# CHAPTER 1

# THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

## GENERAL REVENUE ACCOUNT

## GOVERNMENT SECRETARIAT

## Works Bureau
## Planning and Lands Bureau

## GOVERNMENT DEPARTMENT

## Highways Department

**Follow-up review on control of utility openings**

**Audit Commission**
**Hong Kong**
**13 March 2001**

# FOLLOW-UP REVIEW ON CONTROL OF UTILITY OPENINGS

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# FOLLOW-UP REVIEW ON CONTROL OF UTILITY OPENINGS

## Summary and key findings

A. **Introduction.** Apart from providing passageways for vehicular and pedestrian traffic, the road network of Hong Kong also accommodates various public utilities. Opening of the road surface is unavoidable because of the need to maintain the utilities and to install new services. The Highways Department (HyD) is responsible for the coordination and control of utility openings on public roads. A utility operator has to obtain an excavation permit (EP) from the HyD in order to carry out excavation works on public roads. At present, EPs are issued free of charge. In its Report No. 24 of July 1995, the Public Accounts Committee (PAC) recommended that additional measures should be taken to improve the control of utility openings and that the EP fee should be implemented as soon as possible (paras. 1.2, 1.3 and 1.6 to 1.11).

B. **Follow-up audit review.** Against the above background, particularly the PAC's previous recommendations, Audit recently conducted a follow-up review on the Government's efforts in enhancing the control of utility openings. The audit findings are summarised in paragraphs C to G below (para. 1.12).

C. **Utility Management System (UMS).** In October 1997, the HyD implemented a computerised UMS to support the coordination and control of utility openings. The intended benefits of the UMS include: (a) reducing the EP processing time from 14 working days to 5 working days; (b) increasing the number of inspections carried out on utility openings by 10%; and (c) reducing the average duration of road opening works by 10%. The HyD regularly monitors the data relating to the intended benefits and discloses the EP processing time in the Controlling Officer's Report in the Annual Estimates (COR). However, Audit considers that there are merits in disclosing, in addition to the EP processing time, other useful performance indicators (i.e. the number of inspections carried out and the average duration of road opening works) in the COR, so as to enhance public accountability and keep the Legislative Council (LegCo) informed of such performance indicators (paras. 2.3 to 2.7).

D. **Reporting of site inspection results needs improvement.** The HyD's regional staff conduct regular site inspections to check whether the EP conditions on site set-up have been complied with. Data of non-compliance with EP conditions are monitored by each Regional Office's Road Opening Coordinating Committee (ROCC). In 1998, the HyD's Research and Development (R&D) Division found that the regional staff were reluctant to record all defects identified in their site inspections, and that the ROCC's non-compliance statistics might not accurately reflect the true site conditions. In view of these findings, the HyD took actions to improve the reporting of site inspection results. However, in January 2000, a joint inspection conducted by the R&D Division and the Regional Offices revealed that the non-compliance statistics still did not accurately reflect the true site conditions. As at December 2000, the HyD was still in the process of finalising a set of Guidance Notes to provide guidelines to the regional staff on the inspection of utility sites. Audit considers that continued efforts are necessary to closely monitor the implementation of the procedures specified in the Guidance Notes to ensure that they are followed. Audit also considers that the data of non-compliance with EP conditions and those of unattended sites are key indicators of the performance of utility operators in road opening works. It is worth considering disclosing such data in the COR (paras. 3.3 to 3.17).

E. **Frequency of site inspections needs regular review.** Since 1998, the HyD has reduced the required minimum frequency of inspections for each site from the previous "at least twice a week" to the present "once every ten days". The HyD informed Audit that that was a conscious decision having regard to the HyD's priorities, other workload and the improvement of quality of utility inspections. Audit noted that the Guidance Notes (see paragraph D above) required the HyD's Maintenance Working Group (MWG) to regularly review the frequency of inspections. Audit also noted that, for the months of August and September 2000, the HyD had achieved one inspection for every 11.6 active EP days, which was slightly less than the required minimum frequency of one inspection for every 10 active EP days. In response, the HyD informed Audit that, for the months of October, November and December 2000, the HyD had achieved one inspection for every 10.2 active EP days. Audit considers it necessary for the HyD to make continued efforts to help the Regional Offices meet the minimum frequency of inspections. On a related issue, Audit's analysis of a sample of the EPs revealed that, in respect of 36% of the EPs in the sample, the permittees had not complied with the 2-day advance notification (AN) requirement on the commencement of works. Such a large number of non-compliance cases could affect the HyD's scheduling of site inspections (paras. 4.2 to 4.10).

F. **Damage to underground utilities.** The number of incidents of damage to underground utilities decreased from 1,682 in 1996, by 44%, to 936 in 2000. The HyD attempts to minimise damage to underground utilities by: (a) monitoring the relevant data through the Utilities Technical Liaison Committee (UTLC); (b) controlling utility openings through the EP conditions; (c) incorporating precautionary provisions in its roadwork contracts; and (d) taking the lead in implementing a project to enable utility operators to circulate their utility records expeditiously by electronic means. Audit considers that, in addition to these measures, there is a need for the HyD to collect information about the causes of damage. Such information can help the HyD and utility operators devise appropriate improvement measures. There is also a need for the HyD to consider including the number of damage incidents in the COR to enhance public accountability (paras. 5.4 to 5.15).

G. **Slow progress in the implementation of EP fee and new penalty system.** In the Government Minute of October 1995, the Administration informed the PAC that: (a) it would make arrangement to introduce legislative amendments at the earliest opportunity to provide for the charging of the EP fee on a cost-recovery basis; and (b) it was considering the practicability of imposing a penalty on those utility operators who did not perform satisfactorily. Audit noted that progress had been slow and, by the end of January 2001, legislative amendments had still not been introduced to LegCo. The slow progress in implementing a suitable penalty system has deprived the HyD of a useful tool to enhance its control of utility openings, and the slow progress in implementing the EP fee has delayed the Government's effort to achieve its cost-recovery objective (paras. 6.2 to 6.9).

H. **Audit recommendations.** Audit has made the following main recommendations that:

— the Director of Highways should:

(a) consider including the following additional information in the COR:

(i) the number of inspections carried out on utility openings (para. 2.7(a));

(ii) the average duration of road opening works per EP (para. 2.7(b));

(iii) the data of non-compliance with EP conditions and of unattended sites (para. 3.18(c)); and

(iv) the number of incidents of damage to underground utilities (para. 5.16(b));

(b) closely monitor the implementation of the procedures specified in the Guidance Notes to ensure that the non-compliance data accurately reflect the site conditions (para. 3.18(b));

(c) continue to closely monitor the inspection data of the Regional Offices and, if necessary, take appropriate actions to help the Regional Offices achieve the required frequency of inspections (para. 4.7(a) and (b));

(d) closely monitor the outcome of the MWG's regular reviews on the frequency of inspections and, depending on the outcome, consider whether there is a need for increasing the frequency of inspections (para. 4.7(c) and (d));

(e) continue to closely monitor the extent of non-compliance with the 2-day AN requirement and, in cooperation with the utility operators, take appropriate measures to ensure compliance (para. 4.12(a) and (b));

(f) through the UTLC meetings, continue to monitor the data of damage to underground utilities, to seek improvement opportunities (e.g. by collecting information on the causes of damage) and to take necessary improvement actions (para. 5.16(a)); and

(g) continue to monitor the progress of the project on the electronic interchange of utility records to ensure that the project is implemented on schedule (para. 5.16(c)); and

— the Secretary for Planning and Lands and the Secretary for Works should closely monitor the progress of introducing the legislative amendments to LegCo to ensure that the EP fee and the penalty system are implemented without further delay (para. 6.10).

I. **Response from the Administration.** The Director of Highways welcomes the audit review. He has said that the audit review is balanced and constructive. The HyD is always striving for improvements and will continue to do so in future. In doing so, he will take account of Audit's recommendations. Regarding the implementation of the EP fee and the new penalty system, the Secretary for Planning and Lands has assured Audit that the parties concerned are working expeditiously towards introducing the legislative amendments to LegCo.

## PART 1: INTRODUCTION

1.1 This PART explains the background to the audit and outlines the audit objectives and scope.

### Background

1.2 Apart from providing passageways for vehicular and pedestrian traffic, the road network of Hong Kong also accommodates various public utilities such as water, gas and electricity. At present there are 11 major utility operators (Note 1). Opening of the road surface is unavoidable because of the need to maintain the utilities and to install new services. In 2000 there were about 43,000 utility openings.

1.3 The Highways Department (HyD) is responsible for the planning, design, construction and maintenance of the public road network. It also coordinates and controls utility openings on public roads. According to the Land (Miscellaneous Provisions) Ordinance (Cap. 28), a person has to obtain an excavation permit (EP) from the HyD in order to carry out excavation works on public roads (Note 2). The EPs stipulate the conditions with which utility operators must comply. In 2000 the HyD issued about 23,000 EPs free of charge (Note 3).

1.4 The Planning and Lands Bureau (PLB) is responsible for land policy matters. The Works Bureau (WB) is the responsible policy bureau of the HyD on matters relating to works.

1.5 The HyD has established three standing committees at various levels to facilitate cooperation and communication with utility operators. These committees are:

(a) ***Joint Utilities Policy Group (JUPG).*** The JUPG meets quarterly to consider and advise on the policy in relation to utility openings. Membership of the JUPG consists of the Assistant Director/Headquarters of the HyD and senior representatives of the utility operators. Representatives of the utility operators take turn to chair the JUPG;

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**Note 1:** *The 11 major utility operators are the two power companies, the gas company, the tram company, the cable television company, the four fixed telecommunications network operators, the Drainage Services Department and the Water Supplies Department.*

**Note 2:** *Each EP is issued for a specified utility job and is valid for a specified period of time. If the job cannot be completed before the expiry of the EP, the permittee has to apply to the HyD for an extension of time.*

**Note 3:** *Each EP may permit an individual utility operator to make one or more road openings.*

(b) ***Utilities Technical Liaison Committee (UTLC).*** The UTLC, chaired by the Deputy Director of Highways, is made up of management level representatives from the HyD's Regional Offices (Note 4) and utility operators. It meets quarterly to discuss technical and administrative matters in relation to utility openings; and

(c) ***Road Opening Coordinating Committee (ROCC).*** A ROCC is set up in each of the HyD's Regional Offices to monitor the utility openings in the respective region. Each ROCC comprises working level representatives of the HyD, utility operators and relevant government departments such as the Transport Department and the Police. Meetings of the ROCC are held monthly and chaired by the Chief Highway Engineer of the Regional Office.

## Audit reviews in 1991 and 1995

1.6 Disruption to traffic and inconvenience to the public caused by road excavation works has long been a matter of public concern. The social cost of such disruption in terms of both time and money can be high. In the Director of Audit's Report No. 17 of October 1991, Audit invited attention to areas where improvements were needed to reduce the incidence of delays in the completion of utility works on roads. In its Report No. 17 of January 1992, the Public Accounts Committee (PAC) expressed concern at the increase in the number of road openings and urged the Administration to introduce measures to improve the control of road openings.

1.7 In 1995, Audit conducted a follow-up review on the subject. In the Director of Audit's Report No. 24 of March 1995, Audit reported that the Road Openings Working Party (Note 5) had drawn up an action plan to tackle the various problems of road excavations. The action plan included a number of improvement measures, such as:

(a) creation of additional posts in the HyD to coordinate road excavation works and to increase the frequency of site inspections. The purpose was to ensure compliance with EP conditions, especially to reduce the occurrence of road openings unattended without valid reasons;

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**Note 4:** *The HyD performs its road maintenance and utility duties mainly through its three Regional Offices, namely the Hong Kong Region, Kowloon Region and New Territories Region.*

**Note 5:** *The Road Openings Working Party, chaired by the Secretary for Works, was established in August 1993. Its members included representatives of relevant bureaux and departments such as the Transport Bureau, the HyD and the Police. The Working Party was tasked to formulate measures, by the end of October 1993, to reduce the incidence and duration of road openings and to ameliorate their effects.*

(b) provision of temporary decking over excavations left open for two days or more;

(c) display of publicity signboards on road opening sites to show the expected completion date, nature of work and telephone numbers for enquiry or complaints; and

(d) development of a map-based computer system, known as the Utility Management System (UMS), to facilitate the management of road excavations and information flow between utility operators.

1.8 In the Director of Audit's Report No. 24, Audit also invited attention to the substantial financial implications to the Government (Note 6) due to the delay in implementing the EP fee.

1.9 In its Report No. 24 of July 1995, the PAC noted the various measures taken by the Administration to reduce the incidence of delays in the completion of utility works. The PAC recommended that additional measures should be taken to further improve their effectiveness. The following are the key measures:

(a) there should be better coordination among government departments and closer supervision of utility operators;

(b) recruitment policy should be regularly reviewed by the HyD in order to ensure that sufficient staff were available to keep up inspections of road excavation works; and

(c) penalty should be imposed on utility operators who delayed their works without good reasons.

1.10 In its Report No. 24, the PAC also recommended that the EP fee should be implemented as soon as possible.

1.11 In the Government Minute of October 1995, the Administration accepted the PAC's recommendations.

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**Note 6:** *Under the Land (Miscellaneous Provisions) Ordinance, an EP is issued free of charge. The Government's intention is that permittees should be charged an EP fee on a full-cost recovery basis.*

## Audit review

1.12 Against the above background, particularly the PAC's recommendations in paragraphs 1.9 and 1.10 above, Audit recently conducted a further review on the Government's efforts in enhancing the control of utility openings. The audit focused on the following areas:

(a) implementation of the UMS and other measures to enhance the coordination and control of utility openings (see PART 2 below);

(b) reporting of site inspection results (see PART 3 below);

(c) frequency of site inspections (see PART 4 below);

(d) damage to underground utilities (see PART 5 below); and

(e) implementation of the EP fee and the new penalty system (see PART 6 below).

Audit has made a number of recommendations to address the issues concerned.

## General response from the Administration

1.13 The **Director of Highways** welcomes the audit review. He has said that:

(a) the audit review is balanced and constructive. It is encouraging to note that the audit report recognises the perennial efforts the HyD has put into the difficult task of managing utility works in the congested environment of Hong Kong; and

(b) the HyD is always striving for improvements and will continue to do so in future. In doing so, the HyD will take account of Audit's recommendations. Some of the audit recommendations, in fact, reflect actions which the HyD has already initiated and are currently in progress.

## PART 2: UMS AND OTHER IMPROVEMENT MEASURES

2.1 This PART examines the implementation of the UMS and other actions taken by the HyD in the past few years to enhance the coordination and control of utility opening activities.

### Background

2.2 Except for emergency works, utility operators are required to initially register their proposed road opening works with the HyD. With the aid of the UMS, HyD staff identify conflicting proposals (i.e. works planned to be carried out in close vicinity and at about the same time) and require the utility operators concerned to coordinate the works among themselves, and to submit an agreed programme to the HyD for consideration. If the conflicting proposals are not resolved, HyD staff will not issue EPs to these utility operators.

### Implementation of UMS

2.3 In July 1995, the HyD sought the approval of the Finance Committee (FC) of the Legislative Council (LegCo) for implementing a computer system, the UMS, at an estimated non-recurrent cost of $53 million. The UMS is used to support the coordination and control of the large volume of utility opening activities. It is a centralised and integrated system based on a computer network linking the HyD's Headquarters, the HyD's Regional Offices, the Transport Department, the Police and the utility operators. The UMS is capable of processing map-based data, and it enables rapid geographical referencing in the coordination of road excavations, processing of EP applications and subsequent control of works (see paragraph 1.7(d) above). In addition, the utility operators concerned can upload application data to the system and download the processing results through their terminals.

2.4 According to the FC paper of July 1995, improved accessibility and availability of road excavation information provided by the UMS would enable the HyD to improve the planning, coordination and scheduling of road opening works to avoid "repeated openings" (Note 7). The UMS would also enable the HyD to achieve the following benefits:

(a) reducing the EP processing time from 14 working days to 5 working days, thereby avoiding an estimated 39 man-year effort each year. This effort would otherwise be required to cope with existing and projected workload;

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**Note 7:** *In the 1995 FC paper, it was estimated that about 15% of the proposed road openings were in the vicinity of others and were to be carried out at about the same time. The UMS would provide better coordination so that road excavations at the same location by different utility operators could be synchronised, thus reducing the need for re-opening roads within a short period of time.*

(b) increasing the number of inspections on utility openings by about 10% as a result of improved work efficiency under the system, thereby strengthening control to ensure that works are carried out in conformity with permit conditions and that defective or unsafe works are rectified within the earliest possible time; and

(c) reducing the average duration of road opening works of 38 days by an estimated 10%, as a result of the tightening of assessment of permit periods and the improved control mechanism.

According to the FC paper, these improvements would in turn minimise disruption to the public and enhance road safety. The UMS was implemented in October 1997.

## Realisation of intended benefits

2.5 In July 1998, in the Post Implementation Departmental Return (PIDR) on the UMS, the HyD reported that the benefits stated in the 1995 FC paper had been largely realised. In August 2000, Audit examined the HyD's records to ascertain the updated position. Table 1 below shows the results of the HyD's review carried out in July 1998, and those of Audit's examination in August 2000.

**Table 1**

**Realisation of intended benefits of the UMS**

| | Intended benefits stated in the 1995 FC paper | Results according to the July 1998 PIDR | Results of Audit's examination in August 2000 |
|---|---|---|---|
| (a) | Reducing EP processing time from 14 working days to 5 working days | The intended benefits had been realised. | For 96% of the EP applications from utility operators in 1999-2000, the HyD's processing time did not exceed 5 working days (Note 1). |
| (b) | Increasing the number of inspections on utility openings by about 10% | The increase in number of inspections (calculated on the basis of the number of inspections carried out per permit per month — Note 2) had been realised. | Since August 1998, the HyD had twice reduced the required minimum frequency of inspections, i.e. from two inspections a week per site to one inspection every ten days per site (see paragraph 4.4 below for the HyD's explanations). |
| (c) | Reducing the average duration of road opening works of 38 days by an estimated 10% | The average duration of road opening works had been reduced from 38 days per EP, by 8% (instead of the estimated 10%), to 35 days per EP. This was because the effect of the UMS might not be fully reflected within the initial 6-month period. | The average duration of road opening works per EP had been further reduced from 35 days, by 11%, to 31 days in 1999-2000 (Note 3), representing a further improvement. (Compared with the 38 days stated in the 1995 FC paper, the duration in 1999-2000 had been reduced by 18%.) |

*Source: HyD's records*

*Note 1: With regard to those EP applications with processing time exceeding 5 working days, the HyD's explanation was that a longer time was needed either because the cases were complex, or because of the utility operators' delay in submitting outstanding information.*

*Note 2: Audit's enquiry indicated that the HyD had arrived at this conclusion by comparing the inspection data for two periods (i.e. the period from February to April 1997, and that from February to April 1998). The comparison indicated that the number of inspections carried out per EP per month had increased by 13%.*

*Note 3: This was based on the works commencement and completion dates recorded in the UMS. These data, which were provided by the utility operators, might not be entirely accurate because the HyD had difficulties in verifying them. Nevertheless, these were the best available data in the HyD.*

2.6 Audit has noted that the HyD monitors and reports the data referred to in Table 1 above in the following manner:

(a) with regard to the EP processing time, the HyD monitors the data on a regular basis. The performance data are mentioned in the Controlling Officer's Report in the Annual Estimates (COR);

(b) with regard to the number of inspections carried out on utility openings, the HyD monitors the data, through the ROCC (see paragraph 1.5(c) above), on a monthly basis. However, performance data on such inspections are not included in the COR; and

(c) with regard to the average duration of road opening works per EP, the HyD monitors the data on a regular basis. However, such data are not included in the COR.

## Audit recommendation on the disclosure of performance indicators in the COR

2.7 **Given that disruption caused by utility openings is a major public concern, Audit considers that there are merits in disclosing to the public all the data mentioned in paragraph 2.6 above because it will help enhance public accountability and keep LegCo informed of such performance indicators. Therefore, in addition to publishing the data on EP processing time, Audit has *recommended* that the Director of Highways should consider including the following performance indicators in the COR:**

(a) **the number of inspections carried out on utility openings; and**

(b) **the average duration of road opening works per EP.**

## Response from the Administration

2.8 The **Director of Highways** welcomes the audit recommendations. He has said that:

(a) in general, he does not have any objection to publishing the data on the number of inspections conducted and the average duration of road opening works per EP in the COR. However, he considers that these data may not represent a proper measurement of the HyD's performance; and

(b) he agrees that these data are useful management information which the HyD has reviewed regularly, for instance, through the HyD's Regional Offices Management Meetings or the Maintenance Working Group (MWG — Note 8), to identify problems and areas for improvement.

## Other actions taken by the HyD

2.9 Apart from the implementation of the UMS, Audit noted that the HyD had made continued efforts in a number of other areas to minimise disruption caused to the public by utility openings (see Appendix A for details). Such efforts can be broadly classified into the following areas:

(a) reducing traffic disturbance and public inconvenience (e.g. utility operators have to properly construct manhole covers in carriageway when carrying out utility works);

(b) enhancing coordination of utility openings (e.g. the issuing of guidance notes to utility operators to streamline the coordination process);

(c) tightening control of site conditions (e.g. utility operators with poor performing sites have to submit progress photographs to the HyD); and

(d) improving the quality of HyD's site inspections (e.g. by conducting three calibration exercises in 1998).

2.10 With regard to paragraph 2.9(d), the HyD's efforts to improve the quality of its site inspections are reported in PART 3 below.

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**Note 8:** *The MWG is chaired by the Assistant Director/Headquarters of the HyD. Its members include the Chief Highway Engineers of the three Regional Offices, the Structures Division and the Research and Development Division. The MWG meets quarterly to monitor the HyD's road maintenance and utility-related work.*

## PART 3: REPORTING OF SITE INSPECTION RESULTS

3.1 This PART examines the HyD's efforts to improve the quality of site inspections.

### EP conditions

3.2 Requirements on quality of work and measures to reduce disruption to the public are laid down in the EP conditions for the permittee to follow. The HyD regularly updates the EP conditions, which can be broadly grouped under three categories:

(a) ***Site requirements.*** These EP conditions are mainly related to safety requirements and roadwork obligations (e.g. the provision of adequate traffic signs and vehicular access);

(b) ***Notification requirements.*** These EP conditions require the permittees to submit timely notifications to the HyD (e.g. the submission of advance notification two days before the commencement of works); and

(c) ***Good practices.*** These EP conditions require the permittees to follow certain procedures or to take precautionary measures (e.g. checking with the relevant District Lands Office for up-to-date plans to find out whether the utility works would affect installations owned by private parties).

### Site inspections

3.3 Works Supervisors (Note 9) of the HyD's Regional Offices conduct regular inspections of utility sites to ensure that the EP conditions on site set-up have been complied with. They use a standard site inspection checklist (which includes items on site safety, roadwork obligations and workmanship) to record defects identified. For utility sites with defects recorded, HyD staff will send a copy of the checklist and, where necessary, a letter to the utility operator concerned for immediate corrective actions.

### Monitoring of performance data

3.4 The ROCC monitors key performance indicators of utility sites, including data of non-compliance with EP conditions and unattended sites. These data are discussed at the monthly ROCC meetings during which utility operators are requested to provide explanations and to improve their performance.

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**Note 9:** *The duties of Works Supervisors include supervising road maintenance and roadside slope works, performing road and slope inspections and conducting utility site inspections. Works Supervisors are managed by inspectorate staff.*

3.5 Tables 2 and 3 below show the statistics of non-compliance with EP conditions, and the statistics of unattended sites for the years 1995 to 2000 (up to September 2000). These statistics were compiled based on site inspection data reported by the Regional Offices' staff.

**Table 2**

**Statistics of non-compliance with EP conditions for the years 1995 to 2000 (up to September 2000)**

| Year | Non-compliance percentage | |
|---|---|---|
| 1995 | 1.5% | (Note 1) |
| 1996 | 1.6% | |
| 1997 | 1.4% | |
| 1998 | 1.7% | |
| January to October 1999 | 2.3% | |
| November 1999 to September 2000 | 6.7% | (Note 2) |

*Source: Audit's analysis of monthly ROCC statistics*

*Note 1: Before November 1999, the non-compliance percentage was calculated as follows: (number of inspections with defects recorded ÷ number of inspections carried out during the period) × 100%.*

*Note 2: With effect from November 1999, a revised method has been adopted to calculate the non-compliance percentage, as follows: (number of work groups with defects recorded during site inspections ÷ number of work groups inspected) × 100%. Therefore, the non-compliance statistics before and after November 1999 are not directly comparable (paragraph 3.9(c) below refers).*

**Table 3**

**Statistics of unattended sites**
**for the years 1995 to 2000 (up to September 2000)**

| Year | Percentage of unattended sites (Note) |
|---|---|
| 1995 | 2.6% |
| 1996 | 1.3% |
| 1997 | 0.5% |
| 1998 | 0.3% |
| 1999 | 0.3% |
| 2000 (up to September) | 2.2% |

*Source:* *Audit's analysis of monthly ROCC statistics*

*Note:* *The percentage of unattended sites is calculated as follows: (number of site inspections with unattended sites recorded ÷ number of inspections carried out during the period) × 100%.*

## 1998 calibration exercises

3.6 On the instruction of the MWG, the HyD's Research and Development (R&D) Division conducted three calibration exercises between February and November 1998. The purpose of the exercises was to find out the standard of site inspection of the three Regional Offices. In these calibration exercises, the R&D Division selected and visited some utility sites, and compared their inspection results with those kept by the regional staff (Note 10). According to the calibration reports, the R&D Division staff generally identified more defects than the regional staff. The R&D Division considered that the regional staff were reluctant to record all defects in the standard site inspection checklist. Therefore, the ROCC's non-compliance statistics might not accurately reflect the true site conditions.

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**Note 10:** *In these calibration exercises, the R&D Division randomly selected some utility sites from the UMS database. Its staff then inspected these sites daily for a specified week. These inspections were conducted separately from those conducted by the regional staff. Subsequent to the inspections, the R&D Division requested the Regional Offices to submit all the inspection records of the selected sites, and compared the results of the inspections conducted on the same dates by the two separate parties.*

3.7 In the R&D Division's view, the regional staff were not willing to record all defects because:

(a) the then method of compiling non-compliance statistics (based on the number of inspections) was an "all or none" approach. Whenever defects were recorded on a site, even if it was only a single minor defect, the site would be counted as a defective one. Because of this, the regional staff were inclined to ignore minor defects; and

(b) the regional staff might not record defects as long as the contractors undertook to rectify the defects in due course. This practice might be used to maintain an amiable working relationship with the contractors and to motivate them to rectify the defects as soon as possible.

3.8 To address the above findings, the R&D Division recommended that:

(a) Regional Offices should set up an internal checking mechanism, such as random checking of the site inspection reports by their inspectorate staff, to ensure the accuracy of the reports; and

(b) the method of compiling non-compliance statistics should be revised so that the regional staff are more willing to record defects on the inspection checklist.

## Actions taken by HyD to address the R&D Division's recommendations

3.9 In response to the R&D Division's recommendations, the HyD had taken the following actions:

(a) ***Issuing reminders to staff.*** The Regional Offices informed their site staff of the findings and recommendations of the R&D Division's calibration exercises. The site staff were reminded of the need to record all defects observed;

(b) ***Conducting training courses.*** Training courses on standards of site inspection were conducted for Works Supervisors; and

(c) ***Revising the method of compiling non-compliance statistics.*** In October 1999, the UTLC (see paragraph 1.5(b) above) endorsed the HyD's proposal to revise the method of compiling the non-compliance statistics. The "number of work groups

inspected" (Note 11) (instead of the number of inspections) would be used as the basic unit. The HyD expected that the Works Supervisors would be more willing to record defects observed on the checklist using the revised method. The revised method has been used as from November 1999 (see Note 2 of Table 2 of paragraph 3.5 above).

**Joint inspections of utility sites conducted in January 2000**

3.10 To assess the effects of the revised method of compiling the non-compliance statistics (see paragraph 3.9(c) above), in January 2000, the R&D Division analysed the non-compliance statistics of November and December 1999. The analysis revealed that no defects were recorded by the regional staff in 78% of the inspections in November 1999, and in 91% of the inspections in December 1999.

3.11 In view of the high percentages of inspections in which no defects were recorded, in January 2000, the R&D Division conducted joint inspections with the Regional Offices on 29 selected sites. The results of the joint inspections indicated that the percentage of inspections with no defects recorded was 28% (i.e. 8 out of 29 inspections).

3.12 The R&D Division considered that the non-compliance statistics, as reported by the regional staff, still fell short of accurately reflecting the true site conditions. To further address this problem, in February 2000, the R&D Division recommended the following improvement measures to the MWG:

(a) regional staff should be reminded again of the importance of non-compliance statistics as a management tool. Persistent and/or intentional failure to record non-compliance will be regarded as failure to properly discharge their duties;

(b) on-the-job training should be provided to those regional staff who are inexperienced in conducting utility inspections; and

(c) inspectorate staff should conduct inspections on selected sites and specifically check site staff's inspection records.

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**Note 11:** *A "work group" is a group of works items pertaining to a utility site which are tabulated on the standard site inspection checklist. For example, a work group of "Safety — Workmen" consists of several items such as "no proper access arrangement for workmen", "workmen not wearing reflectorised jackets" and "workmen not wearing safety helmets".*

3.13 At its meeting of February 2000, the MWG endorsed the R&D Division's recommendations.

## Draft Guidance Notes on utility site inspection

3.14 In July 2000, the R&D Division issued a set of draft "Guidance Notes on Audit Inspection of Utility Sites" (Guidance Notes) to Regional Offices for consultation. The objective of the Guidance Notes is to provide guidelines to the regional staff on the inspection of utility sites. The draft Guidance Notes specify the procedures that site staff should follow when performing utility site inspections, and the following monitoring measures:

(a) ***Spot checks by inspectorate staff.*** Inspectorate staff should select 5% of all active sites within a monitoring period for spot-checking;

(b) ***Monitoring and reporting.*** The MWG should review the spot-check inspection percentage, taking into account the quality of inspection results and the workload of the regional staff. The Regional Offices should prepare statistics for regular reviews by the MWG; and

(c) ***Calibration inspections.*** The R&D Division will conduct independent calibration inspections at six-month intervals in order to ensure consistency in marking the site inspection checklist by all regional staff.

3.15 However, as at December 2000, the HyD was still in the process of finalising the draft Guidance Notes.

## Audit observations on the reporting of site inspection results

3.16 ***The need for accurate non-compliance data.*** The ROCC needs accurate data on site conditions to effectively monitor the utility operators' performance in road opening works and to devise appropriate improvement measures. Therefore, it is important that site staff report accurately the results of site inspections to reflect the true site conditions. **Audit welcomes the HyD's recent efforts to improve the quality of reporting of site inspection results.** Audit has noted that the draft Guidance Notes, which were being finalised as at December 2000, have specified procedures which are essential for improving the quality of site inspections. **Audit considers that continued efforts are necessary to closely monitor the implementation of these procedures to ensure that they are followed.**

3.17 ***The need for publishing non-compliance data.*** **The data of non-compliance with EP conditions and those of unattended sites are key indicators of the performance of utility operators in road opening works.** Therefore, it is worth considering disclosing to the public such data in the COR. This will enhance public accountability and keep LegCo informed of the performance of utility operators in road opening works.

## Audit recommendations on the reporting of site inspection results

3.18 **Audit has *recommended* that the Director of Highways should:**

(a) **finalise the draft Guidance Notes and issue them to the Regional Offices as soon as possible;**

(b) **closely monitor the implementation of the procedures specified in the Guidance Notes to ensure that they are being followed by HyD staff; and**

(c) **consider including in the COR the data of non-compliance with EP conditions and those of unattended sites to enhance public accountability.**

## Response from the Administration

3.19 The **Director of Highways** has accepted the audit recommendations. He has said that:

(a) the HyD is finalising the draft Guidance Notes, taking into account comments from the Regional Offices. The Guidance Notes will be formally issued;

(b) as an ongoing process, the HyD will closely monitor the implementation of the procedures specified in the Guidance Notes to ensure that they are being followed by HyD staff; and

(c) he has no objection to including in the COR the data of non-compliance with EP conditions and those of unattended sites. He considers that this is useful management information, although such data may not represent a proper measurement of the HyD's performance.

## PART 4: FREQUENCY OF SITE INSPECTIONS

4.1 This PART reports the reduction in the frequency of site inspections and the HyD's explanations for such reduction.

### Reduction in frequency of inspections

4.2 The HyD sets a frequency of inspections for conducting utility site inspections. However since 1998, the HyD has twice reduced the required minimum frequency of inspections for each site from "at least twice a week" to the present "once every ten days". This was the result of discussions held at the following meetings of the MWG:

(a) in the 1998 calibration exercises, referred to in paragraph 3.6 above, the calibration team reported that the frequency of inspections carried out by the Works Supervisors of some of the sites was less than the required minimum of twice a week at that time. In August 1998, the MWG discussed the findings of the calibration team. The MWG concluded that the Regional Offices should decide on the frequency of inspections for openings on each road having regard to the importance of the road to the community. The frequency should range from daily inspection to weekly inspection. The MWG agreed that one inspection each week should be the minimum requirement; and

(b) at a meeting of the MWG in May 2000, representatives of the Regional Offices expressed difficulties in meeting the minimum requirement of one inspection each week because of the increased workload. They commented that the reduction in the frequency of inspections did not necessarily result in a decline of works standard. They also commented that the quality of inspection had been improved due to stringent control. The Regional Offices proposed to further reduce the inspection requirement to once every 12 or 16 days. Taking into account their concerns, the MWG concluded that a minimum frequency of inspections of once every 10 days should be adopted which would be incorporated into the guidelines on utility site inspection.

### Draft Guidance Notes on utility site inspection

4.3 The draft Guidance Notes issued in July 2000 (see paragraph 3.14 above) also deal with frequency of inspections. The following guidelines are included in the draft Guidance Notes:

(a) ***Frequency of inspections.*** Overall, each Regional Office should achieve an aggregate frequency of inspections of one inspection for every 10 "active EP days" (Note 12). For individual sites, HyD staff should endeavour to achieve the required frequency, although they may increase the frequency of inspections for sites with poor performance records and decrease the frequency of inspections for sites with good performance records; and

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**Note 12:** *The term "active EP days" refers to the number of calendar days counting from the date of commencement of works to the date of completion of works as reported by the permittee.*

(b) ***Regular reviews.*** The MWG should review the frequency of inspections, taking into account the performance of utility operators in road opening works (Note 13) and the workload of the regional staff. The Regional Offices should prepare statistics for the MWG's regular reviews.

## HyD's explanations for the reduction in frequency of inspections

4.4 In response to Audit's findings, referred to in paragraph 4.2 above, the HyD informed Audit in September 2000 that the reduction in the frequency of inspections was a conscious decision made by the HyD's senior management after careful consideration of the prevailing situation, including the HyD's other workload, priorities and the improvement of quality of utility inspections. The HyD said that:

(a) ***Priorities of other HyD work.*** Given limited resources, the HyD had to examine the level of service in all other areas of responsibilities (e.g. road and slope maintenance) and to redeploy staff to areas of greatest need;

(b) ***Increased workload of Works Supervisors.*** The workload of site staff had been increasing due to an increase in the amount of road maintenance work (Note 14), increased public expectations and the drive for better work quality. Furthermore, HyD staff had taken up additional maintenance duties (e.g. maintenance of roadside slopes). This had an impact on the time they could allocate to utility-related duties (Note 15);

(c) ***Improved quality of site inspection.*** Quality of site inspection was equally, if not more, important compared with frequency. The quality of inspection had been improving after the three calibration exercises conducted in 1998, but at the expense of frequency of inspections, as there was no increase of resources. The MWG agreed to reduce the frequency of inspections to once every ten days so that more emphasis could be placed on quality of inspection;

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**Note 13:** *As mentioned in paragraph 3.3 above, the regional staff use a standard site inspection checklist, which includes items on site safety, roadwork obligations and workmanship, to record defects identified during site inspections. The HyD assesses the performance of utility operators in road opening works with reference to the results of these site inspections.*

**Note 14:** *The HyD informed Audit that, during the years 1994-95 to 1998-99, the number of road maintenance works orders handled by maintenance staff had increased by 87%, while the number of Works Supervisory staff had increased by only 11%. Although resources had been provided to the HyD for additional Works Supervisor posts for the maintenance of roads and roadside slopes, there were difficulties in recruiting Works Supervisors, as illustrated in paragraph 4.4(e) below.*

**Note 15:** *In 1995, there were 62 Works Supervisors available for site inspection duties. However, in 1999-2000, due mainly to the increased workload and additional maintenance duties, staff resources equivalent to only 32 Works Supervisors were deployed to utility-related duties.*

(d) ***Other controls.*** Although site inspection was important, it did not mean that the frequency could not be reviewed and adjusted. The frequency could be reduced if the HyD was satisfied that the reduction was compensated by stepping up other controls of utility openings. For example, controls of road opening activities through the meetings of the standing committees (i.e. the JUPG, UTLC and ROCC) were also important. In fact, many control measures had been initiated from these meetings; and

(e) ***Shortage of Works Supervisors.*** There had been an acute shortage of Works Supervisors in the Regional Offices. In 1997 and 1998, recruitment boards were held almost every one to two months. However, the vacancy level remained high because the success rate was low (Note 16).

## Audit observations on frequency of inspections

4.5 Audit noted that the HyD had decided to reduce the frequency of inspections, mainly because of the need to redeploy staff resources to meet increasing workload in its other areas of responsibilities. The HyD considers that the reduction can be compensated by stepping up other controls of utility openings. **Audit also noted that the draft Guidance Notes require the MWG to regularly review the frequency of inspections, taking into account the performance of utility operators in road opening works and the workload of the regional staff. Audit welcomes this requirement because it will help ensure that the impact (in terms of disruption to the public) of any changes to the frequency of inspections is being monitored regularly at the senior level of the HyD.**

4.6 With regard to the minimum frequency of one inspection for every ten active EP days mentioned in the draft Guidance Notes (see paragraph 4.3(a) above), Audit noted from the data in the UMS that, for the months of August and September 2000 (Note 17), the HyD had achieved one inspection for every 11.6 active EP days, which was slightly less than the required minimum frequency. In response to this audit observation, the HyD informed Audit in February 2001 that there had been improvements in the inspection frequency for the months of October, November and December 2000 which averaged at one inspection for every 10.2 active EP days. **Audit notes the HyD's recent improvements. Audit considers it necessary for the HyD to make continued efforts to help the Regional Offices meet the minimum frequency of inspections.**

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**Note 16:** *The HyD informed Audit that the average success rate (i.e. number of successful candidates reported for duty ÷ number of qualified candidates invited for interview × 100%) of the Works Supervisor II recruitment exercises was 21% in 1997 and 23% in 1998.*

**Note 17:** *As from August 2000, the R&D Division calculates the frequency of inspections of the Regional Offices by analysing UMS data. The frequency of inspections is calculated based on: (a) those EPs with works commencement date and completion date reported by utility operators (for works not yet completed, the information is based on the advance notifications — see paragraph 4.9 below); and (b) the number of inspections conducted for these EPs.*

## Audit recommendations on frequency of inspections

4.7 **Audit has *recommended* that the Director of Highways should:**

(a) **continue to closely monitor the inspection data of the Regional Offices and seek explanations if they cannot achieve the presently required frequency of one inspection for every ten active EP days;**

(b) **take appropriate actions (including considering the need to redeploy staff or seek additional resources) to help the Regional Offices achieve the required frequency of inspections;**

(c) **closely monitor the outcome of the MWG's regular reviews on the frequency of inspections, so as to determine whether, as a result of the reduction in the frequency of inspections, there is a deterioration in the performance of utility operators in road opening works; and**

(d) **depending on the outcome of the MWG's reviews, consider whether there is a need for increasing the frequency of inspections.**

## Response from the Administration

4.8 The **Director of Highways** has accepted the audit recommendations. He has said that:

(a) as an ongoing process, he will continue to closely monitor the inspection data of the Regional Offices. With regard to the two months of August and September 2000, the Regional Offices have explained that priorities had to be given at that time to road maintenance works and to improving the quality of utility inspections;

(b) he will, if necessary, take appropriate actions to help the Regional Offices achieve the required minimum frequency of inspections. However, he considers that the Regional Offices should be allowed to adjust short-term priorities, and that their performance should be measured over a longer period of time; and

(c) he will closely monitor the outcome of the MWG's reviews, so as to determine whether, as a result of the reduction in the frequency of inspections, there has been a deterioration in the performance of utility operators in road opening works. He will also keep in view the need for increasing the frequency of inspections depending on the outcome of the MWG's reviews.

## Advance notification of commencement of works

4.9 In examining the frequency of inspections, Audit noted a related issue, i.e. the advance notification (AN) of works submitted by permittees. Under the EP conditions, permittees are required to submit ANs to the HyD at least two days before the commencement of works (except for emergency works). The purpose of this is to facilitate HyD staff in planning their inspection schedules. It also serves to facilitate other parties concerned (e.g. other utility operators whose installations may be affected) in arranging their own inspections or coordination measures.

4.10 In August 2000, Audit analysed 5,709 EPs for which the works had commenced during the period February to July 2000 (Note 18) and had been completed. The results indicated that 2,043 EPs (i.e. 36%) did not meet the 2-day AN requirement. Audit also found that, of the eleven major utility operators, six had non-compliance rates above the average of 36% (ranging from 38% to 65%). Such a large number of non-compliance cases could defeat the purpose of the AN requirement.

4.11 In response to the above audit findings, the HyD informed Audit in September 2000 that:

(a) the HyD was fully aware of the impact of the non-compliance cases on the HyD's effectiveness in controlling utility openings. In general, it was found that HyD staff were able to carry out more inspections on those sites for which ANs had been submitted, than those without ANs;

(b) the HyD had already taken up the issue with the senior management of the utility operators through the JUPG (see paragraph 1.5(a) above) and UTLC meetings;

(c) for works already started without ANs, utility operators had been requested to submit supplementary notifications for facilitating completion of the HyD's records. They had also been requested to alert their working staff that failure to submit the 2-day ANs was a breach of the EP conditions and that, under extreme circumstances, contravention of EP conditions might lead to the termination of the EP by the HyD; and

(d) the situation was improving and the HyD would keep on monitoring the relevant data.

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**Note 18:** *Since 17 January 2000, the utility operators can submit ANs to the HyD electronically through the UMS. This facilitates detailed analysis of the extent of non-compliance with the 2-day AN requirement. For the purpose of this exercise, emergency works for which ANs were not required were excluded from the analysis.*

### Audit observations and recommendations on ANs

4.12 **Audit noted the HyD's assurance that the position regarding the non-submission of ANs was improving and that it would keep on monitoring the relevant data. Audit has *recommended* that the Director of Highways should:**

(a) **continue to closely monitor the extent of non-compliance with the 2-day AN requirement;**

(b) **in cooperation with the utility operators, continue to take appropriate measures to ensure compliance with the AN requirement; and**

(c) **in extreme cases (e.g. where a utility operator has ignored the HyD's repeated warnings), consider the need to deter non-compliance by terminating the EP.**

### Response from the Administration

4.13 The **Director of Highways** has said that he agrees with the audit recommendations. He will, in cooperation with utility operators, make continued efforts to ensure compliance with the 2-day AN requirement.

## PART 5: DAMAGE TO UNDERGROUND UTILITIES

5.1 This PART examines the HyD's measures to help minimise damage to underground utilities.

### Background

5.2 Utility facilities buried underground can be damaged during road excavation works. The direct and social costs of damage incidents can be high because they cause disruption to road traffic and supply of utilities.

### The role of the HyD

5.3 According to the explanations given by the HyD during the course of audit, the role of the HyD in preventing damage to underground utilities (except for sites maintained by the HyD) is rather limited. The HyD's role is to set up and operate a mechanism, within its limited resources, whereby the utility operators' road opening works are reasonably monitored and controlled. Other parties also play a role, as follows:

(a) it is the responsibility of permittees and their contractors to take all necessary measures to prevent damage to underground utilities when carrying out road excavation works;

(b) the owners of underground utilities also have the responsibility of protecting adequately their own properties from being damaged; and

(c) there are other legislation administered by other government departments, such as the Gas Safety Ordinance (Cap. 51) and Electricity Ordinance (Cap. 406), which deal with damage to utilities (Note 19).

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**Note 19:** *The Electrical and Mechanical Services Department is responsible for the administration of the Gas Safety Ordinance and the Electricity Ordinance and the supporting regulations concerning safety of gas and electrical equipment and installations. It is also responsible for dealing with all ongoing matters concerning the regulation and monitoring of the activities of the gas and electricity industry.*

## HyD's measures to help minimise damage to underground utilities

5.4 Over the years, the HyD has taken various measures/actions to help minimise damage to underground utilities, including the following:

(a) monitoring the data of damage to underground utilities (see paragraphs 5.5 and 5.6 below);

(b) controlling utility openings through the EP conditions (see paragraph 5.7 below);

(c) incorporating precautionary provisions in the HyD's roadwork contracts (see paragraph 5.8 below); and

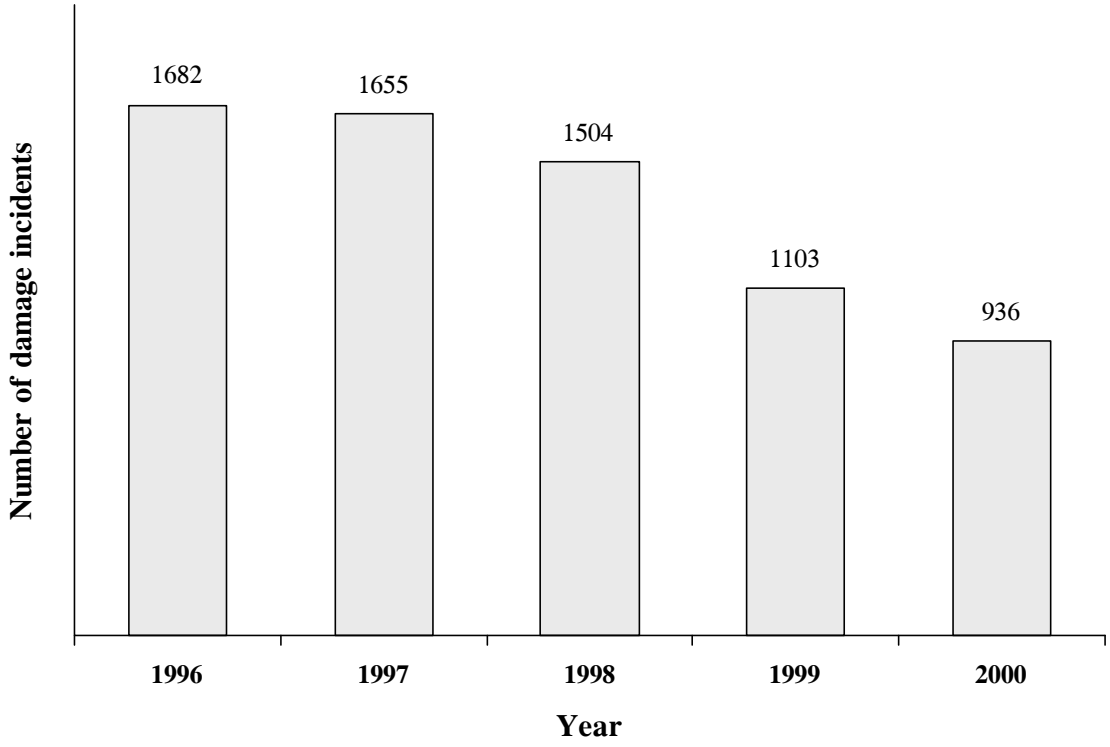
(d) conducting study of electronic interchange of utility records (see paragraphs 5.9 to 5.12 below).

## Monitoring data of damage to underground utilities

5.5 Since late 1995, the HyD has been collecting information from utility operators on damage to underground utilities. Such information includes the number of damage incidents relating to each utility service and the parties (i.e. the utility operators and their contractors) that caused the damage. Figure 1 below shows the number of damage incidents from the years 1996 to 2000 as reported by the utility operators.

**Figure 1**

**Number of incidents of damage to underground utilities from 1996 to 2000**




*Source: HyD's records*

5.6 Based on the information, the HyD compiles quarterly statistics for discussion by the UTLC. At the UTLC meetings, the utility operators who have a high rate of damage incidents will be asked to investigate and improve the situation (Note 20).

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**Note 20:** *For example, in December 1996, the UTLC expressed concern at the large number of damage incidents caused by the contractors of the Drainage Services Department. In response to the UTLC's request, in May 1997, the Drainage Services Department completed a study on measures to reduce incidents of damage to utilities. As a result, the number of damage incidents caused by its contractors had decreased from 223 in 1996, by 47%, to 119 in 2000. In January 2001, the Drainage Services Department informed Audit that it would continue to closely monitor the damage data and to cooperate with the HyD on implementing measures to minimise damage to underground utilities.*

## Controlling utility openings through EP conditions

5.7 Under the standard EP conditions, the permittees are required to take all necessary precautions to protect existing utility services from damage due to works. For example, the permittees' contractors are required to:

(a) circulate the utility opening proposals to all parties concerned and obtain the relevant utility records prior to the commencement of excavation;

(b) use suitable detection devices to determine the position of buried services before any excavation (Note 21); and

(c) employ adequate and experienced site personnel to oversee the operation of heavy mechanical plant.

## Precautionary provisions of HyD's roadwork contracts

5.8 The HyD has incorporated various provisions in its roadwork contracts to require its contractors to exercise due care for preventing damage to underground utilities. For example, the HyD's contractors are required to detect underground utilities before carrying out excavation works. They have to coordinate with utility operators and to carry out trial excavations or use detection equipment prior to excavation works. They are also required to employ site safety officers. According to the HyD, one of the major aspects in assessing the contractors' performance is how they take care of the public utilities.

## Study of electronic interchange of utility records

5.9 As mentioned in paragraph 5.7(a) above, the permittee is required to obtain relevant utility records from other utility operators before carrying out any road excavation works. To improve the circulation of utility records among utility operators, in 1996, a working committee under the JUPG was set up to examine the idea of electronic interchange of utility records.

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**Note 21:** *Between 1994 and 1999, the HyD issued three technical reports on underground services detection equipment in which the HyD reported its comparison of the performance of locally available detection equipment. In March 2000, the HyD distributed to all utility operators a summary report on the recent developments in trenchless technology, including techniques and equipment, which may enable utility operators to minimise open trench excavations in carrying out utility works.*

5.10 In a paper presented to the 1997 Symposium on Prevention of Damage to Underground Services (Note 22), the HyD stated that:

(a) because of the long time required to obtain utility records, some contractors had taken the risk to commence excavation without possessing the records. This was undesirable as it would increase the risk of damage to underground utilities during excavation;

(b) in parallel with the work of the JUPG's working committee, the HyD was seeking funds to carry out a business study on the feasibility of a computerised system for electronic interchange of utility records; and

(c) it was expected that the expeditious and efficient interchange of utility records would help reduce damage to utilities, especially for urgent and emergency works.

5.11 The business study on the electronic interchange of utility records started in March 1999 and was completed in November 1999. According to the business study report, it took two to eight weeks to respond to requests for utility records (usually in hardcopies). The proposed system would substantially reduce the time for obtaining utility records. This would help reduce damage to underground utilities, particularly for emergency works which were often carried out immediately and without full information from the utility operators concerned. The report recommended a two-stage approach to implementing the system.

5.12 In February 2000, the JUPG endorsed the recommendations of the business study. The participants of the proposed project, which included the HyD and most of the utility operators (Note 23), were required to share the costs of the project and to follow an implementation schedule. In October 2000, the HyD appointed a consultant to implement Stage 1 of the proposed system. The work was scheduled for completion in January 2002.

## Audit observations on HyD's measures to minimise damage to underground utilities

5.13 ***Monitoring data at the UTLC meetings.*** Since 1995, the UTLC has been monitoring the number of damage incidents on a quarterly basis and requesting the utility operators concerned to improve the situation. This and various other measures have contributed to a decrease in the

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**Note 22:** *The Symposium was organised by the JUPG. The HyD and many utility operators presented papers on their measures to prevent damage to underground utilities.*

**Note 23:** *The HyD has informed Audit that participation is on a voluntary basis and not all utility operators have agreed to take part in this project.*

number of damage incidents from 1,682 in 1996, by 44%, to 936 in 2000. Audit welcomes the improvement. **In Audit's view, to enhance public accountability, it is worth considering including the number of damage incidents in the COR.**

5.14 ***Causes of damage incidents.*** The HyD collects information on damage incidents for discussions by the UTLC. Such information includes the number of damage incidents relating to each utility service and the parties (i.e. the utility operators and their contractors) causing the damage. **In order to make further improvement, Audit considers that the HyD should consider collecting information about the causes of damage.** In Audit's view, such information can help the HyD and utility operators devise appropriate improvement measures. Furthermore, a damage incident may suggest a possible breach of the EP conditions. Knowing the causes of damage will also help the HyD find out whether the permittee has complied with the relevant EP conditions.

5.15 ***Electronic interchange of utility records.*** To minimise the risk of damage to underground utilities, it is important for utility records to be circulated among the utility operators expeditiously. **To achieve this purpose, the HyD has assured Audit that it is taking the lead in implementing the project on the electronic interchange of utility records, and is taking all necessary actions to ensure that the project is implemented on schedule.** Audit supports the actions taken by the HyD.

## Audit recommendations on HyD's measures to minimise damage to underground utilities

5.16 **In order to minimise the number of damage incidents, Audit has *recommended* that the Director of Highways should:**

(a) **through the UTLC meetings, continue to monitor the data of damage to underground utilities, to seek improvement opportunities (e.g. by collecting information on the causes of damage) and to take necessary improvement actions;**

(b) **consider including the number of damage incidents in the COR to enhance public accountability; and**

(c) **continue to monitor the progress of the project on the electronic interchange of utility records to ensure that the project is implemented on schedule.**

## Response from the Administration

5.17 The **Director of Highways** welcomes the audit recommendations. He has said that:

(a) he is pleased to note that the audit report acknowledges the HyD's efforts in reducing the number of incidents of damage to underground utilities. The HyD will continue to monitor the situation and seek improvement opportunities. For example, at the UTLC meeting of October 2000, the HyD requested utility operators to provide quarterly reports on the sanctions they imposed on their contractors who had caused damage to utility services. Utility operators were also requested to provide quarterly reports on any specific improvements on their mechanisms for monitoring damage to utility services. The HyD is discussing with utility operators on the detailed reporting format;

(b) he does not have any objection to collecting information on the causes of damage, if such information is available from the utility operators. The initial comments from utility operators indicate that they have often found it difficult to ascertain the causes of damage, particularly when it is necessary to give priority to carrying out urgent repair works. They are also concerned about the premature disclosure of suspected cases. Nevertheless, the HyD will continue to discuss this issue with the utility operators;

(c) he has no objection to including the number of damage incidents in the COR, although he considers that these data may not represent a proper measurement of the HyD's performance; and

(d) he will closely monitor the progress of the project on the electronic interchange of utility records to ensure that the project is completed on schedule.

## PART 6: IMPLEMENTATION OF EP FEE AND NEW PENALTY SYSTEM

6.1 This PART examines the progress of implementing the EP fee and the new penalty system.

### Background

6.2 ***Finance Bureau study.*** The subject of EP fee was first raised in 1987. Following a study on the subject, the Finance Bureau concluded that utility operators should be charged a fee to recover the administrative costs and reduce the large number of EPs issued and subsequently cancelled.

6.3 ***PAC's recommendations.*** In the Director of Audit's Report No. 24 of March 1995, Audit invited attention to the delay in introducing the EP fee, which had substantial financial implications. In the PAC's hearing in May 1995, the Administration indicated that a working group had been set up within the WB to study the implementation of the EP fee, and that the principle of full-cost recovery would be adopted. In its Report No. 24 of July 1995, the PAC recommended that the EP fee should be implemented as soon as possible, and that a penalty should be imposed on utility operators who delayed their works without good reasons (see paragraphs 1.9(c) and 1.10 above).

6.4 ***Administration's response.*** In the Government Minute of October 1995, the Administration informed the PAC that it would make arrangement for amending the Crown Land Ordinance, now called the Land (Miscellaneous Provisions) Ordinance, at the earliest opportunity to provide for the charging of the EP fee (Note 24). The Administration also informed the PAC that it was considering the practicability of imposing a penalty on those utility operators who did not perform satisfactorily.

6.5 ***Proposal on EP fee and new penalty system.*** In early 1996, the Administration worked out a proposal to implement the EP fee and the new penalty system. According to the proposal:

(a) a two-tier structure would be introduced under which a utility operator had to obtain a licence for occupying the excavation site and his contractor had to obtain an EP. This structure would enable prosecution of the contractor if he breached the EP conditions (Note 25); and

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**Note 24:** *The WB is responsible for the implementation of the EP fee and the new penalty system. The PLB is responsible for processing the amendment bill. The HyD plays a supporting role in this matter.*

**Note 25:** *At present, an EP is issued to the utility operator, not to his contractor. This makes it difficult for the HyD to prosecute the contractor for breaching the EP conditions. With the proposed two-tier structure, the contractor would become the permittee and therefore could be prosecuted. The originally proposed two-tier structure was modified to a single-tier structure in late 1996. Under the simplified structure, the EP will be issued to the utility operator, but the contractor will be "deemed to be" the permittee. As such, both parties can be prosecuted for breaching EP conditions.*

(b) the maximum fine for breaching EP conditions had remained at the level of $5,000 since 1972. It was proposed to amend the Crown Land Ordinance to increase the maximum fine to $30,000 on the basis of a similar purchasing power (Note 26).

## Slow implementation progress

6.6 Following its pledge in 1995 to introduce legislative amendments "at the earliest opportunity", the Administration reserved legislative slots (Note 27) in April 1997, April 1999 and February 2000 for introducing to LegCo the legislative amendments to provide for the implementation of the EP fee and the new penalty system. However, Audit noted that progress had been slow and, by the end of January 2001, the legislative amendments had still not been introduced to LegCo.

6.7 With regard to the reasons for not introducing the legislative amendments on the dates of the reserved legislative slots, Audit noted the following:

(a) ***Legislative slot on 16 April 1997.*** According to the WB's records, this slot was not used because a longer time than expected was required to clear the Draft Drafting Instructions with the Department of Justice (see item (f) in Appendix B);

(b) ***Legislative slot on 28 April 1999.*** There were no recorded reasons for not using this slot (see item (k) in Appendix B); and

(c) ***Legislative slot on 23 February 2000.*** This slot was not used because the WB decided to defer introducing the amendment bill, pending further discussion with the utility operators (see item (s) in Appendix B).

A chronology of the key events is at Appendix B.

## Latest development

6.8 In June 2000, the Committee on Legislative Priorities reserved a legislative slot on 7 February 2001 for the introduction of the legislative amendments. In September 2000, Audit discussed with the PLB and WB the slow progress of this matter. In October 2000, the PLB prepared an action plan for introducing the legislative amendments to LegCo on 7 February 2001. An outline of the action plan is shown in Table 4 below.

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**Note 26:** *The proposed maximum fine of $30,000 for breaching EP conditions would fall between level 4 ($25,000) and level 5 ($50,000) of the Criminal Procedure Ordinance (Cap. 221). Therefore, in a later proposal of November 2000, the maximum fine was set at level 5 (i.e. $50,000).*

**Note 27:** *The Committee on Legislative Priorities, which is chaired by the Chief Secretary for Administration and serviced by the Director of Administration, decides on the allocation of legislative slots. Upon allocation of a slot, the relevant policy bureau is expected to get the bill drafted in time for introduction to LegCo.*

**Table 4**

**The PLB's October 2000 action plan for introducing the legislative amendments**

| Item | Date | Actions |
|---|---|---|
| (a) | 19 October 2000 | Interdepartmental meeting to resolve outstanding issues |
| (b) | 30 October 2000 | Deadline for the WB to submit paper to the LegCo Secretariat |
| (c) | 6 November 2000 | Meeting of the LegCo Panel on Planning, Lands and Works (LegCo Panel) |
| (d) | 13 December 2000 | The Department of Justice to finalise the amendment bill |
| (e) | 15 December 2000 | Deadline for the PLB to submit Executive Council (ExCo) paper (to be drafted by the WB) to the ExCo Secretariat |
| (f) | 2 January 2001 | ExCo meeting |
| (g) | 12 January 2001 | Gazetting of the amendment bill |
| (h) | 7 February 2001 | The PLB to introduce the amendment bill into LegCo for first reading and second reading |

*Source: PLB's records*

## Audit observations on implementation progress

6.9 **The slow progress in implementing a suitable penalty system has deprived the HyD of a useful tool to enhance its control of utility openings (see paragraph 6.5 above), and the slow progress in implementing the EP fee has significant financial implications. The Government's objective of charging the EP fee is to recover the administrative costs based on the principle of full-cost recovery (see paragraph 6.3 above). This objective has yet to be achieved. In this regard, Audit estimates that the Government's costs of administering the EPs issued to non-government permittees (Note 28) amount to about $76 million a year at the 2000-01 price level. Details of Audit's estimate of the costs are at Appendix C.**

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**Note 28:** *Under the proposed EP fee charging system, for those EPs issued for government works (e.g. waterworks), an EP fee would not be charged so as to save the Government's administrative effort.*

## Audit recommendation on implementation progress

6.10 **Audit has *recommended* that the Secretary for Planning and Lands and the Secretary for Works should closely monitor the progress of introducing the legislative amendments to LegCo to ensure that the EP fee and the penalty system are implemented without further delay.**

## Response from the Administration

6.11 In January 2001, the **Secretary for Planning and Lands** said that:

(a) owing to new technical issues identified in the course of law drafting, the amendment bill could not be finalised in time for submission to LegCo on 7 February 2001; and

(b) the technical issues had already been resolved. The bureaux and departments concerned were working expeditiously towards introducing the legislative amendments to LegCo.

## Proposed EP fee

6.12 According to an information paper submitted to the LegCo Panel for discussion in January 2000, the EP fee then proposed was as follows:

**Table 5**

**EP fee proposal**

| | | |
|---|---|---|
| (a) | For the issue of an EP | $940 |
| (b) | For each extension of an EP, if required | $330 |
| (c) | Daily charge for the approved permit period of an EP, including any extension period | $67 |

*Source: HyD's records*

### HyD's cost calculations of EP fee

6.13 According to that information paper, the proposed EP fee was set based on a projected cost of $128 million a year, at the 2000-01 price level, for processing EPs and carrying out site inspections.

6.14 According to the HyD's cost estimate, a major cost component in the proposed EP fee was the staff cost for carrying out site inspections. The HyD estimated that it would need to deploy 185 Works Supervisors on this task at a staff cost of $57.6 million a year. This estimate was based on the assumption that each site would be inspected at the desired frequency of two inspections a week.

### Audit findings on HyD's cost calculations

6.15 During the course of this audit, Audit discussed with the HyD the appropriateness of using the assumption of two inspections a week for the calculations of costs and the EP fee. In August 2000, Audit advised the HyD that:

(a) in August 1998, the HyD reduced the minimum required frequency of inspections to one inspection a week. In May 2000, it further reduced the frequency to one inspection for every ten days (see paragraph 4.2 above). Therefore, the assumed frequency of inspections of two inspections a week was at variance with the HyD's existing practice; and

(b) because of the use of the assumed frequency of site inspections of twice a week in calculating the costs and the EP fee, there was the risk of over-recovery of the costs. Therefore, there was a need for the HyD to critically reassess the staff cost for carrying out site inspections and to revise the EP fee accordingly.

### Revised EP fee proposal

6.16 In November 2000, the WB submitted an information paper to the LegCo Panel for discussion. The paper contained a revised EP fee proposal, as follows:

**Table 6**

**Revised EP fee proposal**

| | | |
|---|---|---|
| (a) | For the issue of an EP | $1,440 |
| (b) | For each extension of an EP, if required | $375 |
| (c) | Daily charge for the approved permit period of an EP, including any extension period (Note) | $31 |

*Source:* *HyD's records*

*Note:* *Compared with the $67 proposed in January 2000, the daily charge was substantially reduced to $31 due mainly to a significant decrease in the estimated staff cost of carrying out site inspections (see paragraph 6.18 below).*

## HyD's revised cost calculations of EP fee

6.17 According to the above LegCo information paper, the proposed EP fee was revised based on a projected cost of $85 million a year, at the 2001-02 price level, for processing EPs and carrying out site inspections (Note 29).

6.18 With regard to the staff cost for carrying out site inspections (see paragraph 6.14 above), the HyD had revised its estimate based upon the need to deploy 32 Works Supervisors on this task, at a staff cost of $10.5 million a year. Audit's examination of the HyD's cost calculations indicated that this revised estimate was based on the actual staffing situation in 1999-2000 as reported by the HyD's Regional Offices. **Audit considers that this revised estimate reflects more accurately the actual costs of the HyD for carrying out site inspections. The revised estimate would minimise the risk of over-recovery of the costs and, therefore, has addressed Audit's concerns referred to in paragraph 6.15 above.**

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**Note 29:** *In December 2000, the HyD made a further minor cost revision and the estimated cost was increased to $88 million a year. As a result, the proposed EP fee was revised to: (a) $1,500 for the issue of an EP; (b) $420 for each EP extension; and (c) a daily charge of $31 for the approved permit period of an EP, including any extension period. The Finance Bureau approved the proposed EP fee.*

**Appendix A**
(paragraph 2.9 refers)

## HyD's improvement actions on road opening control since 1996

| | Date | Action |
|---|---|---|
| (a) | Effective from June 1997 | In addition to the normal publicity signboards, additional display boards are required to be erected to explain to pedestrians the reason of any apparently unattended road works. |
| (b) | Effective from August 1997 | A standard EP condition has been imposed to require permittees to conduct non-destructive survey to locate underground utilities alignments before commencement of any excavation. |
| (c) | October 1997 | The UMS was implemented for enhancing the coordination and control of utility openings. |
| (d) | Effective from November 1997 | Utility operators with poor performing sites are required to submit progress photographs to the HyD. |
| (e) | January to May 1998 | The HyD conducted the first study of "Trial on improvement on coordination of utility works and implementation of in-series trench works". The purpose of the study was to examine the feasibility of common opening/reinstatement of trenches and successive implementation of works by different utility operators. |
| (f) | February 1998 | The HyD conducted the first calibration inspection on utility works. |
| (g) | March 1998 | The HyD conducted the second calibration inspection on utility works. |
| (h) | Effective from June 1998 | The HyD imposed a standard EP condition requiring that road opening sites must not be left unattended without its approval. |
| (i) | November 1998 | The HyD conducted the third calibration inspection on utility works. |
| (j) | December 1998 | The HyD issued a set of Guidance Notes on utilities coordination under the UMS to streamline the coordination process. |
| (k) | Effective from January 1999 | Permittees are required to provide display board for motorists explaining any apparent site unattendance. |
| (l) | Effective from March 1999 | If the proposed excavation works will affect traffic flow on sensitive roads, the permittee is required to carry out a Traffic Impact Assessment to assess the likely effect of the proposed works on traffic. In March 1999, the Traffic Impact Assessment list was expanded to cover 144 roads/roads sections (from the original number of 126). |
| (m) | April 1999 | The HyD completed a second study on the "Trial on improvement on coordination of utility works and implementation of in-series trench works" (see item (e) above). Measures were agreed among utility operators on common opening and reinstatement for in-series trench works. |
| (n) | Effective from June 1999 | Utility operators' information on advance notification of utility works are disseminated through electronic means. |
| (o) | January 2000 | The HyD agreed with utility operators on the guidelines for constructing manhole covers in carriageway in order to minimise traffic and environmental disturbance. |

**Chronology of key events (up to November 2000)
on the implementation of EP fee and new penalty system**

| | | |
|---|---|---|
| (a) | March 1996 | The WB and HyD consulted the LegCo Panel on Planning, Lands and Works (hereinafter referred to as the LegCo Panel) on the proposed penalty and EP charging system. Members of the LegCo Panel queried the need for the complicated application procedures. |
| (b) | May 1996 | At a meeting among the WB, HyD and utility operators, the utility operators objected to the proposed two-tier structure and the charging of the EP fee, on the grounds that it would generate additional administrative work and increase their operation costs. |
| (c) | November 1996 | A legislative slot on 16 April 1997 was reserved for the introduction of the amendment bill to LegCo to provide for the implementation of the EP fee and the new penalty system. |
| (d) | November 1996 | The WB and HyD presented a revised proposal to the LegCo Panel. The previously proposed two-tier structure (see paragraph 6.5 above) was simplified to a single-tier structure. The LegCo Panel raised no objection to the proposal. |
| (e) | January 1997 | The Finance Bureau approved the proposed EP fee which was based on the costing results at 1997-98 price level. |
| (f) | April 1997 | On 16 April 1997 (i.e. the date of the legislative slot — see item (c) above), the WB did not introduce the amendment bill to LegCo. According to the record of the WB, this was because longer time than expected was required to clear the Draft Drafting Instructions with the Department of Justice. |
| (g) | October 1997 | The Administration informed the PAC that it had finalised the drafting instructions. It also informed the PAC that, as the proposed bill did not meet the "essentiality" criterion of the Provisional LegCo, it could only be introduced later (i.e. after the 1997-98 legislative session). |
| (h) | September 1998 | Another legislative slot on 28 April 1999 was reserved for the introduction of the amendment bill. |

| | | |
|---|---|---|
| (i) | January 1999 | At the JUPG meeting of 12 January 1999, the HyD informed the utility operators that a legislative slot had been reserved on 28 April 1999. |
| (j) | April 1999 | At the JUPG meeting of 8 April 1999, the utility operators expressed concerns about the lack of sufficient time allowed for consultation. They considered that, given the changed business environment and the recent downturn of the economy, the 1996 consultation (see item (b) above) was outdated and another round of comprehensive consultation would be necessary. They also expressed concerns that they were only informed rather informally, at the end of the JUPG meeting of 12 January 1999, about the introduction of the amendment bill on 28 April 1999 (see item (i) above). The HyD informed the utility operators that, although a legislative slot was previously scheduled for 28 April 1999, the WB did not intend to make use of that legislative slot. |
| (k) | April 1999 | The PLB informed the Director of Administration that it did not intend to use the legislative slot reserved on 28 April 1999. There were no recorded reasons for not using this slot. |
| (l) | June 1999 | A further legislative slot on 23 February 2000 was reserved for the introduction of the amendment bill. |
| (m) | September 1999 | The PLB issued the Drafting Instructions for the amendment bill to the Law Draftsman. |
| (n) | September 1999 | At the JUPG meeting of 29 September 1999, the HyD informed the utility operators of the reserved legislative slot on 23 February 2000. The utility operators objected to the proposal and asked for a timetable for the various stages of the legislative and consultation process. They considered that a consultation period of three months was necessary. |
| (o) | November 1999 | The Finance Bureau approved the proposed EP fee which was based on the approved EP fee in 1997-98 and updated to 2000-01 price level. |
| (p) | December 1999 | On 1 December 1999, the WB sent a consultation paper to the utility operators. The paper indicated that, compared with the 1996 proposal (see item (d) above), no major changes had been made except that the charge rates had been updated based on the projected cost in the financial year 2000-01. |

| | | |
|---|---|---|
| (q) | December 1999 | At the JUPG meeting of 22 December 1999, the utility operators again raised objections to the proposal. They considered that there was insufficient time for consultation because they only received the consultation paper in early December 1999 (i.e. six weeks before the relevant LegCo Panel meeting scheduled for 13 January 2000). They said that it was less than the three-month consultation period earlier requested (see item (n) above). |
| (r) | January 2000 | On 13 January 2000, the LegCo Panel discussed the proposal. Members of the LegCo Panel requested additional information from the WB. |
| (s) | January 2000 | On 14 January 2000, the WB informed the LegCo Panel of its decision to defer introducing the amendment bill, pending further discussion with the utility operators. |
| (t) | February 2000 | The Finance Bureau was concerned about the further delays in introducing the EP fee, both from the revenue and environmental protection standpoints. It reminded the WB to endeavour to bid an earlier legislative slot and accord top priority to introducing the amendment bill. |
| (u) | May 2000 | The WB, together with the Business and Services Promotion Unit (Note), commissioned a consultant to carry out a Regulatory Impact Assessment. The consultant was required to examine the costs and benefits and potential impact on stakeholders, of the introduction of the EP fee and the penalty system. |
| (v) | June 2000 | A further legislative slot on 7 February 2001 was reserved. |
| (w) | November 2000 | On 6 November 2000, the LegCo Panel again discussed the proposal. The proposed EP fee level was revised (see paragraph 6.16 above). |

*Source: Records kept at the WB, PLB and HyD*

*Note: The Business and Services Promotion Unit is under the Commerce and Industry Bureau. It is established to promote a genuinely friendly environment for business to flourish and to support the service industry so that they can remain competitive in an increasingly demanding environment.*

**Appendix C**
(paragraph 6.9 refers)

**Audit's estimate of the Government's costs of administering the EPs issued to non-government permittees each year**

| | | **($ million) (Note 1)** |
|---|---|---|
| HyD's annual costs of administering EPs | (a) | 84.1 |
| Lands Department's annual costs of administering EPs (Note 2) | (b) | 10.4 |
| Government's total annual costs of administering EPs | (c) = (a) + (b) | 94.5 |
| **Audit's estimate of the annual costs of administering the EPs issued to non-government permittees** (Note 3) | **(d) = (c) ´ 80%** | **75.6** |
| | | **say $76 million** |

*Source:* *The HyD's and Lands Department's cost statements of EP fee*

*Note 1:* *The costs are at 2000-01 price level.*

*Note 2:* *EPs for excavation works carried out in unleased land other than public roads are issued by the Lands Department.*

*Note 3:* *About 80% of the EPs are issued to non-government permittees. Hence, 80% is used for calculating the annual costs of administering the EPs issued to them.*

**Appendix D**

## Acronyms and abbreviations

| | |
|---|---|
| AN | Advance notification |
| COR | Controlling Officer's Report in the Annual Estimates |
| EP | Excavation permit |
| ExCo | Executive Council |
| FC | Finance Committee |
| Guidance Notes | Guidance Notes on Audit Inspection of Utility Sites |
| HyD | Highways Department |
| JUPG | Joint Utilities Policy Group |
| LegCo | Legislative Council |
| LegCo Panel | Legislative Council's Panel on Planning, Lands and Works |
| MWG | Maintenance Working Group |
| PAC | Public Accounts Committee |
| PIDR | Post Implementation Departmental Return |
| PLB | Planning and Lands Bureau |
| R&D | Research and Development |
| ROCC | Road Opening Coordinating Committee |
| UMS | Utility Management System |
| UTLC | Utilities Technical Liaison Committee |
| WB | Works Bureau |