For Discussion
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Subcommittee to Follow Up on the Outstanding Capital Works Projects of the Former Municipal Councils

Retro-fitting of Air-Conditioning to Existing Markets and Cooked Food Centres

PURPOSE

This paper reports on the findings of the review of retro-fitting of air-conditioning system (A/C) to existing markets and cooked food centres (CFCs) and recommends the way forward for the 10 A/C retro-fitting projects of the former Municipal Councils.

BACKGROUND

2. At the Subcommittee meeting held on 2 May 2000, we informed Members that we would conduct a review of retro-fitting of A/C to existing markets and CFCs and based on the findings of the review, recommend the way forward for the 10 A/C retro-fitting projects of the former Municipal Councils (MCs) (the list is at **Annex I**). The review has now been completed.

Ventilation Systems in Markets and Cooked Food Centres

3. In general, there are 3 types of ventilation systems used in markets and CFCs of the Food and Environmental Hygiene Department (FEHD). They are:

(a) *Mechanical Ventilation System*

This is the simplest and most widely used ventilation system in markets and CFCs. The purpose is to enhance natural ventilation. Commonly used ventilation devices include ceiling or wall-mounted fans and ventilation ducts with extraction fans;

(b) *Market Economic Air Treatment (MEAT) System*

This system has been in use since 1984. It is an open loop fresh air supply system through which outdoor air is drawn in by the air

handling units and cooled down either by chilled water or refrigerant and then discharged to the interior of the market through air ducts at a temperature of about 2°C to 3°C below the prevailing external temperature. In hot spots like poultry stalls area and fish stalls area where high-wattage light bulbs and refrigerators are excessively used, this chilling effect may not be easily felt. However, it can still serve its primary function to supply fresh air. Compared with the A/C system, it is more economical to install and operate; and

(c) *Air-conditioning System*

The policy of providing A/C to new CFCs and retro-fitting A/C to existing CFCs was first adopted by the former Urban Council in 1992. In 1994, the former Regional Council adopted this policy and extended it to cover markets. In 1996, the former Urban Council also extended its A/C policy to cover markets.

Photos of the ventilation systems are at the attached booklet for Members' reference.

4. At present, there are 81 markets and 60 CFCs under FEHD's management. A breakdown by types of ventilation system installed is as follows:

Ventilation System	No. of Markets	No. of CFCs
(a) Mechanical ventilation	50 (62%)	44 (74%)
(b) MEAT system	20 (24%)	5 (8%)
(c) Purposely built with A/C system	8 (10%)	6 (10%)
(d) Retro-fitted with A/C system	3 (4%)	5 (8%)
Total	81	60

5. Apart from the above, the following 6 new A/C markets and 5 new A/C CFC are under construction:

A/C Markets	A/C Cooked Food Centres
Tai Kok Tsui Complex	
Chai Wan Complex	
Tai Po Complex	
Luen Wo Hui Complex	
Centre Street Market	Centre Street Market CFC
Wan Chai Market	

They will increase the number of FEHD A/C markets and CFCs to 17 and 16 respectively upon completion.

REVIEW

Experience of Retro-fitting of A/C to Markets and Cooked Food Centres

6. The ex-Provisional Regional Council (ex-PRC) did not carry out any retro-fitting works for CFCs but the ex-Provisional Urban Council (ex-PUC) retro-fitted 5 CFCs with A/C from 1992 to 1998 (i.e. the CFCs in Sai Wan Ho Market, Lockhart Road Market, Sheung Wan Market, Java Road Market and To Kwa Wan Market). Major alteration works were involved in retrofitting, including, inter alia, structural changes of the kitchens from open-type to close-type, installation of air ducts, dismantling of existing fire services installations and installation of new fire services to meet the requirements for an enclosed environment. As a result, the CFCs had to suspend business temporarily during the works period. The period of closure ranged from 3 to 9 months.

7. The ex-PUC had 10 A/C retro-fitting projects in its Capital Works Programme and they have not yet been implemented.[Note: As regards the ex-PRC, it commenced a project to retro-fit A/C to three existing markets, namely Sha Tin Market, Yan Oi Market and Tai Kiu Market in July 1999 (entitled Phase I). The ex-PRC intended to retro-fit 8 other markets and 1 CFC as Phase II of the project, although they were not within the ex-PRC's Capital Works Programme.]

8. In our review, we have made reference to the experience of three recently completed ex-PRC A/C retrofitting projects (i.e. Sha Tin Market, Yan Oi Market and Tai Kiu Market). The review shows that for retro-fitting works to be carried out smoothly, great care has to be exercised in the planning and implementation stages. For example, in selecting markets for A/C retro-fitting, due regard has to be given to the design and site constraints of the markets. The three markets referred to above are either one or two storeys and each has sufficient space on the roof for installing the additional plant rooms required for the project. However, problems are still unavoidable during the works period. For example, the stall lessees in Sha Tin Market objected strongly to demolishing their unauthorized overhead stores to make way for the installation of air ducts and a sprinkler system. The overall programme was thus delayed for three months due to the need to conduct talks and mediation. This shows that full cooperation from the stall lessees is very important.

9. Measurements taken in the three markets indicate that there are general improvements in the air quality:- the temperature is maintained at around 24°C average (when the ambient temperature outside is 33°C), the relative humidity is kept below 70% and the carbon dioxide content is less than 1,000 ppm after the A/C systems have been in operation. Photos of the projects are at the attached booklet for Members' reference**.**

10. To conclude, the provision of A/C to markets and CFCs will bring improvement to the working and shopping environment for stall lessees as well as their customers. The stall lessees are generally satisfied with the outcome of the projects. We therefore recommend that the 10 former MC retrofitting of A/C projects be proceeded, subject to technical feasibility and availability of resources. We will include these projects into the Public Works Programme (PWP) as Category C items. This should also be suitably applied to the 9 retrofitting of A/C projects to markets and CFCs in the New Territories.

Criteria for determining priority

11. In determining the priorities for upgrading the various projects through the PWP procedure, we will adopt the following general criteria –

(a) *Long Term development of the market or CFC*

In light of the significant capital outlay for retro-fitting involved, it

must be established that the market or CFC concerned will not be redeveloped in the foreseeable future. A preliminary examination reveals that the majority of the 10 A/C retro-fitting projects in Annex I should meet the above criteria;

(b) *Availability of air-conditioned market or CFC facilities to residents*

For the sake of fairness, we would aim to generally achieve a fair distribution of A/C market or CFC facilities among various districts. A higher priority would be accorded to A/C retro-fitting projects in districts where such facilities are not available. In this context, air-conditioned facilities provided by FEHD, Housing Authority and the private sector would all be taken into account;

(c) *Strategic location of market or CFC facilities*

The location has a bearing on the number of residents a market or CFC can serve and its viability. A conveniently located market or CFC will be able to serve a larger number of members of the public and should therefore be accorded higher priority.

(d) *Existing ventilation conditions*

Due to difference in design, site constraints and equipment installed, the ventilation conditions of markets / CFCs vary from one facility to another. For example, a market which has a high ceiling and extensive cross ventilation will be cooler in summer when compared to one which has a low ceiling and which is more enclosed. Priority should be given to those with less favourable ventilation conditions.

(e) *Site constraints and technical difficulties*

The design and site constraints of a market or CFC will present different levels of technical difficulties for retro-fitting works. This needs to be taken into account.

(f) *Cooperation of stall lessees*

The operation of a market or CFC concerned will inevitably be interrupted during the period of A/C retro-fitting works (even if some works can be carried out in the evening). The retrofitted A/C will also have long term financial implications for the stall lessees. It is therefore important to obtain the consent of the lessees before proceeding with any A/C retrofitting work.

Cost Implications of A/C retro-fitting works to stall lessees

12. Cost implications of A/C retro-fitting works are :

(a) Capital cost for the construction and installation of A/C; and

(b) Recurrent cost for running the A/C system after implementation, i.e. electricity and maintenance.

13. Currently, there are different methods for recovering costs of A/C in markets/CFCs in the public sector -

(a) *A/C markets/CFCs of the ex-PRC*

The policy of the ex-PRC is to recover all the recurrent cost from the stall lessees. Apart from monthly stall rental, the stall lessees also pay a monthly A/C fee, based on the size of individual stalls. The capital cost is not recovered from the stall lessees.

(b) *A/C markets/CFCs of the ex-PUC*

Stall lessees in the urban area do not pay any A/C fee separately. During the re-organisation of municipal services, the Administration undertook to review and align the various different practices of the former MCs.

(c) *A/C markets and CFCs of the Housing Authority*

The Housing Authority's practice is to fully recover the recurrent cost as well as the capital cost over a period of 20 years. Stall lessees have to pay a monthly A/C charge in addition to monthly rental according to the size of the stalls.

(d) *A/C markets of the Housing Society*

The Housing Society's practice is to recover fully the capital and recurrent costs. The whole market is leased out through tender to one head tenant at a rate which is calculated to reflect the capital cost of the A/C system. The head tenant has to shoulder all the recurrent cost.

14. After taking into account various factors, we consider that we should only recover the recurrent cost of the retrofitting of A/C from stall lessees for the following reasons :

(a) The lessees are the direct beneficiaries of the retro-fitting projects. With a more comfortable shopping environment, customer satisfaction will generally be greater and this will be conducive to the business and viability of the market. It is not unreasonable for stall lessees to bear the recurrent cost arising from the project. The air-conditioning charge will vary from market to market and depend on the number and size of the stalls concerned etc. For indicative purpose, the monthly recurrent A/C charge ranges from around $500 for a wet/dry goods stall to around $1,200 for a meat/fish stall in Shek Wu Hui market. The lessees in CFCs will have to pay more than their counterparts in markets due to the larger size of cooked food stalls and the lesser number of stalls to share out the costs ;

(b) The proposed charging method is in line with the current practice for all A/C markets in the former PRC areas;

(c) If the capital costs were also to be recovered from the lessees, the total monthly payment for A/C would be very high even if it were to be phased over a number of years; and

(d) Our initial plan is for implementation to tie in with the alignment of the different market rental policies of the two former PMCs in the middle of next year. But existing stall lessees will only have to pay the recurrent cost upon expiry of their current tenancies. This should allow ample time for most lessees to decide whether they would like to stay on in the same market or move to markets without A/C.

15. Apart from sharing the recurrent cost, stall lessees will also be affected during the works period. Necessary arrangements will need to be worked with the stall lessees concerned. In line with the general practice of the former MCs, rental waiver during the works periods will be offered to the affected lessees.

16. In view of the above, it will be necessary to consult the stall lessees and explain the various implications of a A/C retrofitting project before a decision is taken on whether a particular project should proceed. Unless the majority of the lessees concerned are agreeable to the proposed retro-fitting of A/C to a market or CFC, we do not think that the project can be taken forward. We will work out the mechanism for consultation including how “majority” is to be defined.

RECOMMENDATIONS

17. Having regard to the considerations above, we recommend that –

(a) the 19 outstanding projects involving retro-fitting of A/C to markets and CFCs should be included into Cat C of the PWP; and

(b) the 19 projects would be upgraded in the PWP based on the criteria set out in paragraph 11 above.

Environment and Food Bureau
December 2000

Annex I

Projects of Retro-fitting of Air-conditioning to Existing Markets and Cooked Food Centres

District	Project
Sham Shui Po	Retro-fitting of Air Conditioning to Po On Road Market and CFC
Southern	Retro-fitting of Air Conditioning to Aberdeen Market and CFC
Yau Tsim Mong	Retro-fitting of Air Conditioning to Kwun Chung CFC
	Retro-fitting of Air Conditioning to Fa Yuen Street Market and CFC
Eastern	Retro-fitting of Air Conditioning to Yue Wan Market
Central & Western	Retro-fitting of Air Conditioning to Sheung Wan Market
Kowloon City	Retro-fitting of Air Conditioning to Tokwawan Market
Wanchai	Retro-fitting of Air Conditioning to Bowrington Road CFC
Wong Tai Sin	Retro-fitting of Air Conditioning to Ngau Chi Wan Market and CFC
Kwun Tong	Retro-fitting of Air Conditioning to Ngau Tau Kok Market and CFC