung, Pro-Vice-Chancellor of the Chinese University of Hong Kong. Other members include practitioners from the testing and certification industry, business sector, professional bodies as well as relevant public bodies and Government departments.** The membership list is at *Annex 3*. Secretariat support for HKCTC is provided by the Innovation and Technology Commission (ITC).

Work of the Council

Adoption of a Three Phase Approach

1.6 HKCTC has had eight meetings since its establishment to formulate the industry development plan. It conducted the task in three phases:

(a) Phase 1 – from September to early December 2009

HKCTC carried out background studies to gain a comprehensive understanding of the testing and certification industry (covering the current mode of operation of the industry, analysis on various factors of production, etc.) Information collected has enabled HKCTC to analyse the strengths and challenges of the industry and devise support measures accordingly;

(b) Phase 2 – from late December 2009 to January 2010

HKCTC explored various possible measures to enhance the capacity and quality of the local testing and certification sector so as to further strengthen its competitiveness. Issues such as enhancing the support to the industry by the Hong Kong Accreditation Service (HKAS), strengthening manpower training and upgrading professional standards, as well as promoting testing and certification services have been looked into; and

(c) Phase 3 – from February to March 2010

HKCTC further refined its recommendations and prepared this Report.

Discussions with Relevant Organisations

1.7 **Noting that many Government bureaux/departments and public organisations could be potential partners in the development of the industry in Hong Kong, HKCTC has invited them to conduct briefings and to exchange views with members on potential support and cooperation.** These organisations include:

(a) the Hong Kong Trade Development Council (HKTDC) on promotion for the industry;

(b) the Hong Kong Science and Technology Parks Corporation (Science Park) on technology support, laboratory facilities and Industrial Estates (IEs);

(c) the Vocational Training Council (VTC) on training programmes for the industry;

(d) the Hong Kong Productivity Council (HKPC) on possible technical support and sharing of testing facilities;

(e) the Development Bureau on revitalisation of industrial buildings and provision of land for the testing and certification industry;

(f) the Consumer Council on consumer protection;

(g) the Food and Environmental Hygiene Department on nutrition labelling and food testing;

(h) the Government Laboratory (Gov Lab) on development of chemical metrology in support of the industry;

(i) the Trade and Industry Department on opportunities for the industry through the Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA); and

(j) the Department of Health on Chinese medicine.

Setting up of Working Groups Under the Council

1.8 In order to provide a platform for in-depth discussion on specific issues and involvement of relevant stakeholders who are knowledgeable in a specific field, HKCTC set up two working groups, namely the Working Group on the Landscape of the Testing and Certification Industry and the Working Group on Selection of Trades for Focusing. Membership lists of the two Working Groups are at Annexes 4 and 5 respectively. The two Working Groups held eight meetings in total.

Working Group on the Landscape of the Testing and Certification Industry

1.9 The Working Group on the Landscape of the Testing and Certification Industry conducted background studies into the current mode of operation of the industry, including analysis on the various factors of production such as manpower, technology, capital and land. As Mainland and overseas experiences provide useful references in the further development of the industry in Hong Kong, the Working Group also conducted initial research into the Mainland and overseas practices in accreditation.

1.10 **In order to get a better understanding of the current status of the industry, the Census and Statistics Department (C&SD) assisted HKCTC to conduct a sectoral survey.** Information collected from establishments in the industry include major services provided, number of persons engaged, number of vacancies, business receipts, operating expenses, etc.

Working Group on Selection of Trades for Focusing

1.11 **Based on its research, HKCTC recognises that different trades in the testing industry have different characteristics and the nature of their current and potential needs also varies greatly. Hence, in formulating the three-year development plan, apart from measures that would promote the testing and certification industry in general, HKCTC has also looked into specific trades where the use of testing and certification services might offer greater business potential.** In this connection, HKCTC formed the Working Group on Selection of Trades for Focusing to identify trades to which HKCTC should give priority.

1.12 Four working teams, each consisting of two members of HKCTC, have been formed under the Working Group to assist HKCTC in formulating recommendations to provide further support in the development of testing and certification services for four selected areas, namely Chinese medicine, construction materials, food and jewellery. Composition of the four working teams is set out at Annex 6. The Working Group has also looked at two emerging trade areas – environmental protection and information and communications technologies (ICT).

Consultation with Stakeholders

1.13 **In formulating the three-year market-oriented development plan for the industry, HKCTC has collected input and views from a wide range of stakeholders.** It has sought written input and views from the following parties:

(a) Government bureaux and departments;

(b) major chambers of commerce and relevant trade associations;

(c) accredited establishments in the testing and certification industry; and

(d) other parties such as Research and Development (R&D) Centres under ITC, universities, professional bodies, etc.

Apart from the above, members of the public have also been invited to provide views through the website of HKCTC (www.hkctc.gov.hk). In all and all, HKCTC received some 90 written responses.

1.14 **To facilitate face-to-face exchange of views, HKCTC organised a consultation forum with relevant stakeholders on 27 November 2009.** Over 150 participants from about 90 organisations attended. Participants included:

(a) practitioners in the testing and certification industry;

(b) practitioners in trades (e.g. jewellery, ICT, Chinese medicine, etc.) that were

interested in the services provided by the testing and certification industry;

(c) representatives from various trade associations;

(d) representatives from various professional associations (e.g. Hong Kong Institution of Certified Auditors, Hong Kong Society for Quality, etc.); and

(e) members of the public.

1.15 To listen to the aspiration and concerns of small and medium enterprises (SMEs) in the testing and certification industry, HKCTC held a sharing session with their representatives on 13 January 2010.

1.16 To allow for more exchange of views with the testing and certification industry and other relevant stakeholders, HKCTC and its Secretariat also visited establishments of various sizes in the industry and met with different associations and practitioners.

- TFEC has identified testing and certification as one of the six economic areas where Hong Kong enjoys clear advantages and has good potential for further development.
- Government established HKCTC in September 2009 to spearhead the development of the testing and certification industry. The Council's priority task was to work with the industry to formulate a three-year market-oriented development plan within six months of its establishment.
- In formulating the development plan, HKCTC has collected input and views from a wide range of stakeholders.

Part II

The Existing Situation

CHAPTER 2

ROLE OF THE INDUSTRY

Role and Contribution

2.1 **In 2008, the direct contribution of private independent establishments in the testing and certification industry to Hong Kong's Gross Domestic Product (GDP) was about HK$4 - 5 billion. In addition to its direct contribution, the industry also supported the manufacturing, export and other service industries, and was thus an integral part of the overall supply chain.**

2.2 **Locally, the testing and certification industry plays an important role in the daily life of the Hong Kong community.** For example, medical testing laboratories provide essential support to the medical sector in the diagnosis of illnesses. With heightened public awareness and concern over safety and nutritional content of food, private laboratories have been playing an increasing role in supporting the food industry for quality assurance and Government in testing of food. The construction laboratories and inspection bodies also contribute to ensuring the safety of buildings.

2.3 **In support of our external trade, the local testing and certification industry has been providing high volume of testing and inspection services for consumer products manufactured in Hong Kong and the Pearl River Delta (PRD) Region.** This pertains in particular to toys, electrical and electronic goods, textiles, garments and footwear. **The industry also provides certification service for management systems.** Through providing assurance to overseas buyers on the quality and safety of products/services, the industry has played an important part in the economic development of Hong Kong as well as the PRD Region.

2.4 **From a wider perspective, the testing and certification industry has also contributed to the development of Hong Kong as a business services centre.** Coupled with other advantages including a sound legal system, a business-friendly environment and world class infrastructure, the availability of credible testing and certification services has enhanced attraction for multinational companies to set up buying offices and even regional headquarters in Hong Kong.

2.5 **Looking at fundamentals, over the years the various competitive advantages of Hong Kong have combined to create the "Hong Kong brand". This "Hong Kong brand" is a symbol of quality assurance, professional integrity and high efficiency. Given the rapid economic growth of the Mainland, the "Hong Kong brand" in the wider sense and the "Tested in Hong Kong, Certified in Hong Kong" in the narrower sense have huge potential for development and are areas we need to continuously cultivate.**

2.6 **From the macro angle, Hong Kong as an open and mature economy, has to continuously explore new areas of economic growth in order to stay ahead of our competitors. Given that Hong Kong has already achieved a per capita GDP of around US$30,000, we have little choice but to compete on the quality front and to further climb up the value chain. The high technological content of our testing and certification industry also means that it can create synergy with innovation and technology, another area in which TFEC has recommended to be further developed. From the employment angle, apart from highly educated professionals from the science and engineering disciplines, the industry also provides employment opportunities for people with a wide range of educational background.**

Services Provided

2.7 In general, the testing and certification industry provides three types of services:

(a) Testing

Testing is the determination of one or more characteristics of an object according to a procedure. Examples include:

(i) testing of a food product to determine its heavy metal content; and

(ii) testing of blood to determine its red blood cell count;

(b) Inspection

Inspection is the examination of a product design, product, process or installation and determination of its conformity to specific or general requirements on the basis of professional judgement. Examples include:

(i) inspection of a batch of products at the factory before shipment to determine whether they can comply with the buyer's specifications; and

(ii) inspection of a structural weld at a construction site to determine whether it can meet the required standards; and

(c) Certification

Certification is a third-party attestation related to products, processes, systems and persons. Examples include:

(i) certification that the quality management system implemented by an

organisation conforms to the standards set out in ISO 9001; and

(ii) certification that particular products manufactured in a factory conform to relevant international standards.

2.8 The three types of services can be summarised as follows:

	Coverage	Resulting Product	Duration
Testing	- an object	Laboratory report (see sample at *Annex 7*)	Generally short term (applies only to the test carried out)
Inspection	- a given batch of products - a process - a place, etc.	Inspection report (see sample at *Annex 8*)	Generally short term (e.g. for a batch of products)
Certification	- a type of product produced within a period of time - a process, etc.	Certificate (see sample at *Annex 9*)	Generally longer term (e.g. one-year)

- The industry plays an important role in the daily life of the Hong Kong community as well as supports our external trade.
- In 2008, the direct contribution of private independent establishments in the testing and certification industry to Hong Kong's GDP was about HK$4 - 5 billion.
- In addition to its direct contribution to the economy, the industry also supports the manufacturing, export and other service industries, and is an integral part of the overall supply chain.
- In general, the industry provides three types of services: testing, inspection and certification.

CHAPTER 3

INDUSTRY PROFILE

3.1 This Chapter will:

(a) report on the key findings of the "2009 Survey of Testing and Certification Activities" conducted by C&SD; and

(b) analyse the current situation in the testing and certification industry.

The C&SD Survey

3.2 C&SD conducted an ad hoc survey from December 2009 to January 2010 to collect statistical data on the manpower and operating characteristics of the testing, inspection and certification activities in Hong Kong. Data on manpower characteristics were collected with reference to two time points – as of 31 December 2008 and as of 30 November 2009. More comprehensive data on operating characteristics were collected for 2008. As the survey was conducted before the end of the accounting period for 2009, the figures pertaining to business receipts for that year were only the best estimates provided by the respondents at the time of the survey.

3.3 In future, general data on the testing and certification industry will be collected through C&SD's existing annual survey to facilitate monitoring of the development in the industry. Specific statistics on a particular aspect of the industry, if required, can also be collected through ad hoc surveys in future.

Key Findings

3.4 The key findings of the 2009 ad hoc survey are set out below:

(a) Number of Establishments

About 690 establishments engaged in testing, inspection and certification activities in 2009. The coverage and breakdown are as follows:

Category	Number
Private independent establishments engaging in testing, inspection and certification activities as their major economic activity	570
Manufacturers and exporters engaging 100 persons or more and with in-house laboratories for testing activities, mainly as supportive services to their major economic activities	70
Government departments/public organisations (including laboratories in the hospitals of Hospital Authority, laboratories accredited by HKAS in local universities, etc.) engaging in testing activities	50

(b) Persons Engaged

(i) **The total number of persons engaged** in the three categories of establishments mentioned above **were 15 690 in 2009**, a slight decrease of about 3% compared to 16 170 in 2008. The total job vacancies of these establishments in 2009 were about 320 (2%);

(ii) Of the 15 690 persons engaged in 2009, **about 9 090 (58%) were professionals and associate professionals** whose main duties were to carry out testing, inspection and certification services;

(iii) Of the 9 090 professionals and associate professionals, 4 540 (50%) have attained university degrees or above and 3 010 (33%) have attained higher diploma or diploma/certificate education level; and

(iv) The breakdown of the 570 private independent establishments and persons engaged in these establishments by size of establishment is set out below:

Size of Establishment in Terms of Persons Engaged	Number of Establishments	Persons Engaged	
		Year 2008	Year 2009
Less than 50	530 (94%)	3 020 (24%)	3 250 (27%)
50 – 99	20 (3%)	1 250 (10%)	1 320 (11%)
100 or above	20 (3%)	8 440 (66%)	7 550 (62%)
Total	570 (100%)	12 710 (100%)	12 120 (100%)

(c) Business Receipts

For the 570 independent establishments engaged in testing, inspection and certification activities as their major economic activity, their **total business receipts were about $7.8 billion in 2008 and $8 billion in 2009.** After deducting the value of goods and services used in production, the direct contribution to GDP is about HK$4 - 5 billion. The breakdown of total business receipts by size of establishment is set out below:

Size of Establishment in Terms of Persons Engaged	Number of Establishments	Business Receipts (HK$ million)	
		Year 2008#	Year 2009*
Less than 50	530 (94%)	1,667 (21%)	Around 1,700 (21%)
50 – 99	20 (3%)	651 (8%)	Around 700 (9%)
100 or above	20 (3%)	5,517 (70%)	Around 5,600 (70%)
Total	570 (100%)	7,836 (100%)	Around 8,000 (100%)

\# Figures do not add up to total owing to rounding.

* Since the survey was conducted before the end of accounting period for 2009, the figures were based on best estimates provided by the surveyed establishments.

3.5 **The vast majority of the private independent establishments engaged in testing, inspection and certification activities are SMEs engaging less than 50 persons (around 94% or 530 establishments).** In both 2008 and 2009, they accounted for less than 30% of the total persons engaged and around 20% of the total business receipts. **The majority of employment and business receipts were accounted for by some 20 establishments engaging 100 persons or above. They together accounted for over 60% of the persons engaged and some 70% of business receipts.**

Analysis

3.6 In the ensuing paragraphs we will analyse the private independent establishments from the following aspects:

(A) the testing sector;

(B) the inspection sector;

(C) the certification sector; and

(D) the impact of the macro economic climate.

(A) Testing Sector

3.7 **In 2008, some 87% of business receipts from provision of testing services were related to four major types of testing, namely:**

(i) testing of textiles, clothing and footwear (28%);

(ii) testing of toys and games (25%);

(iii) medical testing (20%); and

(iv) testing of electrical products (14%).

3.8 **Demand for testing services can be generated both locally (40%) and externally (60%).**

3.9 With regard to local demand, about half of the business receipts from testing activities are for medical testing. With the aging of our population and increased awareness of the benefits of regular medical check-up, the demand for medical testing is expected to increase. Government regulatory actions will also generate new demand, e.g. the introduction of statutory registration requirement of proprietary Chinese medicine has brought new business opportunities for testing of Chinese medicine.

3.10 On external demand, **testing activities were mostly related to testing of products for export. The development of Hong Kong into a major trading hub with a lot of buying offices serving international markets has contributed to the growth of the testing sector in Hong Kong.** There is an increasing demand for testing to determine the content of chemicals in products with the tightening of regulatory requirements in overseas markets (e.g. the Restriction of the Use of Certain Hazardous Substance Directive of the European Union (EU)).

(B) Inspection Sector

3.11 **Demand for inspection services can be generated both locally and externally**. Local inspection demand can pertain to both statutory and non-statutory inspections. External demand is mainly related to the inspection of goods.

3.12 On local demand, HKCTC notes that there are many safety-related statutory inspections in Hong Kong, such as the inspection of lifts and escalators (more examples are at *Annex 10*). Some of these inspections are carried out by Government and some by the private sector. **HKCTC considers that there should be room to**

explore whether some of the inspections carried out by Government can be transferred to the private sector. Nevertheless, HKCTC also notes that such transfer would require careful deliberation by the relevant Government departments taking into account all considerations such as quality of inspectors in the market, availability of appropriate inspection organisations, the relevant policy objectives; etc.

3.13 In addition to statutory inspection requirements, there are also voluntary inspection schemes, e.g. demand for inspection of indoor air quality mainly arising from Environmental Protection Department's voluntary "Indoor Air Quality Certification Scheme for Offices and Public Places".

3.14 On external demand, **the need for goods inspection arises from international trade.** It is a common practice that overseas buyers will arrange inspections of goods by independent inspection bodies before the goods are accepted for shipment. As it will be more convenient for goods inspections to be carried out at the factory, with the relocation of the manufacturing industry from Hong Kong to the PRD Region, **the general trend is that more goods inspection activities for export to overseas market have been shifting to the Mainland** and are increasingly conducted by Mainland employees even if the inspections are still managed by Hong Kong based inspection bodies.

(C) Certification Sector

3.15 Certification activities in Hong Kong can be broadly divided into two categories:

(i) system certification, (e.g. quality management system certification to ISO 9001); and

(ii) product certification, (e.g. certification of mobile phone to regulatory requirements).

3.16 The market practice is that clients would usually seek certification services from accredited certification bodies, in particular on certification of compliance with international standards. **It is therefore quite difficult for certification bodies to offer services without obtaining accreditation.** Hence, **the provision of accreditation for certification bodies by HKAS plays an important role in supporting the growth and development of local certification bodies,** particularly for small enterprises, as they cannot afford the high cost of seeking accreditation from overseas accreditation bodies.

System Certification

3.17 There are various international standards on good management practice. Organisations seek certification to prove that they comply with these international

standards for different reasons: some make use of the certification process to improve the management of their organisations and some use the certification as a selling point for marketing.

3.18 **ISO 9001 is an international standard that specifies generic requirements for a quality management system. It is the most popular system certification in Hong Kong. The number of ISO 9001 certificates granted** by certification bodies accredited by HKAS was about 3 300 in 2009 and the number **has been stable in recent years**.

3.19 In addition, **there is an increasing demand for new types of certification**. For example, the number of ISO 14001 certificates (on environmental management) issued in Hong Kong increased from 497 in January 2007 to 651 in January 2009. Other new developments in the field of system certification include social accountability system certification (according to ISO 26000 standard or other similar code of conduct) and certification services relating to carbon audit and greenhouse gas emissions.

Product Certification

3.20 **The development of product certification in Hong Kong is only at an early stage.** HKAS introduced accreditation for product certification in 2003 and is now working to expand the coverage of Hong Kong's Mutual Recognition Agreements (MRAs) with other accreditation bodies to include product certification.

3.21 **Product certification can enhance the quality of the products concerned and create new business opportunities.** It can bring benefits to manufacturers (better business opportunities), Government (less monitoring required) and end-users (more quality products). Product certification, if successfully implemented and adopted, will create new business demand in testing, inspection and certification activities and will also assist in the development of skills in formulating standards. **Given the advantages that can be brought about by successful product certification schemes, HKCTC considers that it should be an area that effort should be placed to promote further development.**

(D) Impact of the Macro Economic Climate

3.22 Like other industries, the testing and certification industry can be affected by the macro economic climate. For instance, **with the onset of the financial tsunami, the export of products from the Mainland and Hong Kong experienced decreases of 16% and 12% respectively in US Dollar terms in 2009. Such decreases can affect adversely the local testing and certification industry**.

3.23 **However, tightening of regulations in overseas markets can lead to more requirements for higher value added testing (such as more testing for lead content in toys). In the past year, this partly compensated for the adverse**

impact of the financial tsunami. While the number of persons engaged in the industry experienced a slight decrease in 2009, total business receipts remained stable.

C&SD Survey

- The vast majority of the private independent establishments engaged in testing, inspection and certification activities are SMEs engaging less than 50 persons. In both 2008 and 2009, they accounted for less than 30% of the total persons engaged and around 20% of the total business receipts. The majority of the employment and business receipts of the industry were accounted for by some 20 establishments engaging 100 persons or above. They together accounted for over 60% of the persons engaged and some 70% of business receipts.

Analysis

- Testing Sector - About 60% of the business receipts were related to testing of products for export. The development of Hong Kong into a major trading hub has contributed to the growth of the testing sector in Hong Kong.

- Inspection Sector -

  (a) Goods inspection activities for export to overseas market have been shifting to the Mainland.

(b) It will be desirable to explore whether some of the statutory inspections carried out by Government can be transferred to the private sector. However, this would require careful deliberation by the relevant Government departments taking into account all considerations such as quality of inspectors in the market, availability of appropriate inspection organisations, the relevant policy objectives; etc.

- Certification Sector -

  (a) System certification: ISO 9001 quality management system certification is the most popular system certification. There is also an increasing demand for new types of certification (e.g. ISO 14001 on environmental management).

  (b) Product certification: the development of product certification in Hong Kong is at an early stage. Product certification can enhance quality of the products concerned and create new business opportunities. HKCTC considers that this should be an area which can be promoted further.

- The testing and certification industry can be affected by the macro economic climate.

CHAPTER 4

GOVERNMENT'S ROLE AND SUPPORT

4.1 This Chapter will examine:

(a) the impact of Government actions on demand for testing and certification services; and

(b) support from Government to the testing and certification industry.

Impact of Government Actions on Demand

4.2 **Various Government actions, in particular new regulatory requirements, can generate new service demand for the testing and certification industry.** For example, the introduction of the registration for proprietary Chinese medicine creates demand for various types of testing (including testing for heavy metals and toxic elements, pesticide residues, microbial contaminations, etc.)

4.3 HKCTC notes that the main purpose of the introduction of regulatory requirements is not to create business for the testing and certification industry, but to achieve other policy objectives, such as to ensure public safety as in the case of registration of proprietary Chinese medicine. The testing and certification industry is however ready to render services to concerned trades to facilitate their compliance with regulatory requirements.

4.4 Apart from regulatory requirements, other Government actions may also bring business opportunities to the testing and certification industry. For example, Gov Lab has started to outsource some of the regular food surveillance testing work to the private sector since 2008.

4.5 HKCTC has consulted Government bureaux and departments on opportunities or new demand for testing and certification services that may arise from Government initiatives. **A summary of these new initiatives is at *Annex 11*.**

Support from Government

4.6 **Government is currently providing support to the testing and certification industry through various channels:**

(A) accreditation;

(B) information on standards;

(C) measurement traceability; and

(D) other support.

(A) Accreditation

What is Accreditation?

4.7 **Accreditation is the third-party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks.** Laboratories, inspection bodies and certification bodies are common types of conformity assessment bodies.

Accreditation in Hong Kong

4.8 **Accreditation is open and voluntary in Hong Kong. It is currently provided by HKAS under ITC in Hong Kong. HKAS operates three accreditation schemes:**

(i) the Hong Kong Laboratory Accreditation Scheme (HOKLAS);

(ii) the Hong Kong Certification Body Accreditation Scheme (HKCAS); and

(iii) the Hong Kong Inspection Body Accreditation Scheme (HKIAS).

The range of accreditation services provided under the above schemes is set out at ——— *Annex 12*.

4.9 **As at the end of 2009, there were 167 laboratories, 20 inspection bodies and 15 certification bodies accredited by HKAS.** Accredited laboratories, inspection bodies and certification bodies need to undergo rigorous on-site assessments before they are recognised to be competent in performing the conformity assessment activities listed in their respective scopes of accreditation. Users of conformity assessment services may identify and select the services provided by accredited bodies to support their business using the Directory of Accredited Bodies published on the HKAS website (www.itc.gov.hk/hkas).

4.10 In view of the high level of quality assurance of accredited bodies, there are statutory requirements that certain testing and certification have to be performed by ——— accredited bodies. A list of such requirements is at *Annex 13*.

Hong Kong Accreditation Service

4.11 The structure of HKAS is at *Annex 14*. It is headed by the HKAS Executive Administrator (a D1 Directorate Officer). HKAS has established a cadre of assessors and technical experts for carrying out assessments for each of the accreditation schemes. The principal aims and objectives of HKAS are:

(i) to offer official recognition to competent testing and calibration laboratories, inspection bodies and certification bodies which meet international standards;

(ii) to promote the acceptance of data, results, reports and certificates issued by accredited laboratories, inspection bodies and certification bodies;

(iii) to establish MRAs with overseas accreditation bodies;

(iv) to upgrade the standard of operation of laboratories, inspection bodies and certification bodies; and

(v) to eliminate the need for repetition of testing, calibration, inspection and certification in various economies, thereby reducing costs and facilitating free trade across borders.

(B) Information on Standards

What are Standards?

4.12 **Products and services similar in nature but produced to different requirements will confuse the market, delay their acceptance and increase costs. International, regional and national standardisation bodies are set up to publish standards to unify requirements.** Products and services confirmed to be in conformity with relevant standards through testing and certification give consumer confidence on their safety, compatibility and quality. Standards are good practices and by their own may not be regulatory requirements. They will become regulatory requirements only if adopted by the law of the concerned places.

International, Regional and National Standard Setting Bodies

4.13 **Many international organisations produce international standards and Hong Kong actively participates in some of them.** A well-known example is the International Organisation for Standardisation (ISO), which produces international standards on a wide range of technical fields and a number of service sectors, management systems and conformity assessment. **The Product Standards Information Bureau (PSIB) of ITC represents Hong Kong as a correspondent member of ISO and nominates interested parties to attend ISO Technical Committees.** As a result, professionals in Hong Kong can participate in the

standardisation work of ISO and keep themselves up-to-date on developments.

4.14 **Apart from international organisations, different economies have their own institutional set-up for setting standards.** For example, in the Mainland national standards are promulgated by the Standardisation Administration of the People's Republic of China. In the United States (US), the American National Standard Institute established under the Federal Government oversees the creation, promulgation and use of standards, norms and guidelines that directly impact on businesses. Within the EU, standards are made by recognised European standards bodies, which include the European Committee for Standardisation, the European Committee for Electrotechnical Standardisation and the European Telecommunications Standards Institute.

Situation in Hong Kong

4.15 **Harmonisation of standards among economies allows products and services complying with a single standard to be sold in different economies and therefore facilitates cross-border trade.** As Hong Kong is predominantly a trading economy, increasing the volume of trade through standardisation will benefit Hong Kong. Hence, **Hong Kong generally adopts international standards and other well accepted standards as far as they are suitable.**

Promotion of Awareness of Standards

4.16 Awareness of standards and their benefits allows product and service designers and manufacturers to streamline the development and manufacturing process by integrating requirements of standards right from the start. PSIB promotes awareness of standards through various channels, e.g. its public standards library, standards sales services, website (www.itc.gov.hk/psib), seminars and free technical enquiry service.

4.17 The product standards library maintains a comprehensive collection of documents and publications on international standards, including product safety requirements implemented in Hong Kong and our major trading partners. Standards catalogues, handbooks and related publications are also available. The public may also purchase copies of standards, guides, publications or handbooks issued by major standardisation bodies through PSIB.

4.18 PSIB offers free technical enquiry service, which may be obtained through the telephone or by written request. The service assists the public to understand the requirements of different standards and offers advice on standard related issues.

(C) Measurement Traceability

What is Measurement Traceability?

4.19 **To ensure the accuracy of measuring instruments, it is essential that they should be periodically calibrated against more accurate standards, which in turn should have their calibration traceable to even more accurate measurement standards at the national level and, eventually, the international level.**

4.20 Traceability means that the result of a measurement, no matter where it is made, can be related to a national or international measurement standard, and that this relationship is documented. In addition, the measuring instrument must be calibrated with a measurement standard that is itself traceable. The concept of traceability is important because it enables the comparison of the accuracy of measurements worldwide according to a standardised procedure.

4.21 **Metrology is the study of measurement and there are two major fields: physical metrology and chemical metrology**, which will be explained below.

Physical Metrology

4.22 **Physical metrology refers to the study of measurement of physical quantities,** such as weights and dimensions. Its objective is to make available methods that can ensure a measurement made or a standard reproduced is consistent and within a controlled measurement uncertainty. For example, a "metre" is now defined as the length of the path travelled by light in vacuum during a time interval of 1/299 792 458 of a second.

4.23 **The Standards and Calibration Laboratory (SCL) of ITC is tasked with maintaining the reference standards of physical measurement traceable to the International System of Units (SI) for Hong Kong, promoting the international acceptance of these standards, and providing traceable calibration services to serve the local economy.**

4.24 With the globalisation of trade, investment and manufacturing, there is a growing need for local businesses to demonstrate traceability and uniformity of measurement standards in their international business activities to ensure the quality and quantities of goods are readily acceptable in international trade. This will not only serve as a means to support fair trade, but also as an effective tool to eliminate possible technical trade barriers. SCL helps to meet this challenge by providing high accuracy calibration services that are traceable to the SI and readily recognisable internationally.

4.25 SCL's calibration services cover the following measurement fields:

(i) electronics/electricity (direct current, low frequency, radio frequency and high voltage);

(ii) time and frequency;

(iii) acoustics;

(iv) temperature;

(v) humidity;

(vi) mass and related (including volume, density and pressure); and

(vii) mechanical metrology (such as hardness, torque, dimension and force).

4.26 SCL is a signatory to the "Arrangement for Mutual Recognition of National Measurement Standards and of Calibration and Measurement Certificates issued by National Metrology Institutes". This global MRA is drawn up by the International Committee for Weights and Measures (CIPM). It covers over 190 participating metrology institutes in 74 economies, including all of Hong Kong's major trading partners, and two international organisations. SCL's calibration and measurement capabilities (CMC) are published on the websites of the International Bureau of Weights and Measures (BIPM), the execution arm of CIPM. As a result, **SCL's calibration certificates issued bearing the CIPM MRA logo are internationally recognised by all the participating national metrology institutes.**

4.27 Moreover, **SCL is accredited by HKAS under the Hong Kong Laboratory Accreditation Scheme.** The calibration certificates issued by SCL bearing HKAS logo are widely accepted by other economies through the MRAs to which HKAS is a signatory.

4.28 **Over the years, SCL has built up a wide variety of professional services that are of crucial value to the local industry. Over 1 700 items of SCL's services are qualified as CMCs under BIPM or accredited by HKAS, or both. These serve as reference standards for local laboratories in their provision of measurement services.**

4.29 **SCL also strives to upgrade its measurement capability and to provide additional services continuously to meet the ever changing needs of the local economy.** For instance, in the field of electronic/electricity measurement, SCL has offered in recent years new calibration services for 3-phase power and energy meters, harmonic sources and meters, radio frequency sources and meters, and generators for voltage dips, short interruptions and voltage variations. To cope with future industry needs, SCL has also conceived plans to expand service to new areas, such as vibration, ultrasound, photometry and magnetism.

Chemical Metrology

4.30 **Metrology in chemistry is the measurement science that strives towards international recognition and acceptance of reliable chemical and biochemical measurements traceable to globally agreed and recognised long term stable references or standards. This scientific infrastructure helps to provide a solid foundation that underpins health care, food and product safety, forensics and different facets of life.**

4.31 As at end 2009, of the 167 laboratories accredited by HKAS, about 70 laboratories are accredited for chemical tests under the test categories of Chinese medicine, food, toys, construction materials, environmental protection, textiles, and chemicals. Many organisations have sought accreditation for more than one category of chemical tests. This signifies the importance of chemical measurements in the local testing sector.

4.32 **Gov Lab is the only organisation that develops chemical metrology in Hong Kong.** Gov Lab started its chemical metrology programme in early 2000. It has been approved as a Designated Institute for Hong Kong under the CIPM MRA for metrology in chemistry since 2005. Therefore, similar to SCL, Gov Lab's CMCs are also published on the website of BIPM and are internationally recognised by all the participating national metrology institutes.

4.33 **Gov Lab serves the community in the area of chemical metrology and provides chemical metrology support in the following three areas:**

(i) <u>Proficiency Testing Programmes</u>

Proficiency testing involves the use of inter-laboratory comparisons, usually for the determination of laboratory performance for specific tests or measurements.

Gov Lab has been an accredited proficiency testing provider since 2006 and has organised proficiency testing programmes in a number of test categories to facilitate accreditation of testing laboratories. For example, in 2008, Gov Lab organised a proficiency testing programme for melamine in milk, which facilitated assessment of local laboratories by HKAS. Upon accreditation, speedy testing service was provided by accredited laboratories and their service has served the need for food trading and food safety;

(ii) Standard Methods

Standard methods are developed by well-recognised organisations and are generally accepted by the technical sector and can give defensibility, credibility, and confidence in decision-making. For instance, in supporting the local testing sector, Gov Lab has developed a standard method for the determination of aconitum alkaloids in raw herb materials and dietary supplements through multi-laboratory validation under the AOAC International Official Method Programme; and

(iii) Reference Materials

Reference materials are essential to chemical measurements. They are used to calibrate chemical measurement equipment, for quality assurance measures and for validation of test methods. The reference materials used for validation of method are preferably real substances containing the relevant analytes in their native form, e.g. lead in herbs.

Reference materials may be produced by commercial organisations or by national measurement institutes or designated institutes. Currently, with a few exceptions, nearly all reference materials used in Hong Kong are imported, from US, EU and the Mainland. Gov Lab has a plan to become an accredited reference material producer and it will concentrate initially on reference materials that are currently not available, e.g. reference materials for heavy metals and pesticide residues in herbs.

(D) Other Support

4.34 There are also other forms of Government support that may help the testing and certification industry. Some examples include:

(i) The SME Development Fund – The Fund provides financial support to non-profit-distributing organisations, trade and industrial organisations, professional bodies or research institutes to carry out projects which aim to enhance the competitiveness of Hong Kong's SMEs in general or SMEs in specific sectors. For example, the jewellery trade has made use of this Fund to develop a certification and label scheme for diamond and jadeite jade;

(ii) Commercial Information Circulars – Hong Kong's Economic and Trade Offices (ETOs) in the Mainland and overseas monitor developments in Hong Kong's major trading partners that would affect Hong Kong's trade and economic interests. They report important commercial information, including changes in regulatory requirements for products, to the Trade and Industry Department. The latter operates a free e-mail notification service, i.e. the "Commercial Information Circulars", to inform interested parties of

such information. Information on changes in regulatory requirements for products is useful to establishments in the testing and certification industry;

(iii) Innovation and Technology Fund (ITF) – ITF provides support for projects that contribute to innovation and technology upgrading in manufacturing and services industries. The Fund can assist the testing and certification industry in the R&D of new testing methodologies; and

(iv) Sharing of equipment and facilities - both HKPC and Science Park have laboratory facilities and equipment that are available for shared use by private testing laboratories.

Impact of Government Actions on Demand

- Various Government actions, in particular new regulatory requirements, can generate new service demand for the testing and certification industry.

Support from Government

- Government is currently providing support to the testing and certification industry in the following aspects:

  (a) accreditation;

  (b) information on standards;

  (c) measurement traceability; and

  (d) other support.

Part III

Assessment

CHAPTER 5

STRENGTHS AND CHALLENGES

5.1 In order to formulate the approach and identify measures to support the development of the testing and certification industry in Hong Kong, HKCTC has assessed:

- the strengths of Hong Kong; and
- the challenges that Hong Kong is facing.

Strengths of Hong Kong

5.2 **HKCTC has assessed the main strengths of Hong Kong from the following angles:**

(A) the macro angle;

(B) the accreditation system; and

(C) the local testing and certification industry.

(A) From the Macro Angle

(i) Proximity of Hong Kong to the Mainland

The PRD Region is one of the major manufacturing centres in the world. Providing support to the export of products manufactured in the PRD Region contributes the majority of the business of the local testing and certification industry;

(ii) High integrity and good intellectual property protection

The high level of integrity and credibility of the Hong Kong society as a whole give confidence to users of the local testing and certification industry. Hong Kong's good intellectual property protection also helps attract business, as companies will prefer to conduct tests of prototypes of new products in Hong Kong to avoid replicas of the new products;

(iii) Good logistics support and communication system

Hong Kong's good logistics support, port facilities and transportation together with the fact that it is a free port facilitate easy transport of samples to Hong Kong for testing. Its good telecommunications infrastructure also allows fast communication of testing results to overseas buyers of products. Hong Kong's language capability in English and Chinese, including Putonghua, allows the local testing and certification industry to communicate easily with manufacturers in the Mainland and overseas buyers;

(iv) Competitive edge in attracting foreign conformity assessment bodies to set up branches in Hong Kong

More foreign conformity assessment bodies are setting up branches in the region with the shifting of manufacturing activities from developed countries to the Mainland. Hong Kong's sound legal system, low tax rate and simple tax system, good law and order, and good language skills in general help attract foreign conformity assessment bodies to set up branches in Hong Kong; and

(v) Well established education and training system

A high proportion of professionals and associate professionals is required in the testing and certification industry. Hong Kong has a well established education and training system (universities, VTC etc.) to provide the necessary manpower to support the development of the industry;

(B) From the Angle of the Accreditation System

(i) Robust accreditation system

HKAS rigorously carries out assessment and implements applicable standards. Its assessments are carried out by highly capable assessors, among the best of its kind in the world. Because of the high standard maintained by HKAS, its accreditation is valued by users of testing and certification services all over the world;

(ii) Independent system and free from conflict of interest

HKAS is provided by Government and is therefore independent and free from any conflict of interest in delivering its services;

(iii) System being widely recognised internationally

HKAS has concluded MRAs with 71 accreditation bodies in 56 economies,

including all of Hong Kong's major trading partners. Such arrangement greatly facilitates the acceptance of the results of accredited establishments in Hong Kong's testing and certification industry; and

(iv) Quick response to new market demand

HKAS is generally capable of providing new services within a comparatively short period of time, thus can support the local testing and certification industry in responding quickly to new market demands; and

(C) From the Angle of the Local Testing and Certification Industry

(i) Good corporate governance and efficient operation

Establishments in the testing and certification industry in Hong Kong, in particular those accredited by HKAS, have good corporate governance and their operations are efficiently managed. These factors allow fast turnover and provision of flexible services. The quality services have enabled the industry to maintain good relationship with its clients;

(ii) High technical competence

The industry generally has high technical competence, in particular for testing of textile and toys which Hong Kong is in a leading role. With its technical capability, the industry can set up and provide new types of services quickly in response to market needs; and

(iii) High professional integrity

The good business ethics of establishments in the testing and certification industry in Hong Kong and the high professional integrity of their staff are competitive edge that Hong Kong enjoys.

Challenges Faced by Hong Kong

5.3 Apart from strengths, **HKCTC has also carried out an assessment on the main challenges faced by Hong Kong in further developing the testing and certification industry from the following aspects:**

(A) competition from the Mainland;

(B) competition in attracting talents; and

(C) constraints imposed by the size of Hong Kong.

(A) Competition from the Mainland

(i) Lower pricing in the Mainland

The Mainland has lower labour and land costs. While Hong Kong's testing and certification industry remains competitive after taking into account all relevant factors including the premium customer service provided, in absolute terms the price level may be comparatively higher in some cases. Competition is becoming stronger with the service standards rising in the Mainland;

(ii) Mainland testing laboratories are closer to factories

For testing of products manufactured in the PRD Region, Mainland service providers enjoy the competitive edge that they are located closer to the factories. There is hence no need to arrange cross-border transport for samples, which incurs longer travelling time and higher costs.

Moreover, to better meet the needs of production, some manufacturers would set up their own in-house laboratories in factories located in PRD Region. In-house laboratories usually carry out tests for quality control purposes and can provide results faster than third-party testing laboratories from Hong Kong; and

(iii) Trust in large international conformity assessment bodies

Some users of testing and certification services trust the performance of large international assessment conformity bodies regardless of where the activities are preformed. Hence, there is no need to "stick" to Hong Kong;

(B) Competition to Attract Top Talent

(i) Less attractive working environment

The best people in Hong Kong usually have many career options. Some find the industry less attractive, in particular commercial testing laboratories for consumer products, given the heavy workload, hectic working environment and less pleasant laboratory setting; and

(ii) Comparatively small size of the industry

The comparatively small size of the industry may not provide sufficiently attractive career prospects when compared to other fields; and

(C) Constraints Imposed by the Size of Hong Kong

(i) Limited pool of assessors

Due to the small size of Hong Kong, the potential pool of local assessors for accreditation assessment is limited compared to large economies like US or EU. Sometimes experts outside Hong Kong have to be engaged to perform assessment. The cost of these is relatively high; and

(ii) Variety of services provided not comprehensive enough

Given the small size of Hong Kong's economy, commercial services providers in the testing and certification industry may not be willing to invest on the set-up cost for certain services that do not have sufficiently large demand. Hence the variety of services provided in Hong Kong may not be comprehensive when compared to other economies.

5.4 **After looking into the strengths of Hong Kong and challenges it is facing in the development of the testing and certification industry, HKCTC will proceed with assessment on the various factors of production.**

- HKCTC has assessed the main strengths of Hong Kong from the following aspects:

  (A) From the macro angle

  (i) proximity of Hong Kong to the Mainland;
  (ii) high integrity and good intellectual property protection;
  (iii) good logistics support and communication system;
  (iv) competitive edge in attracting foreign conformity assessment bodies to set up branches in Hong Kong; and
  (v) well established education and training system;

  (B) From the angle of the accreditation system

  (i) HKAS runs a robust accreditation system;
  (ii) HKAS is independent and free from conflict of interest;
  (iii) accreditation of HKAS is widely recognised internationally; and
  (iv) HKAS can respond quickly to new market demands;

(C) From the angle of the local testing and certification industry

(i) good corporate governance and efficient operation;
(ii) high technical competence; and
(iii) high professional integrity;

- HKCTC has assessed the main challenges faced by Hong Kong in developing the testing and certification industry from the following aspects:

(A) Competition from the Mainland

(i) lower pricing in the Mainland;
(ii) Mainland testing laboratories are closer to factories; and
(iii) some users trust the performance of large international assessment conformity bodies regardless of where the activities are performed;

(B) Competition to attract top talent

(i) less attractive working environment; and
(ii) attraction and retention of talent is more challenging in view of the comparatively smaller size of the industry;

(C) Constraints imposed by the size of Hong Kong

(i) limited pool of assessors; and
(ii) variety of services provided not comprehensive enough.

CHAPTER 6

FACTORS OF PRODUCTION

6.1 **HKCTC has looked into the main factors of production in the testing and certification industry. They are:**

(A) manpower;

(B) technology;

(C) capital; and

(D) land.

HKCTC's assessments are set out in the ensuing paragraphs.

(A) Manpower

Demand

6.2 For testing laboratories and inspection bodies, staff can be non-degree holders but now more and more have attained university level education. Staff with higher qualifications will help to enhance technical competence. Relevant disciplines in universities are science, applied science, engineering, fashion and textiles, etc.

6.3 Feedback from testing laboratories suggest that about six months on-the-job training is required for new recruits joining this sector. However, graduates of some closely related subjects like Analytical Chemistry from universities and certain courses provided by VTC tailor-made for the testing sector would require less on-the-job training and are hence preferred.

6.4 For certification bodies, they are generally looking for staff with university level education and working experience in relevant trades. Staff may come from various academic disciplines. The sector is looking for people with good communication and language skills. Work knowledge is mainly built up through on-the-job training. For new recruits joining this sector, 6 to 9 months on-the-job training will usually be required.

6.5 **Feedback from the industry suggests that the mobility of staff who have worked for less than three years in the industry is much higher than those who have worked longer. Generally the wastage of staff who have been in the**

industry for several years is not high. However, sometimes experienced people will leave the industry and work for suppliers and buyers of goods, as suppliers and buyers also need people who are familiar with testing, inspection and quality management system. **According to C&SD's survey, the total number of vacancies was about 320 (or 2%) for the industry in 2009.**

Supply

6.6 On the supply side, **VTC** offers Higher Diploma courses and part-time upgrading courses that are highly relevant to the industry. **For the 10 most relevant Higher Diploma courses (details at *Annex 15*), the average number of graduates per year in the past 3 years is around 460 with a very high percentage taking up relevant jobs.**

6.7 **The local universities trained some 9 300 graduates** per year in science, applied science, engineering, and fashion and textiles disciplines (details at *Annex 16*).

6.8 **Given that there were only 320 vacancies (or 2%) in 2009 and the large number of graduates trained locally in the related courses, HKCTC considers that the manpower supply for professionals and associate professionals should be sufficient. The main challenge of the industry is how to compete with other industries for talent.**

6.9 Demand for testing services may see sudden surges in response to changes in overseas regulatory requirements for products manufactured in the PRD Region and tested in Hong Kong for export markets. **Hence, there is also a need to tackle such short-term surges.**

Enhancement in Training

6.10 Many stakeholders from the testing and certification industry commented that **the training for students could be further enhanced to better suit the needs of the industry and shorten the time required for on-the-job training for new recruits.** These include:

(i) to educate students on the concepts of quality and risk management;

(ii) to equip students with more general knowledge about overseas regulatory systems/requirements; and

(iii) to enhance the content on analytical chemistry in chemistry courses.

6.11 **Moreover, there is also feedback from the industry that more enhancement training should be offered for practitioners:**

(i) many SMEs in the industry do not have staff who have experience and related know-how to prepare their establishments to obtain accreditation. There are consultants offering services in this area but the cost can be regarded high by SMEs; and

(ii) nowadays the division of labour in large testing laboratories is very fine. The exposure and job knowledge of practitioners working in such environment are limited and may affect the long term professional development of the staff.

6.12 HKCTC agrees that the above areas need to be addressed. It will set out its recommendations in Chapter 8.

Assessors

6.13 Assessment personnel are essential resources for accreditation operation. The primary role of the HKAS assessment team is to evaluate the competence of laboratories, inspection bodies and certification bodies. At present HKAS has about 400 part-time assessors who are experts in their own disciplines to assist in accreditation work. They are drawn from Government departments, universities, VTC, and private organisations. To avoid conflict of interest, assessors from private laboratories, inspection bodies and certification bodies are rarely assigned to perform assessment on their competitors. HKAS also uses assessors from the Mainland and other economies.

6.14 Occasionally, it may take more time to arrange an assessment because no suitable assessor is available. This could have implications in the time taken to grant accreditation, and in the regular monitoring of the quality of accredited organisations.

6.15 Accreditation is very important as some clients might not accept test reports from a laboratory if it has not obtained accreditation for the test. Hence **to facilitate the development of the testing and certification industry and to prepare for increasing demand for new types of testing and certification services in the market, HKCTC considers that actions should be taken to increase the number of assessors.**

(B) Technology

Demand

6.16 **The testing and certification industry has a high technology requirement.** This is clearly seen from the laboratory settings of the testing sector, and the high proportion (58%) of professionals and associate professionals engaged in the provision of testing, inspection and certification activities. Most of these

professionals and associate professionals are from science and engineering disciplines.

6.17 The industry has a need for R&D of technology in many aspects, including:

(i) adaptation of new testing technologies developed overseas to the local environment;

(ii) development of new testing methodologies locally;

(iii) continuous improvement to existing testing methodologies to enhance efficiency; and

(iv) automation of routine testing processes.

Supply

6.18 **Hong Kong has the technological competence to perform most commonly demanded tests by clients. International testing laboratories in Hong Kong also have the advantage of being able to rely on their global network for technology transfer support.**

6.19 In view of Hong Kong's higher technology level, its strategic location nearby the manufacturing base in the PRD Region and its good intellectual property protection regime, some international testing laboratories have located their global or regional technology development centres for certain tests (e.g. for consumer products such as toys, textile and garment or electrical products) in Hong Kong.

6.20 There is also potential for Hong Kong to develop new testing capability in certain fields. For example, feedback received during the consultation exercise pointed out that Hong Kong has the technology and talent to develop the niche market of DNA authenticity testing, in particular for Chinese medicine.

6.21 **However, as the majority of establishments in the testing and certification industry are operated on a commercial basis, they are sometimes reluctant to invest in R&D for new testing methodology if they cannot see a sufficiently large market demand for the new testing.**

6.22 The vast majority (94%) of private independent establishments in the industry are SMEs engaging less than 50 persons. They may not be able to afford to spend much on R&D. There is a need to support them on technology R&D in order to facilitate the overall development of the industry in Hong Kong.

6.23 In summary, **the testing and certification industry does not face major difficulties in the technology aspect. On the other hand, Government's facilitation for R&D in new technologies, especially for SMEs, will help elevate standards and enhance the overall development of the industry.**

(C) Capital

Demand

6.24 For testing laboratories, the set-up costs may vary greatly depending on the tests concerned. Some tests do not involve high set-up cost, e.g. simple physical tests for toys. Some tests may require the purchase of equipment that cost hundreds of thousand dollars, e.g. machines for determining the lead content of toys. Very sophisticated and automatic machines cost millions of dollars.

6.25 Given the tightening of regulations in overseas markets, there is an increasing trend that more types of tests have to be conducted for a single product. The capital investment to provide for the full range of tests for a single product is becoming higher as more tests have to be set up.

6.26 For inspection and certification bodies, generally their set-up cost is similar to other commercial companies. They do not require a lot of capital investment as they do not need laboratories.

Supply

6.27 The testing sector has expressed that there is no particular difficulty in obtaining financing from banks when compared to other businesses. Hence, large scale establishments in the testing sector should have no difficulty in financing their investment in Hong Kong.

6.28 As for SMEs in the sector, they would not be able to afford to finance the set-up of a large laboratory providing a wide range of testing services. Hence, many would choose to specialise in a particular field. Sometimes, they lack the economy of scale. To cope with the challenge, some testing laboratories choose to outsource tests to other laboratories so that it is not necessary for them to set up the full range of tests for a product.

6.29 **Generally, the assessment is that the industry does not have much difficulty in financing capital investment. For the testing sector that may involve high set-up cost, SMEs are coping with the challenge through various means, such as specialisation and outsourcing.**

(D) Land

Demand

6.30 For testing laboratories, some of their operational characteristics/special

requirements, depending on the type and nature of testing, would include:

(i) separate ventilation system;

(ii) statutory requirements for storage of dangerous goods;

(iii) high head room or floor loading in some cases to accommodate special equipment; and

(iv) large floor size to facilitate workflow.

6.31 Based on the feedback collected from the industry, **testing laboratories can be and are usually accommodated in industrial buildings, except for medical testing laboratories which are usually located in commercial buildings.** Most of the testing laboratories are accommodated in rented premises. Relocation is costly due to high fitting-out cost and set-up cost of equipment as well as the need to recalibrate the equipment which will result in business interruption.

6.32 **For inspection and certification bodies, their accommodation needs are generally similar to those of a general office. Most of them are accommodated in rented premises at commercial buildings.**

Supply

6.33 In 2009 there were 570 private independent establishments in the testing and certification industry and most of them engaged less than 50 persons. As at end 2008, there was a total of about 39 million m^2 of private commercial and industrial premises in Hong Kong with a vacancy rate of about 7.6%. **Given the large size of building stock in Hong Kong when compared to the number and size of establishments in the industry, supply should generally be able to cope with demand.**

6.34 **HKCTC notes that Government provides land support to industries (including the testing and certification industry) through IEs for those industries that cannot operate efficiently in multi-storey industrial buildings.** There is a total of 218 hectares (ha) of land in the three IEs in Tai Po, Yuen Long and Tseung Kwan O, of which about 14 ha of land are still available. **For those testing laboratories that have special accommodation needs and require purpose-built premises, IEs offer a possible solution for them.** Currently, two testing laboratories are operating in IEs.

6.35 **On provision of more land for the development of the industry, HKCTC notes that in the North East New Territories New Development Areas Planning and Engineering Study which is underway, about 16 ha of Commercial, Research and Development Zone and 46 ha of Special Industry Zone in the preliminary planning proposals for the Kwu Tung North New Development Area**

and the Ping Che/Ta Kwu Ling New Development Area respectively have been identified of having the potential to provide development space to support the six industries (including the testing and certification industry) identified by TFEC.

6.36 As testing laboratories are usually located in industrial buildings, it is worth noting that the land leases of many industrial buildings are confined to industrial use, which is limited to activities that are directly related to manufacturing. Waivers or lease modifications have to be obtained to allow for non-industrial use. This may present complications/limitation in flexibility to the use of industrial buildings by testing laboratories depending on the land leases of individual industrial buildings. **In October 2009, Government announced new initiatives to revitalise industrial buildings which would facilitate the conversion/redevelopment of industrial buildings for other uses. The exact impact of the initiatives on the testing and certification industry is unclear at this stage and HKCTC will closely keep in view the developments.**

6.37 **HKCTC discussed whether the land in Lok Ma Chau Loop (LMC Loop) would assist the development of the industry.** Some members considered that providing land in LMC Loop for the testing and certification industry might facilitate the industry in conducting business with Mainland companies (e.g. in collection of samples). If a special zone could be set up in LMC Loop where the Mainland side would waive import/export tariffs for test samples, then there would be new business opportunities for the testing and certification industry. However, there were also concerns that the location of LMC Loop might pose recruitment problems. HKCTC notes that a planning and engineering study jointly commissioned by both Governments of Shenzhen and Hong Kong is being carried out. Public engagement on the initial development scheme for LMC Loop will be conducted in 2010. **HKCTC will revisit the issue again and reflect the industry's views to Government for consideration.**

6.38 Having examined the factors of production for the industry, HKCTC has formulated a set of recommendations to promote the development of the testing and certification industry in Hong Kong. The recommendations will be covered in the following chapters.

Manpower

- In view of the vacancy figure in 2009 (320 vacancies) and the large number of graduates trained locally by universities and VTC in the related courses, HKCTC considers that the manpower supply for professionals and associate professionals should be sufficient. The main challenge of the industry is how to compete with other industries for talent. There is also a need to tackle short term demand surges.

- Training for students and practitioners should be enhanced.

- HKCTC considers that actions should be taken to increase the number of assessors.

Technology

- The testing and certification industry does not face any major difficulty in the technology aspect. However, Government's facilitation in R&D of new technologies, especially for small and medium establishments, will help to elevate standards and enhance the overall development of the industry.

Capital

- Generally, the industry does not have much difficulty in financing capital investment. For the testing sector that may involve high set-up costs, small and medium size testing laboratories are coping with the challenge through various means, such as specialisation and outsourcing.

Land

- The building stock in industrial and commercial premises in Hong Kong is large compared to the number and size of establishments in the testing and certification industry. Generally the land supply should be able to cope with the demand of the industry.

- For testing laboratories that have special accommodation needs and require purpose-built premises, IEs offer a possible solution.

- Impact of Government initiatives to revitalise industrial buildings on the testing and certification industry is unclear at this stage and HKCTC will closely keep in view the developments.

- HKCTC will also closely monitor the various studies relating to provision of land for six new industries under TFEC e.g. LMC Loop.

Part IV

Recommendations

CHAPTER 7

VISION AND STRATEGY

Vision

7.1 **The vision of HKCTC 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".**

7.2 **To realise the vision, HKCTC aims to assist the testing and certification industry to:**

(a) enhance its technical capability;

(b) enhance the professionalism and quality of its labour force; and

(c) enhance public awareness of the industry locally and recognition outside Hong Kong.

Recommended Approach

7.3 **To support the development of the testing and certification industry in Hong Kong, it is necessary to improve the accreditation service and enhance the various factors of production to reinforce Hong Kong's capability and capacity.**

7.4 **HKCTC recognises that different trades have varied characteristics and the nature of their current and potential need for testing and certification services differs. For instance, the needs of the Chinese medicine trade clearly differ from those of the jewellery trade. Hence, in formulating the three-year industry development plan, apart from recommendations designed to promote the testing and certification industry in general, HKCTC has looked into specific measures for selected trades where the use of testing and certification services may generate greater business potential.**

7.5 **Taking into account the above, HKCTC recommends the adoption of a dual approach to promote the development of the testing and certification industry – making general improvements to the accreditation service and factors of production whilst putting focused effort for specific trades.**

7.6 To identify trades to which HKCTC should give priority, HKCTC formed the Working Group on Selection of Trades for Focusing. **In deliberating which trades HKCTC should look into as a matter of priority, the Working Group has**

agreed on the following set of considerations:

(a) testing and certification services will contribute to further promotion of the concerned trade and has the potential to form an important and integrated part in the value-chain of the trade;

(b) the testing and certification industry is interested in further exploring the business opportunities in providing testing and certification services for the concerned trade;

(c) Hong Kong should have a competitive edge in developing testing and certification services for the concerned trade when compared to other places in the region;

(d) considerations from factors of production aspect (e.g. availability of manpower and expertise in the market) to support the provision of testing and certification services to the concerned trade;

(e) likely benefits to the society (e.g. potential business volume, increase in employment);

(f) contribution to promotion of the "Tested in Hong Kong, Certified in Hong Kong" branding; and

(g) whether effective specific measures could be introduced to facilitate or support the provision of the testing and certification services to the concerned trade in a reasonable time frame, etc.

Role of HKCTC

7.7 **In promoting the development of the testing and certification industry, HKCTC considers that it has the following roles:**

(a) acting as a focal point of contact among all stakeholders, including the testing and certification industry itself, the related industries, providers of supporting services (e.g. HKPC, HKTDC, VTC, universities), etc.;

(b) assisting the industry to explore new business opportunities;

(c) co-ordinating effort by the industry to dovetail with Government policy objectives, e.g. enhancing public safety in a particular area;

(d) promoting acceptance of Hong Kong's testing/inspection reports and certificates by overseas/Mainland governments; and

(e) enhancing manpower development and professionalism in the industry.

7.8 **Apart from the above, HKCTC will work closely with HKAS to explore opportunities for cooperation to ensure that our accreditation system meets the needs of developing Hong Kong into a regional hub for testing and certification.**

- The vision of HKCTC 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".

- HKCTC **recommends** the adoption of a dual approach to promote the development of the testing and certification industry – making general improvements to the accreditation service and factors of production whilst putting focused effort for specific trades.

- Role of HKCTC:

  (a) acting as a focal point of contact among all stakeholders, including the testing and certification industry itself, the related industries, providers of supporting services (e.g. HKPC, HKTDC, VTC, universities), etc.;

  (b) assisting the industry to explore new business opportunities;

  (c) co-ordinating effort by the industry to best dovetail Government policy objectives, e.g. enhancing public safety in a particular area;

  (d) promoting acceptance of Hong Kong's testing/inspection reports and certificates by overseas/Mainland governments; and

  (e) enhancing manpower development and professionalism in the industry.

CHAPTER 8

RECOMMENDATIONS ON THE GENERAL FRONT

8.1 **This Chapter presents HKCTC's recommendations on the general front to create a conducive environment for the flourishing of the industry. Recommendations cover two aspects:**

- **accreditation service; and**
- **enhancement to various factors of production.**

Accreditation Service

8.2 **HKCTC has looked into the accreditation practices for the testing and certification industry in the Mainland, US, EU and Singapore.** A summary of the practices is at *Annex 17*. **In all these economies, obtaining accreditation is voluntary.** The accreditation bodies may be government or non-government bodies or both. **Hong Kong's practice is generally in line with the practice in other economies.**

8.3 One of the strengths of Hong Kong's testing and certification industry is its accreditation service, which is of high standard and has good reputation internationally. HKAS is run by Government and does not depend solely on the revenue from accreditation. This mode of operation allows HKAS to be free from any pressure on the revenue front or potential conflict of interest. **HKCTC therefore recommends that the current mode of accreditation in Hong Kong be retained.**

8.4 **However, it is necessary to ensure that the services provided by HKAS will continue to meet changing needs.** To achieve this, HKCTC **recommends** that:

(a) there should be adequate manpower resources to handle the workload of HKAS so that requests for accreditation can be dealt with promptly;

(b) training should be provided to HKAS staff to ensure high professional standards in performing assessment; and

(c) HKAS should acquire the necessary expertise to facilitate the provision of new accreditation service in response to demand from the industry.

Enhancement to Factors of Production

8.5 **To improve the competitiveness of the testing and certification industry in Hong Kong, HKCTC considers that there is a need to implement measures to enhance the following factors of production** based on the assessment made in Chapter 6:

(A) manpower;

(B) technology;

(C) capital; and

(D) land.

(A) Manpower

8.6 HKCTC makes recommendations on five aspects under this section:

(i) Attracting talent

The testing and certification industry is not a high profile industry that is well known to students. Effort to attract young people to join the industry should begin at an early stage. Hence, HKCTC considers that it is important to increase students' awareness and understanding of the industry when they are still in schools. To assist the industry to attract talent, HKCTC **recommends**:

(a) **ITC to cooperate with universities, VTC and the testing and certification industry to organise seminars, workshops and career talks** to enable students to gain more understanding about the industry and possible career opportunities; and

(b) **ITC to help to link up universities, VTC and the testing and certification industry to promote more internship opportunities for students;**

(ii) Ensuring adequate manpower supply to address sudden surge in demand

To meet sudden surges in demand for testing services, training courses should aim at equipping practitioners with the necessary technical skills within a short period of time. They are vocational training in nature. **Hence, HKCTC recommends VTC to be encouraged to develop short courses to equip practitioners with the necessary technical skills in case there are major changes in testing requirements in the overseas markets;**

(iii) Enhancing professionalism

There is a need to provide more training to enhance the professionalism of the practitioners in the trade. HKCTC **recommends** HKAS and VTC to work in close partnership with the industry and relevant stakeholders to:

(a) organise seminars/workshops to explain details of accreditation requirements and to allow sharing of experience. This would help to train up practitioners in SMEs that would like to improve their operation through accreditation but do not have the necessary experience and expertise;

(b) arrange more technical training to enhance the technical capability of practitioners, including the provision of training on the overall process of testing to widen practitioners' exposure and on knowledge of latest changes in regulatory framework overseas, etc.; and

(c) provide more ethics training for practitioners as it is important that services of the industry are provided in a reliable, consistent and impartial manner;

(iv) Promoting professional recognition

HKCTC recognises that development of professionalism helps to attract and retain talent in the testing and certification industry. It is pleased to note that a local trade association is in the initial stage of developing voluntary professional recognition. This is desirable and support should be given as necessary; and

(v) Ensuring adequate supply of quality assessors

Apart from increasing professional staff of HKAS, it is also important to increase the supply of part-time assessors for accreditation to support the monitoring of the competency of accredited bodies and to prepare for an increasing demand for new types of testing and certification services in the market. In this aspect, HKCTC **recommends** that:

(a) Government departments, local universities and VTC should encourage their qualified employees to participate as part-time assessors; and

(b) HKAS should review and strengthen the recognition provided to assessors and simplify the assessment procedures to attract more assessors.

8.7 **To ensure that the supply of manpower can support the further**

development of the testing and certification 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 training to the relevant educational institutes.

8.8 It has previously been mentioned that there should be room to explore whether some of the statutory inspections carried out by Government can be transferred to the private sector. Since HKCTC will be acting as the focal point of contact, it will liaise with relevant Government departments to dovetail - if there is additional manpower requirement, it will help to facilitate discussion with universities/VTC.

- To assist the industry in attracting talent, HKCTC **recommends**:

  (a) ITC to cooperate with universities, VTC and the testing and certification industry to organise seminars, workshops and career talks; and

  (b) ITC to help to link up universities, VTC and the testing and certification industry to promote more internship opportunities for students.

- VTC be encouraged to develop short courses to equip practitioners with the necessary technical skills in case there are major changes in testing requirements in the overseas markets.

- HKAS and VTC to work in close partnership with industry and relevant stakeholders to organise seminars/workshops, technical training and ethics training for practitioners to enhance professionalism.

- To ensure adequate supply of quality assessors, HKCTC **recommends** that:

  (a) Government departments, local universities and VTC should encourage their qualified employees to participate as part-time assessors; and

  (b) HKAS should review and strengthen the recognition provided to assessors.

- HKCTC **will** act as a focal point and maintain close liaison with Government and the relevant stakeholders to enhance manpower support to the industry.

(B) Technology

8.9 **While the testing and certification industry does not face major difficulties in the technology aspect, some form of Government facilitation in R&D of new technologies, especially for SMEs, will help elevate standard and enhance the overall development of the industry.** Hence, HKCTC has looked into Government support in the following five areas on the technology front and made recommendations:

(i) <u>To encourage wider use of ITF</u>

ITF is established by Government with the aim of providing funding support for projects that contribute to innovation and technology upgrading in manufacturing and service industries. It is administered by ITC and is open to application from all sectors. Apart from funding R&D activities, ITF also supports non-R&D projects like conferences, surveys, events, etc. to promote innovation and technology.

To encourage the testing and certification industry to make wider use of ITF to enhance the technical capability of the industry, HKCTC **recommends** ITC to:

(a) promote ITF to the industry; and

(b) consider making provisions in the ITF mechanism to promote the R&D of testing methodologies in future;

(ii) <u>To encourage collaboration with institutions within the existing technology infrastructure</u>

Science Park, HKPC, the five R&D Centres under ITF and the Hong Kong Jockey Club Institute of Chinese medicine (HKJCICM) are technological institutions set up by Government to support the development of innovation and technology in Hong Kong.

As an industry with high technology content, the testing and certification industry should have a lot of potential opportunities for collaboration with such institutions to enhance the industry's technological competence. HKCTC **recommends** ITC to assist the industry to link to these institutions to identify more collaboration opportunities, e.g. in developing new testing methodologies, in setting up of testing sites, etc.;

(iii) To increase transfer of technical know-how

In order to support the development of the food testing sector in Hong Kong, HKAS and Gov Lab have arranged a series of technical seminars and workshops since 2008. During these seminars and workshops, test procedures were presented and discussion sessions were conducted for participants to share experience.

Such seminars and workshops are most welcomed by the industry, in particular local SMEs that may not have the relevant expertise and do not have a global network to rely on. Hence, HKCTC **recommends** 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 and overseas universities should be invited to be speakers;

(iv) To promote knowledge of international standards

Some practitioners in the industry are not fully aware of the various services provided by PSIB in making available international standards to the public. HKCTC **recommends** that such services be further publicised.

New international standards or amendments to existing ones may be introduced from time to time. Usually these new standards and amendments will be discussed at the relevant Technical Committees of the standard setting bodies first. Participants of Technical Committees will therefore be better kept abreast of development and be able to provide input. To assist the industry to keep itself abreast of latest development in international standards, HKCTC **recommends** PSIB to invite representatives from the industry to join ISO's Technical Committees in future; and

(v) To encourage investment in R&D through the R&D Cash Rebate Scheme

To provide further financial incentives to encourage enterprises to participate in R&D, ITC will launch a new R&D Cash Rebate Scheme. **Under the Scheme, enterprises conducting applied R&D projects with the support of ITF or in partnership with designated local research institutions will enjoy a cash rebate equivalent to 10% of their investments.**

HKCTC **recommends** ITC to disseminate information about the R&D Cash Rebate Scheme to the testing and certification industry upon the launch of the Scheme to encourage more investment in R&D.

- To encourage wider use of ITF, HKCTC **recommends** ITC to :

  (a) promote ITF to the industry; and

  (b) consider making provisions in the ITF mechanism to promote the R&D of testing methodologies in future.

- HKCTC **recommends** ITC to assist the industry to link to the technological institutions in Hong Kong to identify more collaboration opportunities.

- HKCTC **recommends** HKAS and Gov Lab to arrange more technical seminars and workshops to promote the transfer of technical know-how to the industry.

- To promote knowledge of international standards, HKCTC **recommends** PSIB to:

  (a) step up the promotion of its services; and

  (b) invite representatives from the testing and certification industry to join ISO's Technical Committees in future.

- To encourage investment in R&D through the R&D Cash Rebate Scheme, HKCTC **recommends** ITC to disseminate information about the Scheme to the testing and certification industry.

(C) Capital

8.10 While the testing and certification industry generally does not have much difficulty in financing their capital investment, it would still be helpful if financing assistance and shared facilities are available, in particular for small enterprises:

(i) To promote wider use of the Small Entrepreneur Research Assistance Programme (SERAP)

SERAP is a technology entrepreneurship programme under ITF. It provides pre-venture capital stage financing to support technology entrepreneurs and small enterprises to carry out R&D work for starting new businesses and conducting market validation. In general, locally incorporated companies with less than 100 employees are eligible to apply.

There were some cases of testing-related projects approved under SERAP in the past. HKCTC **recommends** ITC to step up the promotion of SERAP to SMEs in the industry, so that they will be encouraged to make use of the Scheme; and

(ii) To promote shared facilities provided by HKPC and Science Park

Currently, both the HKPC and Science Park have laboratory facilities and equipment that are available for shared use by private testing laboratories. Examples include the special chamber for testing of electromagnetic compatibility in HKPC and equipment set-up for testing of LED lightings in Science Park. By making use of the shared facilities, testing laboratories will not need to make huge investment if their business volume for the relevant tests is not high. Details of facilities and equipment available for shared use in HKPC and Science Park are set out at *Annexes 18 and 19* respectively.

HKCTC **recommends** HKPC and Science Park to step up promotion of their facilities available for shared use to testing laboratories.

- HKCTC **recommends** ITC to step up the promotion of SERAP to SMEs in the industry.
- HKCTC **recommends** HKPC and Science Park to step up promotion of their facilities available for shared use.

(D) Land

8.11 While HKCTC's assessment is that the supply for premises should not be a major issue for the industry in the short run, HKCTC **will continue to**:

(i) monitor closely the impact of Government initiatives to revitalise industrial buildings as the impact of the initiatives on the testing and certification industry is unclear at this stage; and

(ii) keep in view Government's plans to increase land supply for the testing and certification industry.

8.12 As some testing laboratories may have special accommodation needs and require purpose-built premises for optimal operation, HKCTC **recommends** Science Park to facilitate the setting up of testing laboratories with special accommodation needs in IEs where necessary.

- HKCTC **recommends** Science Park to facilitate the setting up of testing laboratories with special accommodation needs in IEs where necessary.
- HKCTC **will** monitor closely the impact of Government initiatives to revitalise industrial buildings on the testing and certification industry.
- HKCTC **will** keep in view Government plans to increase land supply for the testing and certification industry.

CHAPTER 9

RECOMMENDATIONS ON THE SELECTION OF SPECIFIC TRADES

9.1 This Chapter presents HKCTC's recommendations on the selection of specific trades which will offer good business opportunities for the testing and certification industry. It will cover the following aspects:

- mature trades;
- selected trades; and
- emerging trades.

Mature Trades

9.2 **87% of the business receipts of private independent establishments in 2008 were related to testing of textiles, clothing and footwear; toys and games; electrical products; and medical testing.** Apart from medical testing which focuses mainly on the local market, the business for the other three types of testing is mainly related to international trade through export to overseas countries. **Development of testing in these four trades is more mature and the markets have been generally well explored.** The need for further assistance will mainly depend on whether there are new developments in these areas, e.g. introduction of new regulations.

9.3 For these mature trades, the competitiveness of the testing and certification industry in serving them will continue to be enhanced through the recommendations on the general front as proposed in Chapter 8. **Should any problem arise, HKCTC will promptly examine the situation and make recommendations to Government as appropriate.**

Selected Trades

9.4 To maximise the effect of effort to be put in by HKCTC on specific trades, HKCTC considers it desirable to identify new trades where there are potential strong demand (either locally or to facilitate export) for testing and certification services as well as in possession of other favourable factors.

9.5 For each of the trade selected, HKCTC **recommends** the adoption of a systematic approach to assist the testing and certification industry to seize further

opportunities:

(a) to establish a platform for cooperation with relevant stakeholders in the trade;

(b) 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;

(c) to conduct appropriate trial schemes;

(d) to liaise with HKAS to make available the necessary accreditation services; and

(e) to promote any new testing or certification schemes both within and outside Hong Kong.

9.6 In the implementation stage, the generic approach can be modified and adapted to suit the individual circumstances and needs of each selected trade.

9.7 After consulting various sectors and evaluating the information available, HKCTC considers there will be good opportunities to promote the use of testing and certification services in the following trades:

(A) Chinese medicine;

(B) construction materials;

(C) food; and

(D) jewellery.

(A) Chinese medicine

(i) Potential Demand

9.8 Chinese medicine used in Hong Kong can generally be divided into the following two categories:

(a) Proprietary Chinese medicine (pCm, 中成藥) is Chinese medicine formulated in a finished dose form, such as capsules, ointments, etc. Submission of testing reports to the Department of Health (e.g. on heavy metals and toxic elements, pesticide residuals, microbiology, stability etc.) is required for registration to ensure safety and quality. This statutory requirement has been in place since 2003 and brings demand for pCm testing; and

(b) Chinese herbal medicine (中藥材), including crude plant material such as leaves, flowers, bark, roots, seeds or other plant parts, which are commonly used as medicine by the Chinese community. Locally, the Department of Health has been funding the development of standards for Chinese herbal medicine (i.e. Hong Kong Chinese Materia Medica Standards). Standards for 60 types of Chinese herbal medicine have been developed. Research work of another 36 has started and is targeted for completion in 2011. The latest plan is to extend the coverage to about 200 in 2012.

Before using, raw herbs are usually treated/processed through various means to alter their therapeutic effects or reduce toxic effects. The processed herbs are commonly called Yin Pian (飲片) and are sold in the Chinese medicine shops.

9.9 Hong Kong is a well-established market and trading hub for Chinese medicine. In 2008, statistics show that :

(a) for pCm – Hong Kong imported about HK$0.62 billion, of which about HK$0.22 billion (35%) was for re-export. In addition, Hong Kong has also exported HK$1.2 billion of pCm manufactured locally;

(b) for Chinese herbal medicine – Hong Kong imported about HK$1.7 billion, of which about HK$0.73 billion (43%) was for re-export.

(ii) Competitive Edge of Hong Kong

9.10 Apart from the potential demand, Hong Kong also possesses the following competitive advantages in developing testing and certification in the field of Chinese medicine:

(a) proximity to Mainland which is a major exporter of Chinese medicine – in 2008, the Mainland's export of Chinese medicine was about HK$10 billion. Given Hong Kong's proximity to the Mainland and its long history as a major trading hub in the region, Hong Kong can play a more active role in the trading of Chinese medicine;

(b) reasonably wide acceptance of the general population on the use of Chinese medicine – Chinese medicine is accepted by a significant portion in the local population as an alternative to treat illnesses apart from Western medicine, especially in some diseases where it is regarded of having a competitive edge. The Hospital Authority is also setting up 18 Chinese medicine out-patient clinics in phases to provide Chinese medicine services;

(c) good technical expertise in the testing of Chinese medicine – Hong Kong has built up local capacity and capability in the testing of Chinese medicine through the introduction of testing requirement for registration of pCm and the development of Hong Kong Chinese Materia Medica Standards. Some of our universities also possess considerable expertise in the field of Chinese medicine and can provide technical support in the development of new testing services. For instance in the field of authentication, some universities and testing laboratories are already carrying out R&D on authenticity testing of Chinese herbal medicine by using chemical fingerprinting or DNA technology;

(d) Hong Kong is the 'meeting point' of the East and West which carries a particular advantage – there are people trained in "western medicine" and pharmacy who also possess a strong interest in Chinese medicine. From the angle of language proficiency (Chinese and English), Hong Kong also has a clear advantage. We are also in a better position than most places in the world to build up good connections with stakeholders in the Mainland where much work is being done on the development of Chinese medicine. Given the wide recognition of Hong Kong's testing and certification industry, if more can be done on the front of testing and certification services for Chinese medicine, it will certainly help to build up greater confidence in the use of Chinese medicine in the overseas markets.

(iii) Specific Points to be Noted in Following Up

9.11 In developing testing and certification services for Chinese medicine, apart from following the generic model explained above, HKCTC will in particular note the following:

(a) it is necessary to dovetail the work of Government, in particular Department of Health's work, in the development/regulation of Chinese

medicine in Hong Kong, e.g. in assisting the testing and certification industry to enhance its capacity and capability to support increasing testing demands arising from pCm registration;

(b) in response to emerging market demand for better quality assurance, there are already private voluntary product certification schemes for Chinese medicine running in small scale in Hong Kong. HKCTC will promote the benefits of accreditation to the operators of such schemes so that they can further enhance their operation with reference to international standards through accreditation;

(c) HKCTC will work closely with Hong Kong Jockey Club Institute of Chinese Medicine (HKJCICM) to explore the feasibility of introducing new testing and certification services. HKJCICM was set up in 2001 by Government to be the focal point to facilitate Chinese medicine development. It has technical expertise and good connections in the Chinese medicine field. Among its various aspects of work, HKJCICM also provides support to the development of testing of Chinese medicine. For example, chemical markers produced by HKJCICM are now being used by the Chinese medicine industry and testing laboratories for R&D and quality assessment of Chinese medicine; and

(d) Gov Lab has done a lot of work in the testing of Chinese medicine and development of the Hong Kong Chinese Materia Medica Standards and acquired a lot of expertise. HKCTC will work with Gov Lab to promote more sharing of technical know-how with the testing and certification industry.

9.12 Given that Chinese medicine is a complex subject, and the trade has long established traditions, HKCTC will not underestimate the difficulties in taking this forward. Nevertheless, in view of the unique edges enjoyed by Hong Kong, HKCTC considers that effort should be put in to further explore business opportunities in this field.

(B) Construction Materials

(i) Potential Demand

9.13 Testing and certification services for construction materials are important as they contribute to quality construction projects. Laboratories accredited by HKAS are now providing testing services for a wide range of construction materials, including glass, concrete, steel, tiles, paint, doors and gates, etc. There are also product certification services provided by certification bodies accredited by HKAS, e.g. the Quality Scheme for the Production and Supply of Concrete, the Product Conformity Certification Scheme for Passive Fire Protection product, etc.

9.14 With a view to upgrading the quality of its buildings and setting an example for the local construction industry, the Hong Kong Housing Authority is taking the lead in requiring product certification for certain construction materials used in its projects. It plans to introduce requirements for product certification in stages:

(a) early 2010 - fire rated doors and panel wall partitions;

(b) mid 2010 - cement and tile adhesive; and

(c) late 2010 - tile and repair mortar.

9.15 The Hong Kong Housing Authority will also consider introducing product certification requirements for other construction materials (such as cementitious materials, concrete admixture, paint (with volatile organic compound contents), mesh reinforcement and water and drainage pipes inside buildings) at a later stage.

9.16 The Hong Kong Housing Authority is a major player in the local construction industry. In the coming years, its flat production amounts to over half of the total flat production in Hong Kong. With the strong position of the Hong Kong Housing Authority, HKCTC believes that the demand for certification services for construction materials will continue to grow.

9.17 Works departments of Government are also major users of construction materials. In the coming years, Government will press ahead with construction projects, including the 10 major infrastructure projects. With the various major projects coming on stream, the estimated capital works expenditure will be increased from HK$45.1 billion in 2009-10 to HK$49.6 billion in 2010-11. HKCTC considers that promotion of wider adoption of product certification for construction materials in public works may also bring new business opportunities for the testing and certification industry.

9.18 As the private sector also has an incentive to enhance quality of their buildings, there should also be extra business opportunities if the new product certification requirements are to be promoted to the private sector as well.

9.19 According to feedback from the testing and certification industry, the proportion of testing and certification of construction materials for export market is not high compared to that of local demand. However, it is noted that the Mainland exports a large volume of construction materials and growth has been significant in recent years. The value increased from HK$ 607 billion in 2006 to HK$ 1,023 billion in 2008 (on average about 30% a year). By drawing reference to the experience of testing of consumer products in the mature trades (i.e. textile and garments, toys and children's products, electrical products) for which high volume of testing services is provided by Hong Kong's testing and certification industry to support the export trade, it is worthwhile to explore if Hong Kong's testing and certification industry can perform a stronger supporting role for construction materials produced and exported by the Mainland.

(ii) Competitive Edge of Hong Kong

9.20 Apart from the potential demand as explained above, Hong Kong also possesses strengths in developing testing and certification services in the field of construction materials:

(a) about 50 accredited laboratories are conducting testing for construction materials in Hong Kong. They constitute the largest group of accredited laboratories. Their testing services cover a wide range of construction materials. Supported by demand from the local construction industry, these testing laboratories have built up extensive expertise in testing construction materials; and

(b) testing costs only constitute/make up a small portion of the total product cost. Taking into account the good reputation of local testing laboratories, buyers do not have great incentive to shift testing to other places simply because of the cost factor.

(iii) Specific Points to be Noted in Following Up

9.21 In developing testing and certification services for construction materials, apart from following the generic model, HKCTC will note the following:

(a) it is necessary to dovetail Hong Kong Housing Authority's initiative to require product certification for construction materials. For example, HKAS will need to provide necessary support to the testing and certification industry in meeting the new demand;

(b) introduction of accreditation service for testing and certification services for more types of construction materials will facilitate the testing and certification industry in exploring new business opportunities; and

(c) it is necessary to promote wider adoption of product certification for construction materials to the construction industry through collaboration with the Construction Industry Council, works departments of Government and other major stakeholders of the industry.

(C) Food

(i) Potential Demand

9.22 There is growing public awareness and concern over the safety (e.g. on heavy metals, preservatives, melamine) and the nutritional content (e.g. protein, fat, sodium) of food. Hence, there is great potential demand for more testing and certification services.

9.23 There will be potential demand for testing and certification services arising from Government's initiatives:

(a) the progressive increase in the outsourcing of food testing to the private sector – a total of 22 000 tests involving 2 900 samples were outsourced in 2008/09. The figures increased to 79 000 tests involving 7 400 samples in 2009/10 (about 50% of Gov Lab's regular food surveillance test work). Gov Lab's plan is to outsource 107 000 tests involving 11 800 samples in 2010/11 (about 70% of Gov Lab's regular food surveillance testing work);

(b) the progressive introduction of legal standard or regulatory framework for harmful substances, e.g. preservatives, colouring matters, pesticide residues, veterinary drug residues and other food additives - the nutrition labelling scheme will take effect on 1 July 2010 and the regulatory framework/standards on pesticide residues and veterinary drug residues are being reviewed; and

(c) in February 2007, the Food and Environmental Hygiene Department implemented a scheme to encourage the food trade to improve hygiene standards. Under the scheme, food premises certified to be in compliance with the ISO 22000 food safety management standard are exempted from the normal Risk-Based Inspection System and the Demerit Points System. While the number of ISO 22000 certificates issued in Hong Kong is small at the moment (about 25 as at September 2009), there should be potential demand given the increasing public concern for food safety.

9.24 There will also be potential demand for testing and certification services from the private sector:

(a) Hong Kong has a sizable external trade for processed food which is still growing. The total exports of processed food and beverages increased from HK$21.9 billion in 2007 to HK$31.2 billion in 2009. Of this, 90% pertains to re-exports. There should be business potential for the industry as some traders may choose to have the goods tested or certified in Hong Kong; and

(b) there is an emerging demand for authenticity testing and certification of

high-valued food in the market, such as dried seafood and bird's nest. Several testing laboratories have started offering services with the use of DNA testing and other authentication technologies.

(ii) Competitive Edge of Hong Kong

9.25 Apart from the potential demand mentioned above, Hong Kong also possesses the following strengths in developing testing and certification services in the field of food:

(a) Government's outsourcing of food testing and the progressive introduction of legal standards have assisted the local testing laboratories in building up their expertise and capacity, which provide a solid basis for further development of testing and certification services for the food trade; and

(b) in testing of authenticity, the professionalism, high level of integrity and good reputation of Hong Kong's testing and certification industry are definitely a competitive edge. With development on this front, consumers will have more confidence in purchasing high-valued food products. All parties concerned, i.e. the food trade, the consumers, and the testing and certification industry, will benefit from the services. Through this, Hong Kong can also strengthen its reputation as a shopping paradise.

(iii) Specific Points to be Noted in Following Up

9.26 In developing testing and certification services for food, apart from following the generic model, HKCTC will in particular note the following:

(a) it is necessary to dovetail the work of Government in introducing new statutory requirements relating to food. For example, by working together with Gov Lab and Food and Environmental Hygiene Department, HKAS should continue to provide support to local testing laboratories through sharing of testing methodologies and skills to prepare them for introduction of new statutory requirements;

(b) it is desirable to explore the introduction of new testing and certification services in response to demand for authentication, such as DNA testing or chemical fingerprinting to ascertain the authenticity of high-valued seafood;

(c) it is desirable to explore the introduction of accreditation service for more internationally recognised food-related certification schemes, e.g. ISO 22000 on food safety management system;

(d) for food safety and control along the food supply chains, it will be desirable to identify critical control points for tracking and tracing. Testing may be required at these control points. HKCTC will consider how best to assist

the testing and certification industry to explore the use of new technologies, e.g. radio frequency identification (RFID), to enhance traceability and reliability of tested/certified food products; and

(e) it is necessary to keep in view developments on the international front, e.g. food crisis concerning certain products, and see if Hong Kong can respond quickly and seize new business opportunities.

(D) Jewellery

(i) Potential Demand

9.27 Different from testing of other goods, which is usually conducted on a sampling basis to determine the acceptance of a batch of goods, testing of jewellery is frequently carried out on an individual basis in view of its high value. Locally, the jewellery trade has a successful experience in the use of accredited testing services for jadeite jade to improve business.

9.28 There was a time that consumers were wary about purchase of jadeite jade due to the lack of commonly accepted specifications on product quality and procedures on testing. In order to strengthen the confidence of consumers and to enhance the credibility of the local gemstone testing sector, the jewellery trade developed the "Standard Methods for Testing Fei Cui (Jadeite Jade) for Hong Kong" in 2004. The standard was developed with funding support from the SME Development Fund and technical assistance from HKPC. HKAS introduced an accreditation scheme for laboratories providing testing for jadeite jade in 2005 to dovetail the initiative from the trade. According to the trade, business in jadeite jade has improved since then as consumer confidence has been restored with the availability of testing reports from accredited laboratories.

9.29 In view of the successful experience of testing for jadeite jade, some sectors in the jewellery trade have been exploring the potential of new testing and certification services to support the growth of trade. The areas being explored include:

(a) product certification scheme with identification for individual pieces of jewellery which is being developed together with HKPC; and

(b) development of local trade standards for testing of other precious gemstones (e.g. ruby, pearl etc.).

9.30 Hong Kong's jewellery trade is renowned in the world market. Combined with re-exports, Hong Kong is the fourth largest exporter of precious jewellery in the world. The value of Hong Kong's jewellery exports was about HK$36 billion in 2009.

9.31 Hong Kong's strategic location and close connection with the Mainland enable it to be benefited from the growing demand for jewellery in the Mainland market. Exports of jewellery to the Mainland increased by 52% in 2009.

9.32 The demand for jewellery by tourists visiting Hong Kong is also significant. According to 2008 statistics, jewellery was the third highest category of tourists' shopping spending in Hong Kong in terms of value and amounted to HK$7.8 billion. About 80% was accounted for by Mainland tourists.

9.33 Consumers will welcome greater quality assurance given the high value of jewellery. There should be potential synergy for the jewellery trade to make use of the high credibility of Hong Kong's testing and certification industry to enhance consumer's confidence and hence the competitiveness of Hong Kong's jewellery trade in both the Mainland and overseas markets.

(ii) Competitive Edge of Hong Kong

9.34 Apart from the potential demand as mentioned above, Hong Kong also possesses the following competitive edge in developing testing and certification services in the field of jewellery:

(a) a major centre for jewellery – Hong Kong has long been recognised as a major centre for the production of jade jewellery and has also evolved into a leading trading and distribution centre for pearls in recent years. Moreover, its manufacturers are good at producing small stone fashion jewellery. The standard of jewellery design is also highly appreciated which when accompanied by high quality assurance through testing and certification, will further elevate our positioning in the international jewellery market;

(b) good recognition in the Mainland market – In the growing Mainland market, the "Hong Kong Brand" has enjoyed extremely good recognition. According to a survey conducted by HKTDC, Hong Kong brands are top on the list of Mainland consumers; and

(c) expertise built up from past experience - the introduction of the accreditation scheme for jadeite jade since 2005 has helped to bring the technical competence and the operation of jewellery testing laboratories in Hong Kong to a high standard.

(iii) Specific Points to be Noted in Following Up

9.35 In developing testing and certification services for jewellery, apart from following the generic model explained above, HKCTC notes the following:

(a) it is desirable for HKAS to recognise the initiatives taken by the trade and to explore with it the provision of accreditation service for more types of testing and for product certification of jewellery. The Secretariat of the HKCTC has already established links with relevant trade associations in the field;

(b) to raise Hong Kong's technical expertise and international standing in the testing of jewellery, HKAS should explore the feasibility of taking the lead in organising proficiency testing for jewellery within the framework of the

Asia Pacific Laboratory Accreditation Cooperation (APLAC), the regional accreditation organisation;

(c) given the complexity and high standards required in this area, apart from local experts, it may be necessary to seek the support of experts overseas. For instance, the trade has involved experts from the US and the Mainland in developing local trade standards in the past; and

(d) HKTDC has done a lot of good work in the promotion of the jewellery sector in Hong Kong. Its trade fair on jewellery is one of the highest acclaimed in the world. Its assistance should be solicited to actively market the success in the development of new testing and certification methods in the area of jewellery in future.

Emerging Trades

9.36 In addition to the four selected trades, **HKCTC also considers that environmental protection and ICT are two emerging trades that have potential for further exploration.** HKCTC will upon the issue of the Report further study the situation and assess the potential demand for testing and certification services. Information of the two trades are provided in the ensuring paragraphs.

(A) Environmental Protection

9.37 The general public is putting increasing emphasis on environmental protection. The testing and certification industry has been contributing to environmental protection in various ways, including providing support in monitoring the environment (e.g. testing of air samples), identifying chemical content of products to facilitate proper management (e.g. testing for heavy metals) and certifying organisations with sound environmental management system (e.g. ISO 14001 certification).

9.38 Apart from the testing and certification services the industry is performing at the moment, more opportunities may arise in future with new developments on the environmental protection front. Some examples include:

(a) many environmental protection elements are nowadays embedded in products and tests have been conducted to determine the relevant performance, e.g. laboratories in Hong Kong have been providing energy efficiency testing of electrical appliances, such as on luminous flux and life of energy saving compact fluorescent lamps. As Hong Kong has been testing a lot of consumer products for the manufacturing base in the PRD Region and has implemented the mandatory energy efficiency labeling scheme for certain household electrical appliances, there may be more and more tests related to the "green" elements of the products. In view of the global trend to promote low carbon economy, more tests will also be required for new and emerging energy-efficient electrical products such as LED lamps to enhance consumers' confidence in adopting these electrical products;

(b) a potential area for certification bodies is the accounting and reporting of greenhouse gas emission, as well as the validation and verification of such claims. Some related international standards have been developed (e.g. ISO 14064 on greenhouse gas accounting) and further standards are also under development (e.g. ISO 14066 on competency requirements for greenhouse gas verifiers). For accounting greenhouse gas emissions from operations at buildings in Hong Kong, the Electrical and Mechanical Services Department and the Environmental Protection Department jointly developed and published the "Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings (Commercial,

Residential or Institutional Purpose) in Hong Kong" in July 2008. Moreover, with a view to promoting energy efficiency in buildings, Electrical and Mechanical Services Department has promulgated five revised Code of Practices on minimum energy performance standards for building services installations in buildings and issued a guideline on energy audit in 2007. Government has also introduced the Buildings Energy Efficiency Bill into the Legislative Council in December 2009 to require new and renovated buildings to compile with the above Code of Practices. It is expected that there will be increasing demand for certification to the above Code of Practices and undertaking of energy audits for buildings;

(c) another area with potential for certification services is project validation according to United Nation requirements under the Clean Development Mechanism (CDM), which allows trading of Certified Emissions Reductions (CERs) arising from greenhouse gas emission reduction in a CDM project. Further development in this area depends on the ongoing negotiation in the international regime to combat climate change; and

(d) the environmental protection angle can be taken into account in the course of HKCTC's coordination of effort in exploring new business opportunities in other trade areas. For example, feasibility of developing tests to identify the green or recycled content will be explored for testing of construction materials. In this connection, Government is exploring the promotion of wider use of works materials made with recycled contents in public works projects, e.g. concrete paving blocks with recycled glass content. If reliable testing methods can be developed, it would facilitate the promotion of the use of these materials in public works projects, bringing environmental benefits on one hand, and setting a role model to the private sector on the other.

9.39 Many laboratories in Hong Kong have already been accredited to perform environment related tests. For example, 7 laboratories are accredited to perform tests related to air quality monitoring, 28 laboratories accredited for water and wastewater testing and 10 laboratories accredited for chemical testing of sediment, soil and biota samples. The industry has the capability and capacity to support further development in this area.

9.40 HKCTC will set up a forum to work with Environmental Protection Department and industry stakeholders to better assess the growth potential of this emerging trade.

(B) Information and Communications Technologies

9.41 ICT is widely used in the modern society. It has penetrated into almost every area of the economy of Hong Kong from households to corporations. On the telecommunications side, the penetration rates for broadband Internet connection and mobile phones in Hong Kong are amongst the highest in the world (about 80% and 170% respectively as of November 2009). On the information technology side, nearly all (99.4%) large companies in Hong Kong used personal computers in running of business while the percentages for medium and small companies are 89.9% and 59.8% respectively.

9.42 On the telecommunications side, two laboratories are accredited by HKAS to perform tests and a certification body is accredited to carry out product certification for telecommunications equipment. There are also eight laboratories accredited by HKAS to carry out electromagnetic compatibility tests to examine whether a product will interfere with other telecommunications equipment. In support of the development of the testing and certification industry, since October 2009 the Office of the Telecommunications Authority has transferred telecommunications equipment testing and certification services to four local certification bodies accredited by the Authority.

9.43 On the information technology side, accreditation for testing and certification activities is a relatively new area. However, Hong Kong's robust intellectual property protection regime gives it a competitive edge in competing with neighbouring economies.

9.44 Given the wider and wider adaptation of ICT nowadays, there may be opportunities for further development of testing and certification services in this trade.

9.45 Some sectors within the ICT trade, in particular the sectors related to computer and software development, have expressed interests in exploring the development of new testing and certification services. There are suggestions for further study on promotion of third-party software testing and the development of a software product certification scheme.

Way forward

9.46 ICT is a wide and diverse field. HKCTC considers that the ICT trade should be an area worth further exploring given its importance. HKCTC **suggests** that a working group be set up to provide a forum to bring together different sectors of the trade. This forum will allow HKCTC to gain better understanding of the potential demand for testing and certification services in the trade, and will facilitate the building up of a consensus on the development direction for testing and certification services. HKCTC will then consider the way forward.

Mature Trades

- Some 87% of the business receipts for testing in 2008 were related to textiles, clothing and footwear; toys and games; electrical products; and medical testing. Development of testing in these four trades is more mature and the markets have been relatively well explored. The need for focused effort will depend on whether there are new developments in these trades.

Selected Trades

- HKCTC has identified **four selected trades** which have good potential demand for testing and certification services and favourable factors to support the further growth of business:

  (a) Chinese medicine;

  (b) construction materials;

  (c) food; and

  (d) jewellery.

- HKCTC will adopt a generic approach in exploring new business opportunities in the four selected trades.

Emerging Trades

- In addition to the four selected trades, HKCTC also considers that environmental protection and ICT are **two emerging trades** that may have potential for further exploration. HKCTC will monitor closely development in these areas and to work further with the relevant trades.

CHAPTER 10

RECOGNITION OF ASSESSMENT RESULTS

10.1 **In international trade, relevant authorities of the importing economy may require submission of testing, inspection and/or certification results issued by conformity assessment bodies to demonstrate that the imported products satisfy their regulatory requirements.** Often, importers will have the products tested, inspected and/or certified before shipment and such work is usually carried out at or close to the place of production. If the importing economy accepts the results issued by conformity assessment bodies in the production regions, the costs and time to have the product re-tested, re-inspected and/or re-certified in the importing economy can be saved. Hence, **cross-border recognition of testing, inspection and certification results issued by conformity assessment bodies facilitates trade and reduces the cost of trading**.

Hong Kong's Participation in the Global Infrastructure for Accreditation

10.2 **To promote cross-border recognition of results issued by accredited conformity assessment bodies, accreditation bodies from various economies jointly set up the global infrastructure for accreditation** (see *Annex 20*). Two international organisations are at the top of this structure, i.e. the International Laboratory Accreditation Cooperation (ILAC) and the International Accreditation Forum (IAF). ILAC mainly looks after accreditation of laboratories whereas IAF's focus is on accreditation of certification bodies. They jointly work on accreditation of inspection bodies. **Underneath these two international organsiations is regional cooperation of accreditation bodies. The two regional cooperation agencies in the Asia Pacific region are Asia Pacific Laboratory Accreditation Cooperation (APLAC) under the ILAC and the Pacific Accreditation Cooperation (PAC) under the IAF. These international and regional organisations harmonise practices and administer MRAs among their members. Signatories to the MRAs accept accreditation granted by each other and recommend third parties to recognise testing, inspection and certification results issued by conformity assessment bodies accredited by the signatories. HKAS actively participates in international accreditation activities and establishes MRAs with accreditation bodies in other economies.**

10.3 HKAS has a good reputation in the international accreditation community. The Executive Administrator of HKAS participates actively in these international and regional organisations. He is/has been -

(a) a member of ILAC Executive Committee since 2007;

(b) the Chair of APLAC since 2007;

(c) the Chair of the APLAC MRA Council from 2005 to 2006;

(d) the Chair of the APLAC Training Committee from 1996 to 2002;

(e) the Vice-chair of APLAC from 1996 to 2002; and

(f) the Convener of the ILAC Task Force on the World Accreditation Mark from 2002 to 2004.

10.4 Moreover, staff of HKAS have been conveners for the development of nine APLAC documents and two ILAC documents. They have made substantial contribution to the drafting of many documents of APLAC and ILAC.

10.5 Maintaining a high profile in the international accreditation community helps increase the awareness of Hong Kong's testing and certification industry as well as recognition of the technical competence of organisations accredited by HKAS. **HKCTC recommends HKAS to continue to participate actively in the international accreditation community so as to uphold its international status and enlist greater recognition.**

Accreditation MRAs

10.6 **Through its active participation in international organisations for accreditation, HKAS has concluded MRAs with 71 counterparts in 56 economies, including accreditation bodies in all major trading partners of Hong Kong**, e.g. the China National Accreditation Service for Conformity Assessment (CNAS), the American Association for Laboratory Accreditation and the United Kingdom Accreditation Service are HKAS's MRA partners.

10.7 To promote cross-border recognition of testing, inspection and certification results issued by conformity assessment bodies, both ILAC and IAF have their own MRA marks which may be used by accredited conformity assessment bodies on their reports and certificates. HKAS is now working with ILAC and IAF on the licensing and sub-licensing agreements so that conformity assessment bodies accredited by HKAS may use ILAC and IAF MRA marks.

10.8 **The accreditation MRAs are concluded between accreditation bodies and do not bind governments or any third parties.** However, the MRAs are recognised by many buyers and regulators in individual countries and are recommended by international and regional trade facilitation organisations, e.g. the World Trade Organisation, Asia-Pacific Economic Cooperation and Association of Southeast Asian Nations. **Surveys conducted by ILAC also confirm the increasing trend of acceptance** of MRAs in recent years:

Results from ILAC surveys

	2002	2006	2008
General Acceptance	41.0%	55.0%	68.0%
Limited Acceptance	34.5%	33.0%	24.5%
Restricted Acceptance	24.5%	12.0%	7.5%
Total	100%	100%	100%

10.9 Despite the increasing trend of acceptance, recognition of accreditation MRAs varies among the regulatory regimes in different economies. The situation in regard Hong Kong's major trading partners, i.e. US, EU and the Mainland, is as follows.

Recognition of Results in US, EU and Mainland

United States

10.10 In US, the Consumer Product Safety Commission (CPSC) is an independent agency set up to protect the public against unreasonable risks of injuries associated with consumer products.

10.11 **For children's products, there is a statutory requirement that those products have to be tested by a third party laboratory recognised by CPSC before entering the market.** A testing laboratory managed by a manufacturer or a private labeller may also be accepted if extra safeguards are put in place. In both cases, the laboratory must be accredited by accreditation bodies that are full member of ILAC MRA. **HKAS is a full member of ILAC MRA and hence testing results of laboratories accredited by HKAS are recognised**.

10.12 **For non-children consumer products, there is no requirement for the products to be tested by a third-party laboratory** and hence no mandatory requirement for services from the testing and certification industry.

European Union

10.13 Generally, EU adopts a self-declaration system whereby the manufacturer declares that a product is in conformity with all applicable requirements set out in EU legislation. **For a few selected products that have safety concerns (e.g. medical devices), EU's statutory requirement is that a "notified body" has to be involved**

to confirm the products' conformity before the products can enter the EU market.

10.14 Each EU country can appoint conformity assessment bodies as they see fit as notified bodies (some global conformity assessment bodies are appointed). **While Hong Kong cannot appoint notified bodies, testing results from Hong Kong for these selected products are currently accepted through the following means:**

(a) some testing laboratories in Hong Kong are subsidiaries of EU notified bodies. Their test results are accepted through their parent companies; or

(b) some testing laboratories have cooperation arrangement with EU notified bodies, under which the Hong Kong laboratories perform the tests and send the results to their cooperation partners for further processing.

Mainland

10.15 **In the Mainland, it is a statutory requirement that products that may affect human health, life of animals and plants, environmental protection, public security and national security must be certified under the China Compulsory Certification (CCC) System** before they can be imported, sold or traded. The CCC System covers a wide range of products e.g. toys, home appliances etc.

10.16 The CCC System is a product certification system that involves testing of product samples, factory inspection and continuous monitoring. It is administered by the Certification and Accreditation Administration (CNCA) of the Mainland. **The CCC System does not recognise the accreditation MRAs, hence testing results from Hong Kong's accredited laboratories are not recognised.**

10.17 The testing and certification industry of Hong Kong has reflected to HKCTC that there will be significant business potential if testing results of Hong Kong's accredited laboratories can be recognised under the CCC System.

10.18 The Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA) was signed on 2003. In accordance with Annex 6 of CEPA, the two sides will strengthen cooperation with a view to promoting conformity assessment, accreditation and standardisation management. **Given that the CEPA already provides a platform for cooperation between the Mainland and Hong Kong, HKCTC recommends the Commerce and Economic Development Bureau to continue pursuing discussions with the Mainland authorities through CEPA to seek their agreement to accept testing reports of accredited laboratories in Hong Kong**.

10.19 A delegation led by the Secretary for Commerce and Economic Development visited Beijing in November 2009 to establish contacts with CNCA and CNAS. The visit was most useful to build on the links between both sides and to

explore possible areas of cooperation in future. This contact should be followed up.

Further Studies

10.20 **To facilitate promotion of wider acceptance of results from Hong Kong's accredited conformity assessment bodies, HKCTC recommends HKAS to further research into the regulatory regimes in US, EU, Mainland and other economies as necessary** to gain an in-depth understanding of the system and to share the findings with various sectors of our business community as well as the testing and certification industry. The findings can include whether there are other barriers against the recognition of results issued by HKAS accredited conformity assessment bodies for specific types of products; and whether there are areas of improvement.

HKCTC **recommends**:

- HKAS to continue to participate actively in the international accreditation community so as to uphold its international status and enlist greater recognition.
- The Commerce and Economic Development Bureau to continue pursuing discussions with the Mainland authorities through CEPA to seek their agreement to accept testing reports of accredited laboratories in Hong Kong.
- HKAS to conduct further research into the regulatory regimes in US, EU, Mainland and other economies as necessary to gain an in-depth understanding of them.

CHAPTER 11

PROMOTION

11.1 To increase the recognition and business opportunities for the testing and certification industry, it is important to assist the industry to promote its services to potential users both within and outside Hong Kong, in particular in the growing Mainland market.

Focus of Promotion

11.2 The nature of the testing and certification industry attaches great importance on service providers' trustworthiness in carrying out conformity assessment. Accreditation provides third-party assurance to the quality of service providers by recognising their competencies in performing the conformity assessment tasks. On promotion of the industry, **HKCTC recommends that the focus should be on accredited establishments in the industry and the world-class standard of accreditation service by HKAS**.

11.3 Through providing quality services, Hong Kong's testing and certification industry can reinforce its branding of "Tested in Hong Kong, Certified in Hong Kong". This will attract more testing and certification business to Hong Kong and strengthen its position as a regional testing and certification hub. **HKCTC recommends that the "Tested in Hong Kong, Certified in Hong Kong" branding should be the theme of these promotional activities**.

Local Promotion

11.4 **HKCTC recommends that local promotion should cover three aspects:**

(a) to encourage and facilitate more establishments in the testing and certification industry to obtain accreditation;

(b) to facilitate Government departments and various sectors to make good use of the services provided by the industry; and

(c) to raise the profile and public awareness of the industry.

11.5 To facilitate the long term growth of the industry, it is necessary to raise the overall capacity and capability of the industry by encouraging and facilitating more establishments in the industry to obtain accreditation from HKAS. In Chapter 8, HKCTC recommends HKAS to organise more seminars/workshops to explain details

of accreditation requirements and to allow sharing of experience. HKAS should make use of such seminars to promote the advantages of obtaining accreditation.

11.6 To facilitate users to make good use of the services provided by the industry, HKCTC **recommends** the following:

(a) HKAS currently provides a Directory of Accredited Bodies and their accredited services on its website. To reach out to more potential users, HKAS should widen the channels to disseminate such information (e.g. to explore with organisations with wide connections with manufacturers and traders, such as HKPC and HKTDC, the possibility of including the Directory or the relevant internet link on their website);

(b) HKAS should organise briefings for Government departments and explains the concept and advantages of third-party conformity assessment in providing quality assurance;

(c) HKAS should work with trade associations in the industry for a targeted outreaching approach for specific sectors, e.g. to distribute leaflets to introduce availability of accredited jadeite jade testing services to jewellery retailers; and

(d) after the local promotional work has become more mature, HKAS should explore with the Consumer Council on cooperation in consumer education e.g. possible use of Consumer Council's website to promote the value of third-party testing and certification by accredited establishments for products or services.

11.7 HKCTC also **recommends** raising the profile and public awareness of the testing and certification industry through various publicity and educational programmes, such as newspaper articles, TV programmes etc.

Promotion Outside Hong Kong

11.8 **In 2008, 60% of the business receipts from testing services were to meet export needs. Hence, promotion to Mainland manufacturers and overseas buyers on the strengths of Hong Kong's testing and certification industry is crucial to the further development of the industry.**

11.9 HKTDC is a strategic partner in assisting the testing and certification industry to promote its services to potential users outside Hong Kong. HKTDC's mission is to create opportunities for Hong Kong companies by promoting trade in goods and services. With more than 40 offices worldwide, including 11 in the Mainland, it has extensive connections and is well known in the trading sector of the Mainland and overseas. **HKCTC recommends HKTDC be encouraged to work**

together with the Council and trade associations in the testing and certification 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, including:

(a) conducting more conferences, seminars and workshops on new overseas product regulatory requirements which will bring new demand for testing and certification services;

(b) establishing theme zone for the testing and certification industry in major local trade fairs. HKCTC is pleased to note that the first themed zone was set up in the Hong Kong Electronic Fair 2009. Interview opportunities with overseas journalists during trade shows should also be explored;

(c) setting up promotion booths or panels at the Hong Kong pavilion in overseas trade fairs for featuring Hong Kong's edges in testing and certification services and encouraging industry participation;

(d) reinforcing outreach programmes through its worldwide offices;

(e) conducting more testing and certification missions in places where the industry clusters are located and roadshows with topical and educational seminars to the production bases; and

(f) providing information through HKTDC's leaflets, publications and website.

11.10 Accreditation provides confidence to users of testing and certification services. HKAS has MRAs with 71 counterparts in 56 economies and it is well recognised in the international accreditation community. This can be widely publicised to both overseas buyers and Mainland manufacturers to help boost their confidence in using testing and certification services in Hong Kong. Hence, **HKCTC recommends 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.**

11.11 Government has established various ETOs in the Mainland and overseas. Their main function is to promote Hong Kong's economic and trade interests, and strengthen economic ties and cooperation between Hong Kong and its trading partners. These offices maintain close network of contacts with governments, legislative bodies, business communities, the media, think-tanks and academia. **HKCTC recommends the ETOs to assist in the promotion of Hong Kong's testing and certification industry through their regular liaison work.**

Focused Promotion in the Mainland

11.12 **One of the key strengths of Hong Kong in developing the testing and**

certification industry is its proximity to the Mainland, in particular the large manufacturing base in the PRD Region. The testing and certification industry supports the booming manufacturing and trading activities in the region. **It is necessary to explore further support to the promotion of Hong Kong's testing and certification industry in the Mainland.**

11.13 HKPC's mission is to promote increased productivity and the use of more efficient methods throughout Hong Kong's business sectors. It has been providing a lot of support to the manufacturing industry, including factories set up by Hong Kong people in the PRD Region. Throughout the years, it has established extensive contacts and maintained good relationship with the manufacturing industry. It has also set up three offices in the PRD Region. To leverage on the connections of HKPC in the PRD Region, **HKCTC recommends HKPC to work together with the Council and trade associations in the testing and certification industry to strengthen the industry's connection with manufacturers in the region.**

- HKCTC **recommends** that:

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

  (b) the "Tested in Hong Kong, Certified in Hong Kong" branding should be the theme of promotional activities.

- To promote the industry, we should :

  (a) encourage and facilitate more establishments in the testing and certification industry to obtain accreditation;

  (b) facilitate Government departments and various sectors to make good use of the services provided by the industry; and

  (c) raise the profile and public awareness of the industry.

- In raising the profile of the industry and enhancing international recognition, we should work together with organisations including HKTDC, HKPC, ETOs of Government etc.

Part V

Way Forward

Chapter 12

SUMMARY OF RECOMMENDATIONS AND IMPLEMENTATION

12.1 The vision of HKCTC 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". To realise the vision, HKCTC recommends a dual approach to support the development of the testing and certification industry – making general improvements to the accreditation service and factors of production whilst putting focused effort to specific trades. Furthermore, there is a need to promote and seek wider recognition of our services outside Hong Kong. This chapter provides a summary of all recommendations as well as the way forward in implementing them.

Recommendations

12.2 A summary of recommendations to enhance the competitiveness of the testing and certification industry is as follows:

Recommendations on the General Front

Enhancement of the Accreditation System

(a) the current mode of Government providing accreditation service should be retained;

(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 the provision of new accreditation service in response to demand from the industry;

Enhancement of the Factors of Production

Manpower

(c) ITC to assist the industry to attract talent by:

(i) to cooperate with universities, 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) to help 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 Council to render assistance to facilitate local trade associations 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 ITF to enhance technical capability by:

(i) promoting ITF to the industry; and

(ii) considering making provisions in the ITF mechanism to promote the R&D of testing methodologies in future;

(j) ITC to assist the industry to link 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 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;

(l) 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 ISO'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 SERAP to SMEs in the industry;

(o) HKPC and Science Park to step up promotion of their facilities available for shared use;

Land

(p) Science Park to facilitate the setting up of testing laboratories with special accommodation needs in IEs 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 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 medicine, construction materials, food and jewellery, HKCTC will adopt a systematic approach in assisting the testing and certification industry to seize 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; and

Emerging Trades

(u) HKCTC will monitor closely developments in the two emerging trades, i.e. environmental protection and ICT, and to 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 US, EU, 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) Commerce and Economic Development Bureau to continue pursuing discussions with the Mainland authorities through 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) 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 PRD 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 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 of Recommendations

12.3 We will upload the Report to the website of HKCTC as well as send copies to various stakeholders including the Legislative Council, District Councils, chambers of commerce, trade associations, various organisations consulted in the preparation of the Report, etc.

12.4 Subject to the acceptance of the Report by the Chief Executive, HKCTC will proceed to its next phase of work – implementation of the various recommendations mentioned above. It is anticipated that at the initial stage, effort will focus on the enhancement of the accreditation system and factors of production since these form the fundamental framework of the testing and certification industry, e.g. to organise training to enhance professionalism, explore with ITC on whether the ITF mechanism can be suitably adjusted to promote testing and certification, etc. Thereafter, we will proceed to work on the selected trades. Panels will be formed during which experts in the relevant sectors (both local and overseas where necessary) will be invited to join. Promotion of the industry via various channels in conjunction with partners like HKTDC and HKPC will also commence.

12.5 For the two emerging trades, HKCTC will continue to monitor closely developments and to work further with the relevant trades. For the selected trades, a review will be undertaken after around 12 months to see if satisfactory progress has been made and whether change in strategy is required. HKCTC will also constantly review the overall situation to see if "new" trades should be added or "old" ones should be "graduated" or taken off the list.

12.6 In implementing the proposals of the Report, the Council will maintain regular dialogue with stakeholders so that their views and suggestions can be taken into account.

Resources

12.7 A dedicated team has been set up in the ITC since September 2009 to serve as HKCTC's Secretariat. It will continue to support HKCTC on the implementation of the three-year industry development plan. The organisation chart of the Secretariat is at *Annex 21*.

12.8 As announced by the Financial Secretary in his Budget Speech on 24 February 2010, HK$41 million has been allocated in the coming two years to support further development of the testing and certification industry. These include HK$26.5 million to fund the Secretariat and to engage additional staff for HKAS. The remaining HK$14.5 million will allow HKCTC and HKAS to organise various activities, including organising more seminars/workshops, participation in trade shows, providing publicity and educational programmes to raise public awareness of the industry, etc.

12.9 Apart from the above, funding will be provided through the ITF channel where appropriate.

Long-Term Status of HKCTC

12.10 HKCTC was set up as an advisory body in September 2009. Under its terms of reference at *Annex 2*, HKCTC will advise the Chief Executive on its long-term operational model including its status, functions and staffing plan.

12.11 HKCTC considers that its long-term status would depend on its future role, functions and mode of operation. With experience gained in implementing the various recommendations in this Report, it can consider what would be the best way for taking forward the work of the Council in the interest of the industry as well as the community. To deliberate on this important matter, a working group will be formed in due course to examine all related issues comprehensively.

Annex 1

Recommendations of the Task Force on Economic Challenges for Promoting Testing and Certification

Testing and Certification

(a) Immediate measures

- Establish a "Hong Kong Council for Testing and Certification" to enhance professional standards and recognition of our industry in the international arena, and explore more business opportunities.

- Government should continue to provide more business opportunities for the private laboratories, for example, by increase outsourcing of food tests to complement new legislation, and encourage the Chinese medicine trade to monitor the quality of Chinese medicine products by conducting basic tests on their products on a regular basis.

(b) Medium-term measures

- Promote our testing and certification services in the Mainland and overseas through the Hong Kong Productivity Council, the Trade Development Council and the Government's Economic and Trade Offices.

- Pursue discussions with the Mainland authorities through the Mainland and Hong Kong Closer Economic Partnership Agreement (CEPA) to seek their agreement to recognise the testing reports of Hong Kong-accredited laboratories.

- Strengthen vocational training programmes for the industry.

Annex 2

Initial Terms of Reference of Hong Kong Council for Testing and Certification

To advise the Chief Executive on -

(a) a three-year development plan for the industry;

(b) the long-term operational model of HKCTC, including its status, functions and staffing plan; and

(c) exploring new opportunities for the industry to develop and to enhance its professional standards.

HKCTC will adopt new terms of reference after the first three-year industry development plan is accepted by the Chief Executive.

Annex 3

Membership of Hong Kong Council for Testing and Certification

Chairman
Professor CHING Pak-chung

Members
Mr FUNG Lap-chung, Richard
Professor 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
Ms LEUNG Yang Shih-ti, Marianne
Ir Dr LO Wai-kwok
Ms Evelyn LU
Mr TING Wai-cheung, Bernie
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

Annex 4

Membership of Working Group on the Landscape of the Testing and Certification Industry

Convener
Ir Dr LO Wai-kwok

Members
Mr FUNG Lap-chung, Richard
Professor KWAN Hoi-shan
Mr LAM Chun-hong, Dominic
Dr LAM Po-hing, Michael
Ms LAW Sau-mui, Christina
Mr LEE Wai-kwok
Mr YEUNG King-chung, Spencer
Representative from the Vocational Training Council

Annex 5

Membership of Working Group on Selection of Trades for Focusing

Convener
Professor CHING Pak-chung

Members
Mr FUNG Lap-chung, Richard
Professor KWAN Hoi-shan
Dr LAM Po-hing, Michael
Mr LAU Man-wai, Joseph
Mr LEE Wai-kwok
Ms LEUNG Yang Shih-ti, Marianne
Mr TING Wai-cheung, Bernie
Mr YEUNG King-chung, Spencer
Representative from the Hong Kong Productivity Council
Representative from the Hong Kong Trade Development Council

Annex 6

Composition of Four Working Teams on Selected Trades

Chinese medicine
Mr LAU Man-wai, Joseph
Dr LAM Po-hing, Michael

Construction Materials
Mr LEE Wai-kwok
Representative from Hong Kong Productivity Council

Food
Professor Kwan Hoi-shan
Mr YEUNG King-chung, Spencer

Jewellery
Representative from the Hong Kong Trade Development Council
Representative from the Vocational Training Council

Sample of a Laboratory Report

Best Testing Laboratory
3/F, Good Industrial Building,
28 Hong Fook Road,
Yuen Long Industrial Estate,
N.T., H.K.

HOKLAS 938

TEST REPORT

Issue date: 18 January 2010 Page 1 of 3
Report No. : 2100108

Applicant	:	Children Care HK Ltd Rm. 1234, 12/F 148 Hung Sin Road Kowloon
Description of Samples	:	Eight styles of toy SOIRÉE GOWN submitted by the applicant P.O./ REF. NO.: R1238 COUNTRY OF ORIGIN: CHINA COUNTRY OF DESTINATION: EU MARKET
Labelled Age Grading	:	For children under 3 years of age
Date Samples Received	:	15 January 2010
Date Tested	:	15 to 17 January 2010
Tests Requested	:	European Standard on Safety of Toys - EN 71-1: 2005 + A8: 2009 - EN 71-2: 2006 + A1: 2007 - EN 71-3: 1994 + A1: 2000 and AC: 2002
Age group applied in testing	:	Under 36 months of age
Tests Results	:	Details are shown in pages 2 to 3
Conclusions	:	The submitted samples complied with the requirements in - EN 71-1: 2005 + A8: 2009 - EN 71-2: 2006 + A1: 2007 - EN 71-3: 1994 + A1: 2000 and AC: 2002

End of page

Mary Chan

CHAN Mei-yee, Mary
Toys Department
HOKLAS Approved Signatory

Best Testing Laboratory
3/F, Good Industrial Building,
28 Hong Fook Road,
Yuen Long Industrial Estate,
N.T., H.K.

HOKLAS 938

TEST REPORT

Issue date: 18 January 2010
Report No. : 2100108

Test Results

1. Mechanical and Physical Properties

As specified in European Standard on Safety of Toys EN71 Part 1: 2005 including Amendment 8

Clause	Description	Result
4	General requirements	
4.1	Material (by visual assessment)	Pass
4.2	Assembled Toys	Pass
4.7	Edges	Pass
4.8	Points and Wires	Pass
4.9	Protruding parts	Pass
5	Toys intended for children under 36 months	Pass
6	Packaging	Pass
7	Warnings and instructions for use	Pass

Note:
Only applicable clauses were shown.

2. Flammability of Toys

As specified in European Standard on Safety of Toys EN71 Part 2: 2006 including Amendment 1

Clause	Description	Result
4.1	General Requirements	Pass

End of page

Best Testing Laboratory
3/F, Good Industrial Building,
28 Hong Fook Road,
Yuen Long Industrial Estate,
N.T., H.K.

HOKLAS 938

TEST REPORT

Issue date: 18 January 2010
Report No. : 2100108

Test Results

3. Migration of Certain Elements

As specified in European Standard on Safety of Toys EN 71 Part 3: 1994 including Amendment A1 and Amendment AC. Analysis was performed by Inductively Coupled Plasma Atomic Emission Spectrometer.

Element	Pb	Sb	As	Ba	Cd	Cr	Hg	Se
Soluble Limit (mg/kg)	90	60	25	1000	75	60	60	500
Specimen Description	Adjusted Soluble Result (mg/kg)							
1. Green plastics	<5	<5	<5	<10	<5	<5	<6.7	<10
2. Yellow plastics	<5	<5	<5	<10	<5	<5	<6.7	<10
3. White plastics	<5	<5	<5	<10	<5	<5	<6.7	<10

Note:
1. < means less than
2. Results shown are of the adjusted analytical results.

End of Report

Annex 8

Sample of an Inspection Report

Best Inspection Company
2/F, Best Commercial Centre,
38 Mei Sun Street,
Yuen Long, N.T.

INSPECTION CERTIFICATE

Issue date: 11 January 2010
Certificate No.: IC20100111

CUSTOMER'S NAME & CODE

Eliza Megany

CUSTOMER ADDRESS

200 E888th Street, Manhattan, New York, U.S.A.

DESCRIPTION OF INSPECTION WORK

This is a Final Random Inspection (FRI) by attributes using the sampling plan and AQLs stated below. The purpose is to determine whether the inspected lot of products is acceptable based on the inspection criteria in the inspection procedures stated below and the approval sample provided by the customer.

INSPECTED ITEM

1) Description: MOTHERS DAY HANDBAG (Style No.: GP40001)

2) Quantity: 10000 pcs

3) Purchase Order No.: PO1234

INSPECTION DATE & LOCATION

6 January 2010 at Brillant Industry Zone, Longgang District, Shenzhen, China

INSPECTION METHOD & PROCEDURE

Inspection Protocol IP 28 & Instruction Sheet IS 88

SAMPLING PLAN & AQLs

1) Type of sampling plan: Single sampling plan for normal inspection according to BS 6001-1: 1999

2) Inspection level: General Inspection Level II for appearance check and Special Inspection Level 3 for functional check

3) AQLs: Critical defect: 0.65%; Major defect: 1.0%; Minor defect: 4.0%

INSPECTION RESULTS

Refer to inspection report no.: IR20100107 issued on 7 January 2010.

CONCLUSION

The inspected lot of products was determined to be acceptable.

Approved Signatory: T. M. Chan

Mr. CHAN Tai-man
Inspection Manager

Annex 9

Sample of a Certificate

QUALITY MANAGEMENT SYSTEM CERTIFICATE

This is to certify that

JOHN's and PETER's Limited

at

Unit 2B, 12/F, Tai Wo Industrial Building, 2 Hang San Street, San Po Kong, Kowloon

operates a Quality Management System in conformity with:

ISO 9001: 2008

for

Wholesale of steam cookers

This certificate remains valid till the expiry date stated below
subject to satisfactory maintenance of the system

T. M. Chan

CHAN Tai Man
Certification Manager

Initial Certification Date: 20 January 2007
Certificate No.: QMS 932

Expiry Date: 19 January 2010

AB CERTIFICATION LIMITED
7/F, Hung Hom Enterprise Building, 47 Hung Sin Road, Kowloon.

The accreditation mark indicates HKCAS accreditation in respect of those activities covered under registration number 228.

HKAS is a signatory to the International Accreditation Forum, Inc. Multilateral Recognition Arrangement for Quality Management Systems (IAF QMS MLA). This certificate may not be reproduced except in full.

Annex 10

Examples of Statutory Inspections in Hong Kong

Statutory inspection on	Relevant Ordinance	Frequency of Inspection	Inspection conducted by
Lifts and Escalators	Lifts and Escalators (Safety) Ordinance (Cap. 327)	Routine maintenance and inspection each month (Section 19).	Maintenance and inspection by registered lift/escalator contractors (not by Government)
		Thorough examination of • lifts - each year (Section 21); and • escalators – every six months (Section 22)	Examination by registered lift/escalator engineers (not by Government)
Buildings	Buildings Ordinance (Cap.123)		
	• Inspections under operations of Buildings Department (BD) or initiated by complaints	-	by BD or by qualified building professionals appointed by BD
	• Inspections required by statutory orders issued by Building Authority	-	by qualified building professionals (not by Government)

Statutory inspection on	Relevant Ordinance	Frequency of Inspection	Inspection conducted by
Building (Periodic Inspection, Testing and Certification for Fixed Electrical Installation)	Electricity Ordinance (Cap. 406) Electricity (Wiring) Regulation (Cap. 406E)	For typical residential or commercial premises, electrical installations with an approved loading exceeding 100 amperes shall be inspected, tested and certified at least once every five years (Regulation 20)	Inspection by registered electric contractors (not by Government)
Fire Services Installation	Fire Service (Installations and Equipment) Regulations, (Cap. 95B)	Annually (Regulation 8)	Inspection by registered contractor (not by Government)
Vehicles	Road Traffic Ordinance (Cap. 374)	Examination prior to licence renewal: • yearly inspection for over 6 year-old private cars; • yearly inspection from first registration for goods vehicles not exceeding 16 tonnes; and • yearly inspection from first registration for other vehicles (e.g. bus, light bus, taxi)	Government-designated car testing centers and qualified contractors (not by Government) by Government
Boilers and Pressure Vessels	Boilers and Pressure Vessels Ordinance (Cap. 56)	Examination required for new installations and after extensive repair or other special circumstances as stated in the Ordinance	Inspection by appointed examiners (not by Government)

Annex 11

Initiatives of Government Bureaux/Departments Which may Provide Business Opportunities to the Testing and Certification Industry

A. Housing Department

	Initiatives	Implementation Timeframe
1	Housing Authority (HA) will implement the requirement of product certification for building materials in its capital works projects. The product certification requirements for some selected building materials will be implemented in stages as follows: 1st Stage - fire rated doors and panel walls partitions 2nd Stage - cement and tile adhesive 3rd Stage - tile and repair mortar Long-term plan - other cementitious materials, concrete admixture, paint (VOC contents), mesh reinforcement, water and drainage pipes inside buildings.	1st Stage - Early 2010 2nd Stage - Mid 2010 3rd Stage - Late 2010
2	Testing and certification services are required for building services related materials/equipment to ensure they comply with relevant HA specifications and statutory requirements, such as the Electricity (Wiring) Regulation, Fire Services Regulation, etc. In the quoted regulations, the testing has to be conducted by recognised laboratories as shown in code of practice (COP) for the regulation.	To match with the market readiness, but preferably not later than mid 2011

B. Electrical and Mechanical Services Department

	Initiative	Implementation Timeframe
1	Under the Energy Efficiency (Labelling of Products) Ordinance, energy labels are required to be affixed on prescribed products supplied in Hong Kong. The first phase of the Mandatory Energy Efficiency Labelling Scheme (MEELS) covers room air conditioners, refrigerating appliances and compact fluorescent lamps. The proposed second phase will cover washing machines and dehumidifiers. The implementation of MEELS would bring about new business opportunities for the testing industry as test reports issued by qualified local or overseas testing laboratories would be required for products covered by the scheme.	1st Phase: Commenced on 9 May 2008 with 18 months grace period 2nd Phase: Expected to commence in Q1 of 2010 with 18 months grace period
2	Under the Electrical Products (Safety) Regulation, household electrical products shall not produce radiation which is likely to cause a danger to general public. It was agreed with the trade that suppliers would obtain the testing certificates for household electrical products in accordance with the latest electromagnetic field safety standards commencing from 1 January 2011. The initiative would bring about new business opportunities for the testing industry as testing certificates issued by qualified local or overseas testing laboratories would be required.	1 January 2011

C. Environmental Protection Department

	Initiative	Implementation Timeframe
1	Two amendments to the Air Pollution Control (Motor Vehicle Fuel) Regulation will be introduced to mandate the specifications of biodiesel as motor vehicle fuel and tighten the motor vehicle specifications to Euro V standards. Environmental Protection Department (EPD) plans to carry out routine monitoring of motor vehicle biodiesel and the Euro V motor vehicle fuel available in the retail market for research, planning and policy development purposes. These initiatives will likely provide more business opportunities for the local testing industry.	1 July 2010

D. Drainage Services Department

	Initiative	Implementation Timeframe
1	Odour measurement is one of the key environmental monitoring parameters in Environmental Impact Assessment (EIA) study for designated project required under Environmental Impact Assessment Ordinance (EIAO). It is also one of the monitoring parameters required under Environmental Permit for operation of odour emitting process (e.g. sewage treatment facilities) whereas odour level at boundary of such facilities as well as adjacent Sensitive Air Receiver (SAR) are specified and regulated. The demand for odour measurement has been increasing.	1 July 2010

E. Government Laboratory

	Initiative	Implementation Timeframe
1	*Food Testing* Government Laboratory (Gov Lab) will continue outsourcing food testing work to commercial laboratories. In 10/11, Gov Lab will increase the amount of food tests to be outsourced to commercial laboratories, i.e. from 79,000 tests in 09/10 to about 107,000 tests in 10/11. Gov Lab has worked together with the Food and Environmental Hygiene Department in promoting the upgrading of the commercial laboratories by sharing testing methods with them as well as conducting technical seminars, proficiency tests and inter-laboratory comparison studies on a more regular basis. They will continue to organise these seminars and programmes to share experience with the commercial laboratories.	2010/11

F. Food and Health Bureau (Food) and Food and Environmental Hygiene Department

	Initiative	Implementation Timeframe
1	The Food and Drugs (Composition and Labelling) (Amendment: Requirements for Nutrition Labelling and Nutrition Claim) Regulation was passed in 2008 to introduce a nutrition labelling scheme which requires all prepackaged food to label the content of energy plus seven core nutrients, namely protein, carbohydrates, total fat, saturated fat, trans fat, sodium and sugars, as well as any nutrient for which a claim is made. The Scheme also regulates different types of nutrition claims. The Scheme will generate business opportunities for the testing industry.	1 July 2010

	Initiative	Implementation Timeframe
2	Government is working on a new Food Safety Bill to strengthen legislative control on food safety. The Bill will incorporate new food safety control tools including a registration scheme for food importers and distributors; and record-keeping requirement for food traders to enhance food traceability. There will also be tightened control on certain high risk food types and it will empower the authorities to make orders to prohibit the import and supply of problem food and order a recall of such food. Government has expedited the legislative work on empowering the authorities to make orders to prohibit the import and supply of problem food and make recall orders. The Public Health and Municipal Services (Amendment) Ordinance 2009 was passed by the Legislative Council in April 2009 and has commenced on 8 May 2009 to give such effect. Government is now working on the remaining proposals under the Food Safety Bill. With the public's increasing concern on food safety and the commencement of the law to empower the authorities to prohibit the import and supply of food and order a food recall, many food importers and suppliers have engaged private laboratories to conduct testing of their food before they are put on the market shelves. It is believed that the demand for testing services by the food trade would increase substantially in future.	The Bill to be introduced to Legislative Council in June 2010
3	Government will develop a regulatory framework to control the level of pesticide residues in food and enhance the effectiveness of regulatory control and enforcement.	To be implemented by phases in about 2 to 4 years

	Initiative	Implementation Timeframe
4	Food and Environmental Hygiene Department will: • review the regulatory control of sweeteners in food by reviewing the Sweeteners in Food Regulations (Cap. 132U) • review the standards for veterinary drug residues in food set in the Harmful Substances in Food Regulations (Cap. 132AF)	To table amendment regulation of Cap 132U at LegCo in May 2010

G. Food and Health Bureau (Health) and Department of Health

	Initiative	Implementation Timeframe
1	The Hong Kong Chinese Materia Medica Standards (HKCMMS) provide various testing approaches to ascertain authenticity, safety and quality of commonly used Chinese Materia Medica in Hong Kong. The Chinese medicine traders are encouraged to adopt these standards when conducting tests on starting herbal materials to ensure their products are safe and of good quality. Department of Health will expand the coverage of the project from the current 60 kinds of Chinese herbal medicine to 200. A rising demand for crude herbs and product testing is expected.	Ongoing

H. Security Bureau

	Initiative	Implementation Timeframe
1	On hair testing of illicit drug, Gov Lab is taking the lead in developing a hair testing method and launching a pilot service, with a view to transferring the technology to the testing industry.	2010 (pilot service)

I. Water Supplies Department

	Initiatives	Implementation Timeframe
1	Government has adopted a voluntary Water Efficiency Labelling Scheme (WELS) as one of the water conservation initiatives. The Scheme is implemented in phases for different groups of plumbing fixtures and water-consuming appliances. Products participating in WELS will incorporate a water efficiency label that serves to tell consumers the consumption level and efficiency rating. Consumers should then be able to take these factors into account in making their purchasing decision. WELS for showers for bathing was introduced in September 2009 and it is the first group of products for implementation. Testing of the showers participating in the Scheme is required by an independent testing laboratory or by the manufacturers or importers or other related parties themselves at their own testing laboratories. Water Supplies Department (WSD) would accept the results and certificates issued by accredited laboratories or the laboratories which could meet the requirements stipulated in the Scheme document. The Scheme for taps and washing machines will tentatively be launched in end 2010.	Showers for bathing – September 2009 Taps and Washing Machines – end 2010

Annex 12

Range of Accreditation Services Provided by Hong Kong Accreditation Service

Laboratories

Calibration Services
Chemical Testing
Chinese medicine
Construction Materials
Electrical and Electronic Products
Environmental Testing
Food
Medical Testing
Miscellaneous
Proficiency Testing Provider
Physical and Mechanical Testing
Textiles and Garments
Toys and Children's Products

Inspection Bodies

Consumer Product Inspection
Construction Products
Welds
Indoor Air Quality

Certification Bodies

Quality Management System
Environmental Management System
Product Certification

Annex 13

Statutory Requirements for Testing and Certification to be Performed by Accredited Bodies

Ordinance/Regulation	Accreditation requirements for laboratories
Factories and Industrial Undertakings (Asbestos) Regulation (Cap. 59AD)	**Section 15** (1) A proprietor shall ensure that - (a) … (b) the air monitoring required in paragraph (a) is carried out by a laboratory that is accredited for the relevant asbestos test by the Hong Kong Laboratory Accreditation Scheme (HOKLAS) ….
Telecommunications Ordinance (Cap. 106)	**Section 32E Certification requirements** The Authority may - (a) test or require the testing of equipment or installations against prescribed specifications; … (g) accredit other organisations or institutions for the purpose of carrying out the responsibilities set out in paragraphs (a) and …. Note: Information Note OFTA I 421(09) sets out that the Telecommunication Authority recognises the following testing agencies (for the purpose of testing under Cap.106 s32E(a)) : - testing agencies accredited to ISO/IEC 17025 with a scope of accreditation covering the relevant specification or technical standard
Air Pollution Control (Dry-cleaning Machines) (Vapour Recovery) Regulation (Cap. 311T)	**Schedule** **1. Duties of Accredited Laboratory** An Accredited Laboratory shall be responsible for the testing of the perchloroethylene concentration in the drum of a non-vented…..and shall issue a test report which shall bear the endorsement of HOKLAS or an accreditation body which has entered into a mutual recognition agreement with HKAS…

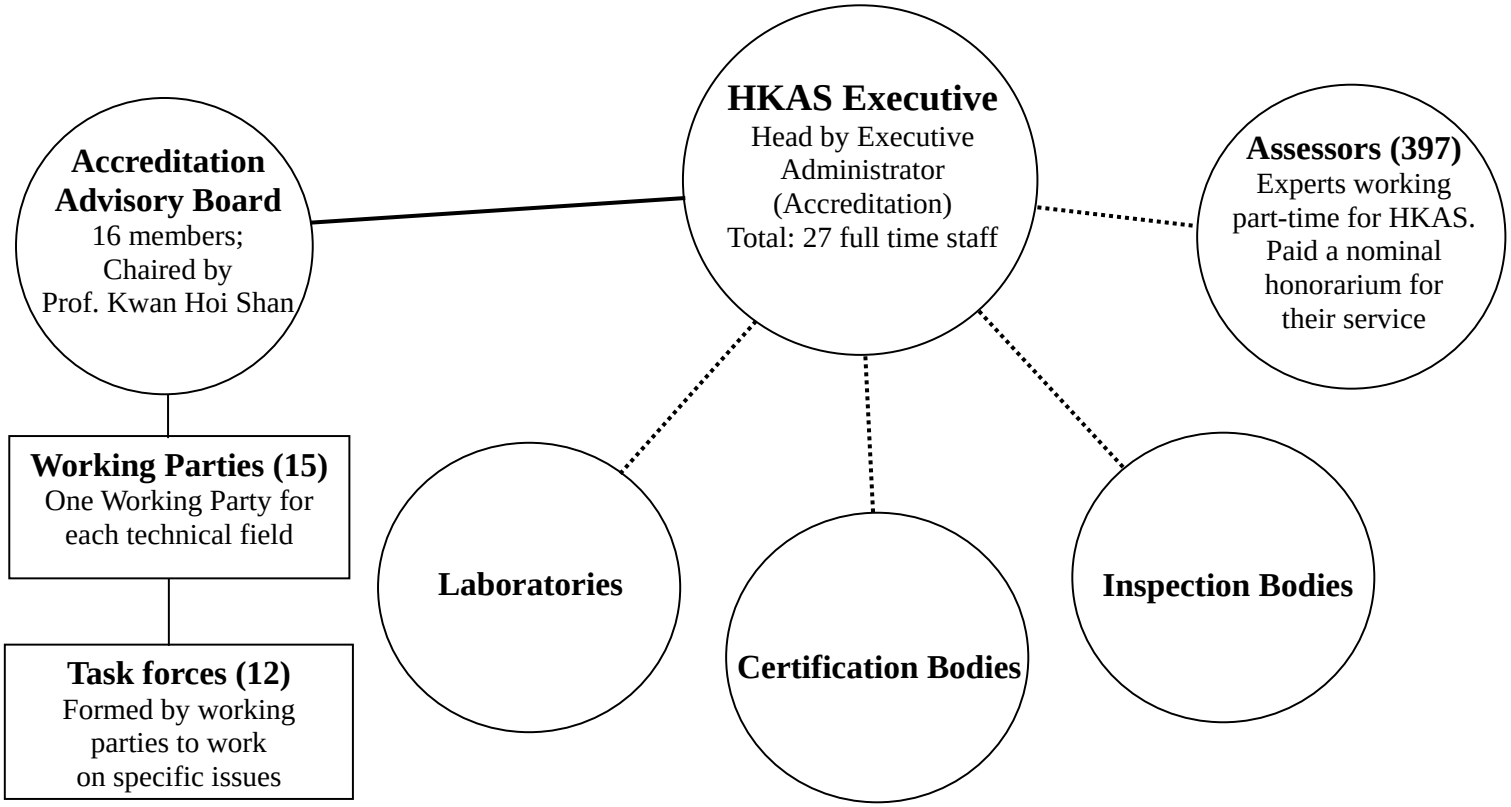
Ordinance/Regulation	Accreditation requirements for laboratories
Air Pollution Control (Asbestos) (Administration) Regulation (Cap. 311P)	**Section 5** The Authority shall not register a laboratory as a registered asbestos laboratory unless the laboratory is accredited for the relevant asbestos tests by the Hong Kong Laboratory Accreditation Scheme (HOKLAS) managed by the Commissioner for Innovation and Technology ….
Electrical Product Safety Regulations (Cap. 406G)	**Section 8 Issue of certificate for safety compliance** (1) Subject to subsection (2), no document shall be accepted by the Director as a certificate of safety compliance unless it is - … (b) a certificate or test report issued by an organisation which has been authorised by HOKLAS to endorse the certificate or test report in the name of HOKLAS and is also a recognised certification body; (c) a certificate or test report issued by an organisation which has been authorised by an accreditation body to endorse the certificate or test report in the name of that accreditation body and is also a recognised certification body
Electrical Products (Safety) Regulations (Cap. 406G)	**Schedule 4 Organisations qualified to apply for Recognition as Recognised Certification Bodies** … 2. An organisation which has been granted accreditation by the HOKLAS Executive or the HKAS Executive. …

Ordinance/Regulation	Accreditation requirements for laboratories
Toys and Children's Products Safety Ordinance (TCPSO) (Cap. 424)	**Section 9 Laboratory testing** (1) In this section and sections 24(4)(b) and 25(4) "approved laboratory" means a laboratory approved in writing by the Commissioner for Innovation and Technology for the purpose of testing toys and children's products. (2) A person may, at his own expense, have a toy or children's product tested by an approved laboratory to determine whether or not it complies with the applicable requirements of at least one of the sets of safety standards listed in section 3(1)(a), (b) and (c) or the relevant specification, or at least one of the relevant specifications (if there is more than one specification), listed in the Schedule, as the case may be. (see the Note below)
Consumer Goods Safety Ordinance (CGSO) (Cap. 456)	**Section 11 Laboratories** The Commissioner for Innovation and Technology may, in writing, approve a laboratory to conduct specified tests on consumer goods. **Section 12 Testing of consumer goods** (1) A person may, at his own expense, have consumer goods tested by an approved laboratory to determine whether or not they comply with the general safety requirement or an approved standard or a safety standard or safety specification established by regulation. Note: Innovation and Technology Commission - Health and Safety Standards Circular No. 7/00 set out in writing that the Commissioner for Innovation and Technology has approved the following categories of laboratories as "approved laboratories" for the purpose of TCPSO and CGSO: - all laboratories accredited under the Hong Kong Laboratory Accreditation Scheme (HOKLAS); and - all laboratories accredited under those Schemes which have concluded mutual recognition agreements (MRAs) with HOKLAS

Ordinance/Regulation	Accreditation requirements for laboratories
Code of Practice on Energy Labelling of Products issued under s.42(1) of the Energy Efficiency (Labelling of Products) Ordinance (Cap. 598)	**4. Requirements on Testing Laboratory** 4.1 When a specified person submits the specified information and specified documents under section 6 of the Ordinance, the Director will accept the test reports issued by a testing laboratory which meets any one of the following criteria: (a) The laboratory is accredited - (i) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) operated by the Hong Kong Accreditation Service (HKAS) for the relevant test; (ii) under an accreditation scheme operated by a laboratory accreditation body in other economies with which HKAS has concluded a mutual recognition agreement /arrangement (MRA) for the relevant test

Annex 14

Structure of Hong Kong Accreditation Service and its Relationship with Key Stakeholders



Annex 15

Relevant Courses Run by the Vocational Training Council

1. Higher Diploma in Analytical Science and Biotechnology
2. Higher Diploma in Pharmaceutical Technology (Western & Chinese medicine)
3. Higher Diploma in Environmental Resources Management
4. Higher Diploma in Food Science and Safety
5. Higher Diploma in Food Science (Supply Chain Management)
6. Higher Diploma in Chemical Technology with Management
7. Higher Diploma in Environmental Protection and Management
8. Higher Diploma in Applied and Analytical Chemistry
9. Higher Diploma in Health Food Business
10. Higher Diploma in Product Testing

Annex 16

Potential Manpower Supply for the Testing and Certification Industry from Local Universities

Discipline#	**No. of graduates from postgraduate programmes per year***	**No. of graduates from undergraduate programmes per year***	**Total no. of graduates in the discipline**
Science	334	1 200	1 534
Applied Science	653	1 125	1 778
Engineering	1 462	3 594	5 056
Fashion and Textile	125	791	916
		Total:	9 284

Remarks:

Less relevant programmes (e.g. Mathematics, Risk Management, Surveying) are excluded. Total no. of graduates in the information technology field is 2 533 and has not been included.

* The numbers have taken into account the planned programmes in the coming two years.

Annex 17

Accreditation - Practices in Different Places

	Whether Accreditation Service is Provided by Government or Non-government Bodies	**Whether Accreditation is Statutory or Voluntary**	**Remarks**
Hong Kong	Government - HKAS	Voluntary	-
United States	Both Government - The National Voluntary Laboratory Accreditation Program Non-government – e.g. The ANSI-ASQ National Accreditation Board, the American Association for Laboratory Accreditation, and the International Accreditation Services	Voluntary	-
European Union	Both	Voluntary for general testing and certification bodies Statutory for "notified bodies"	With effect from 1 January 2010, each country should have a single accreditation body. Directives exist in Europe to regulate the establishment of notified bodies under the Notification Act.

	Whether Accreditation Service is Provided by Government or Non-government Bodies	**Whether Accreditation is Statutory or Voluntary**	**Remarks**
The Mainland	Non-government (China National Accreditation Service for Conformity Assessment is a non-governmental organisation)	Voluntary	China National Accreditation Service for Conformity Assessment (CNAS) is supervised by Certification and Accreditation Administration (CNCA).
Singapore	Quasi-Government (Singapore Accreditation Council (SAC))	Voluntary	SAC operates under the aegis of the Standards, Productivity and Innovation Board (SPRING Singapore), a statutory board of the Ministry of Trade and Industry.

Annex 18

Shared Facilities in the Hong Kong Productivity Council

Electromagnetic Compatibility (EMC) Centre

EMC Centre is an accredited independent laboratory having comprehensive facilities and a professional consultancy team that offers accredited EMC testing services and technical solutions to assist manufacturers, testing and certification bodies, engineering consultancy firms, trading companies, etc. in fulfilling EMC requirements for local and overseas markets.

New Advanced EMC Chamber for Updated and Upcoming Test Requirements

2. In 2010/2011 financial year, Hong Kong Productivity Council (HKPC) will procure and set-up a new advanced EMC chamber with Government's support. The new EMC chamber will comply with technical requirements of the updated and mandatory European EMC standard (i.e. EN 55022:2007), which will be fully adopted in October 2011 for information technologies products. The chamber will also be able to cope with other upcoming and foreseeable changes of EMC requirements for radio communication equipment, medical and healthcare devices, railway electronics, automotive parts and assemblies, etc.

Benefit to Testing & Certification Industry

3. The set-up of new EMC chamber together with the expanded capacity in different aspect of EMC testing will assist local testing and certification bodies that cannot afford the capital and manpower to acquire the necessary equipment and technology to meet EMC testing needs in view of the new European standards. In the interests of the testing and certification industry as well as the electronic manufacturing and trading industry, HKPC will operate the new EMC chamber on a basis of no competition with other sectors and is open to build up partnership with all commercial testing and certification bodies in Hong Kong for various EMC related services.

Reliability Testing Centre (Printed Circuit Boards)

4. The Reliability Testing Centre within HKPC is equipped with sophisticated reliability testing equipment to support local manufacturing industries. In particular, it has extensive experience in Printed Circuit Boards (PCB) qualification. The Centre provides reliability testing service including vibration, mechanical shock, high low temperature thermal cycling, thermal shock, reflow simulation, insulation and continuity test etc.

5. With a full series of environmental stress equipment, HKPC provides testing service to recognised standards to our industries and has been sharing its facilities (in a cost recovery basis) with other local counterparts to complement their testing services.

Benefit to Testing and Certification Industry

6. Since the inception of transistor radio in the 60's, the local electronics industry has focused on the manufacturing of consumer electronics products. With the advancement in new technology and strong competition from the neighbouring economies, the local electronics industry has to shift to the manufacturing of high-value-added products of which high reliability is always taken into account.

7. In general, multinational companies that produce high reliability electronic products impose very stringent qualification requirements on their PCB suppliers. From time to time, PCB suppliers have to submit their product samples to designated overseas testing laboratories for qualification tests that are not available in Hong Kong. The long lead-time for overseas qualification tests has become a roadblock to local PCB manufacturers and suppliers to enter new market, and certainly hinders the industry's development.

8. HKPC plans to upgrade its Reliability Testing Centre by installing new equipment such as 12-zones reflow oven, advance drop testing system, X-Ray inspection system, etc. The scope of the services provided by the Reliability Testing Centre will be expanded to meet demands of local industry in developing high reliability electronics products such as computer server, automotive, railway, lighting and medical equipment, etc. Some of the equipment to be installed is the first of its kind in Hong Kong.

Annex 19

Laboratory Support from Science Park

The Hong Kong Science and Technology Parks Corporation (Science Park) provides research and development (R&D) support service to assist technology industries. It has a wide range of laboratory facilities and equipment which are available for shared use by private testing laboratories.

Solid State Lighting Test Laboratory

2. The Solid State Lighting Test Laboratory provides multi-disciplinary laboratory facilities and equipment to support testing of panel displays, light-emitting devices and photonics packaging. It is one of the most vital infrastructures for companies engaging in photonics product development in Hong Kong. The facilities are useful for quality control and product re-engineering.

Material Analysis Laboratory

3. The Material Analysis Laboratory is an advanced platform to support semiconductor, electronics, solid-state lighting and nanotechnology. It enables customers to enhance quality of product design, shorten development time, improve product life cycle, increase yield, and fix urgent engineering problems. The sophisticated equipment are managed by a team of professional engineers for various types of analysis, including electrical, chemical, material, surface and micro-analysis.

IC Failure Analysis Laboratory

4. The IC Failure Analysis Laboratory is equipped with advanced test equipment to support the failure analysis for semiconductor devices and electronic products. There are experienced engineers in the laboratory to provide assistance in the failure analysis process.

Photovoltaic Test Laboratory

5. The Photovoltaic (PV) Test Laboratory of the Solar Energy Technology Support Centre in Science Park focuses on reducing product development life-cycle for solar modules manufacturing industry by providing safety and performance testing for different PV modules. The majority of the testing (such as electrical performance,

mechanical impact and environmental reliability) are carried out according to the international standards of IEC 61730 and IEC 61646.

Biotech Support Laboratory

6. The Biotech Support Laboratory is set up to support R&D of life science related products. Its life science shared equipment laboratory has installed over 40 equipments to support R&D in the following areas:

(i) Regenerative medicine - including stem cell research and cord blood storage;

(ii) Chinese medicine - DNA fingerprint identification, clinical trials and chemical marker analysis;

(iii) Bio-medical devices and diagnostics - pacemaker, catheter, heart valve, implant, dialysis equipment, absorbable suture, diagnostic and therapeutic equipment; and

(iv) Molecular tools and reagents - antibodies, DNA/protein chips, DNA/protein/peptide synthesis and analysis.

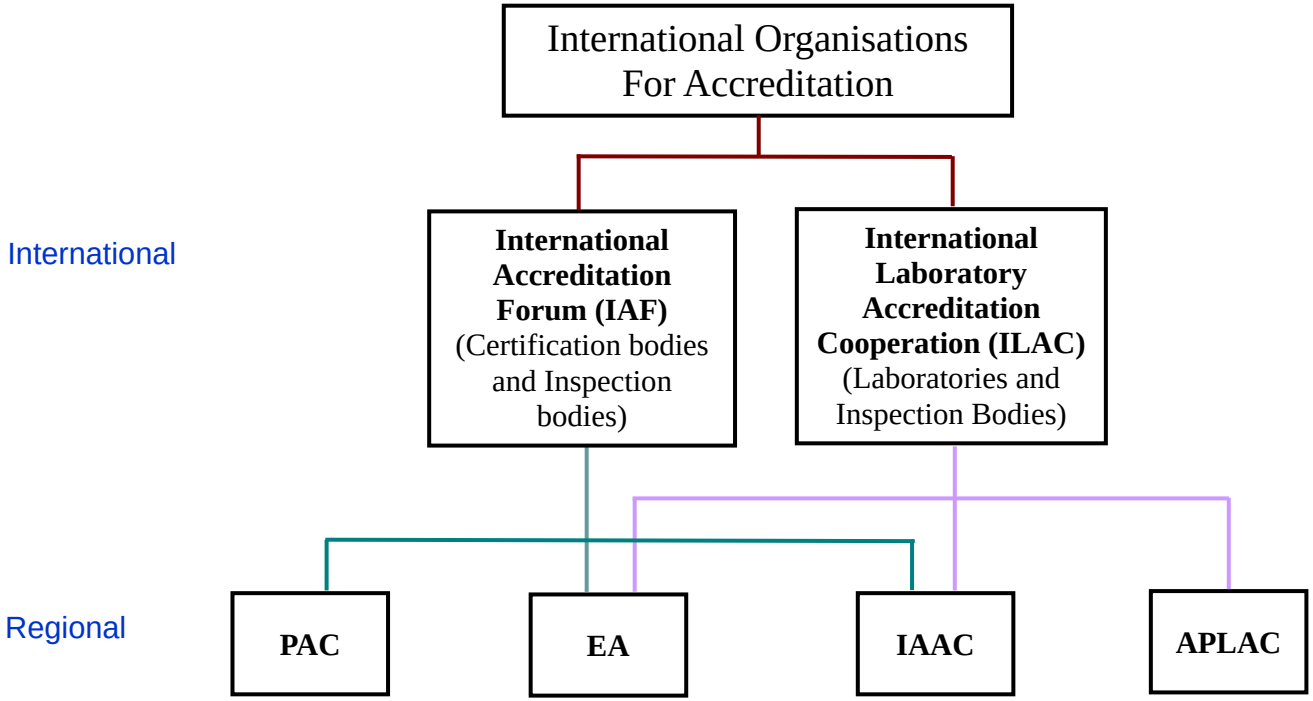
The Reliability Laboratory

7. The Reliability Laboratory is equipped with advanced test equipment to support the product life simulation, environmental room simulation and weather simulation for semiconductor devices and electronic products. Experienced engineers can carry out reliability tests, issue testing reports and provide product qualification services for customers.

Wireless Communications Test Laboratory

8. The Wireless Communications Test Laboratory is set up to support the industry in the development and testing of wireless products. It is the only testing laboratory in Hong Kong equipped with testing capability for both product testing and pre-conformance test for 3G and 3.5G mobile communications. The laboratory also has a wide range of radio frequency (RF) testing equipments which cover up to the frequency of 50GHz. The laboratory also supports testing for Digital TV and Interactive TV Services.

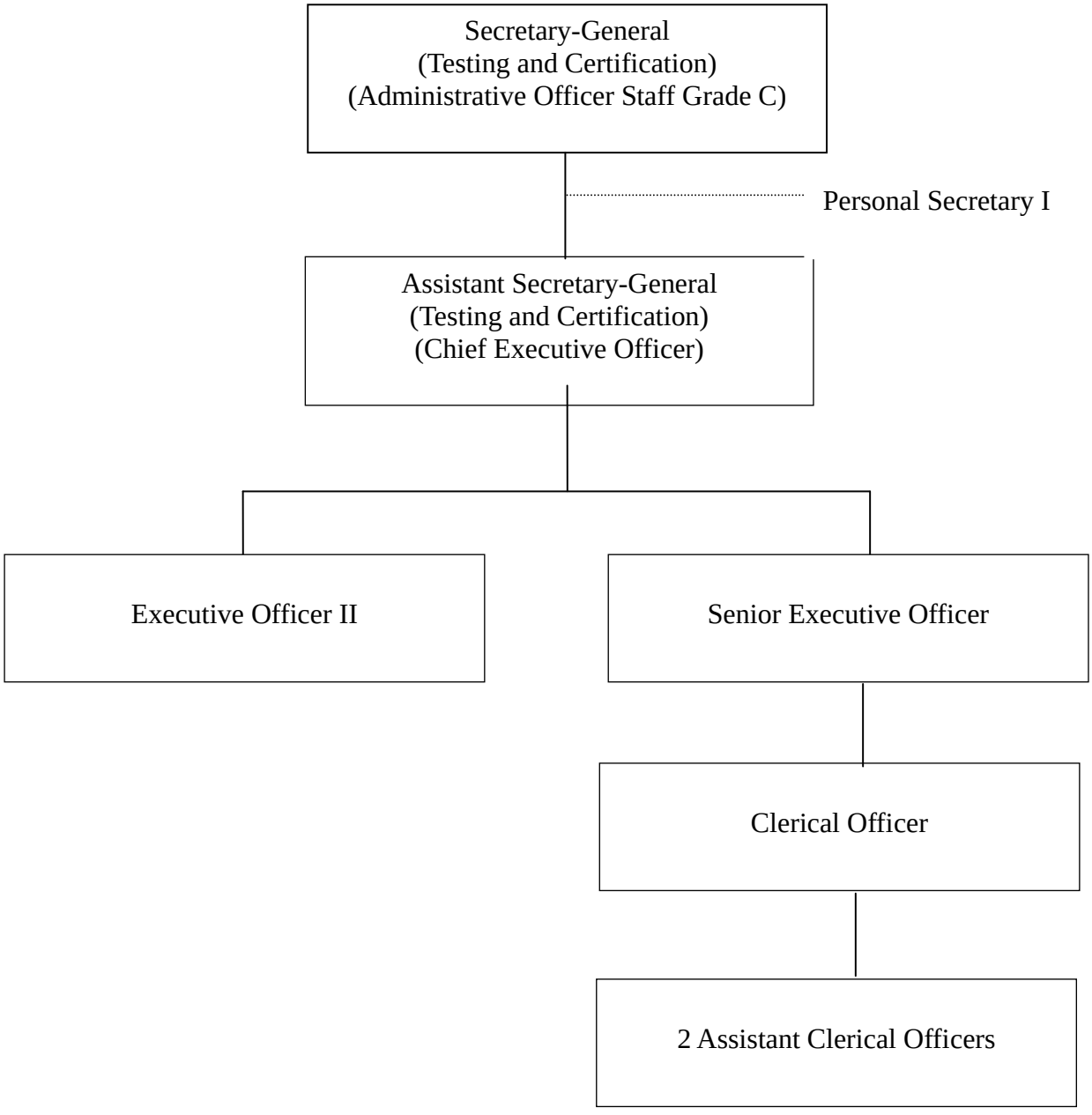
Global Infrastructure for Accreditation



IAF: International Accreditation Forum 國際認可論壇
ILAC: International Laboratory Accreditation Cooperation 國際實驗所認可合作組織
PAC: Pacific Accreditation Cooperation 太平洋認可合作組織
EA: European Cooperation for Accreditation 歐洲認可合作組織
IAAC: InterAmerican Accreditation Cooperation 美洲認可合作組織
APLAC: Asia Pacific Laboratory Accreditation Cooperation 亞太區實驗所認可合作組織

Annex 21

Organisation Chart of the Secretariat for the Hong Kong Council for Testing and Certification



Annex 22

ABBREVIATIONS

APLAC	Asia Pacific Laboratory Accreditation Cooperation
BIPM	International Bureau of Weights and Measures
C&SD	Census and Statistics Department
CDM	Clean Development Mechanism
CER	Certified Emissions Reduction
CEPA	Mainland and Hong Kong Closer Economic Partnership Arrangement
CIPM	International Committee for Weights and Measures
CMC	Calibration and Measurement Capability
CNAS	China National Accreditation Service for Conformity Assessment
ETO	Economic and Trade Office
EU	European Union
Gov Lab	Government Laboratory
HKAS	Hong Kong Accreditation Service (of ITC)
HKCTC	Hong Kong Council for Testing and Certification
HKJCICM	Hong Kong Jockey Club Institute of Chinese Medicine
HKPC	Hong Kong Productivity Council
HKTDC	Hong Kong Trade Development Council
IAF	International Accreditation Forum
IE	Industrial Estate
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
LMC Loop	Lok Ma Chau Loop
MRA	Mutual Recognition Arrangement
pCm	proprietary Chinese medicine
PRD	Pearl River Delta
PSIB	Product Standards Information Bureau (of ITC)
R&D	Research and Development
Science Park	Hong Kong Science and Technology Parks Corporation
SCL	Standards and Calibration Laboratory (of ITC)
SERAP	Small Entrepreneur Research Assistance Programme
SME	Small and Medium Enterprise
TFEC	Task Force on Economic Challenges
US	United States
VTC	Vocational Training Council