

Chapter VII Conclusions and recommendations on the Tin Chung Court incident

General Conclusions

7.1 Similar to the other three incidents examined by the Select Committee, fraudulent acts were found in the TCC incident. The Select Committee condemns all fraudulent acts, dishonesty and unethical behaviours of those parties who put the lives of thousands at serious risk. To rectify the mistakes committed by various parties, the Government spent \$150.9 million to undertake the foundation strengthening and restoration works for Blocks 1 and 2, which were completed in June 2003, four years after the scheduled completion date of the superstructures. The TCC incident did not only result in heavy financial loss and delay, but also aroused public concern about the quality of public housing. While acknowledging that criminality played a part in the TCC incident, the Select Committee finds that a more fundamental problem is the existence of systemic flaws which were exploited not only by people who were irresponsible in the discharge of their duties, but also by those intent on taking advantage of the flaws for criminal purposes.

7.2 In the previous chapters, the Select Committee has outlined in detail its findings on the management structure, the planning process, piling design and construction methodologies in the TCC incident, and identified the deficiencies in these areas. This chapter summarizes the various attributing factors which brought about the failure of the project.

Confusion over the responsibilities of consultant architects and functions of the Liaison Team

7.3 With the increase in outsourcing of projects after 1995, HD staff almost played no role in the management of these projects other than ensuring their completion on time and within budget. Despite the designation of a liaison team to look after each outsourced project, it was not clear to the professionals as to what their responsibilities were as far as quality of works was concerned. As mentioned in the First Report, housing projects of HD are

not subject to the control of the Buildings Ordinance. For both in-house and outsourced projects, HD continued to have a responsibility over the quality of the units it produced. This responsibility was never removed from HD even after consultant architects were appointed to take up the management of the projects. This message, however, was not put across to all professionals in HD. The rapid changes in the management structure of HD in the mid-90's were indicative of senior management's eagerness to shift to business management and to separate its functions from operational management. Mr YUEN Tze-chu, a town planner by profession, was the first DR of the TCC project for six months from May to October 1996. It was top management's belief that the DR functions should become more business-oriented in nature and could therefore be undertaken by multi-disciplined staff. Mr YUEN's supervisor, Mr Stephen POON Sing-chi, former Deputy Director of Housing/Works, was also reminded to be more detached from supervising the work of professionals following the reorganization of HD into core businesses. With this mindset, the Select Committee is not at all surprised to see the vastly diminished role of HD professionals in ensuring compliance with building standards. (see paragraphs 6.1 to 6.11)

Bureaucracy and lack of flexibility in tackling needs of individual projects

7.4 Voluminous manuals and complex procedures and work practices had been developed over the years in HD. A large part of the procedures were standard practices common to all housing projects which were basically similar in nature and were generally of standard design. Consultant architects, which were more accustomed to private practices, were expected to follow these procedures and work practices in the same way as HD in-house staff. Where there were conflicting views on the best way to proceed with the project, instead of adopting a more pragmatic approach in tackling the needs of individual projects, HD management was more inclined to stick to the normal procedure. This was well illustrated by HD's insistence on including PPC piles as one of the pile options in the tender document for TCC. HD also failed to take note of the complicated ground conditions of TCC and continued to follow the then standard practice of adopting "design-and-build" contract within the standard piling time frame. Even when serious concerns were raised about the technical difficulties of the project, e.g. conducting preboring

at the pre-tender meeting, HD still failed to adjust its work plan in the light of the special needs of the project. (see paragraphs 3.5 to 3.18 and 6.4 to 6.11)

7.5 The Select Committee is disappointed to note that many tasks were carried out perfunctorily, thereby defeating their intended purpose. Throughout the planning and construction of TCC, from site investigation to actual supervision of site works, there were numerous working steps to follow and forms to complete. Yet, there was so little understanding of the need for such working steps and forms. Even when something was done for a useful purpose, such as the Acer Report, no reference was subsequently made to the Report when evaluating the tenders. There was also no conscious effort to review the practicality and usefulness of these working practices. For example, in the case of the site staff, their time was mainly spent on completing forms rather than inspecting the work of the Contractor. (see paragraphs 3.5 to 3.18 and 4.37 to 4.40)

Ineffective control over services provided by sub-consultants

7.6 The Select Committee is aware of an ongoing dispute between the Consultant Architect, HYA, and its Geotechnical Sub-consultant, JMK, on the latter's scope of work and does not intend to form any view on the matter. Both consultants and sub-consultants in outsourced projects were regarded as an extension of HD staff. The sub-consultants in various professional disciplines were supposedly performing the functions of in-house professional teams. The outsourced projects were not subject to the control of the Buildings Ordinance. With the ground conditions as complex as TCC, the professional services provided by the geotechnical sub-consultant was of paramount importance. However, HD continued to adopt the standing practice of requiring consultant architects to submit details of only the structural sub-consultancy and building services sub-consultancy prior to the award of the consultancy contract. Had the details of the geotechnical sub-consultancy for TCC been submitted by HYA to HD, the delineation of responsibility between HYA and JMK might have been sorted out before the commencement of the Contract. (see paragraphs 2.15, 2.17, 4.43 to 4.45 and 6.13)

7.7 The Select Committee finds it an unsatisfactory arrangement on the part of HD to permit HYA to appoint its in-house structural team to provide structural sub-consultancy services for TCC. Although the name list of the structural sub-consultancy team submitted to HD for TCC included PSD/TCC and PSE/TCC and the fee for structural sub-consultancy services amounted to \$7.54 million, throughout the TCC project, the person who provided the bulk of structural sub-consultancy services was PSE/TCC acting on his own. PSD/TCC, being the leader of the structural sub-consultancy team, was expected to give advice on structural matters, but he claimed to be not even aware of many major events of the project, such as installation of additional preliminary piles and drilling of boreholes at the later stage of the project. Yet, the total number of preliminary piles was included in the RSE Report signed by him. By allowing HYA to assume the dual roles of Consultant Architect and Structural Sub-consultant, HD overlooked the importance of engaging independent structural sub-consultancy services in piling projects. (see paragraphs 2.15, 2.16, 4.41, 4.42 and 6.13)

Lack of training, supervision and guidance to site staff

7.8 In the TCC case, almost all site staff did not have the requisite knowledge and experience in PPC piling works when they took up their jobs. The Select Committee accepts that it may not be entirely practicable to expect all site staff to have the appropriate experience, but sees no reason why the same training for in-house site staff could not be extended to those engaged for outsourced projects. Training given to site staff for outsourced projects was indispensable, since they were appointed on a project basis and were not familiar with the working steps, practices and manuals of HD. However, throughout the course of the TCC project, the site staff had not been given any training by HD but were expected to be immediately functional upon assumption of duty. The mere provision of voluminous work manuals, which were written entirely in English, was by no means helpful to the site staff of outsourced projects. (see paragraphs 2.23, 4.37 and 6.12)

7.9 Although HYA was given 7% staff on-cost for managing the site staff, the site staff were not properly guided or supervised on the job. Before the RE/TCC assumed duty, they were monitored by PSE/TCC through

telephone contacts. After the assumption of duty of RE/TCC, they continued to carry out inspection work on their own. Although part of the duties of RE/TCC, who was engaged by and reported to HYA, was to supervise the site staff, he did not appear to be leading the site staff in performing the inspection work or providing any professional advice on site. Without training by HD and proper guidance and supervision by HYA, these site staff had to rely on the help and co-operation of the Contractor's site staff in discharging their duties. This seriously undermined the supervisory role of the site staff and exposed them to the risk of overlooking irregularities or failing to detect illegal acts. (see paragraphs 4.37 to 4.40 and 4.42)

7.10 The scope of work for resident engineers was not specifically set out in HD's manuals. Resident engineers had to refer to various manuals in order to find out what they were required to do at each stage of work. The situation was aggravated in the case of TCC in which RE/TCC had no previous experience with PPC piles. (see paragraphs 2.23, 2.24, 4.39, 4.40 and 6.12)

7.11 The Select Committee notes that some of the key professionals and managerial staff of HYA might have experience in PPC piling. However, a large part of the consultant's work was delegated to the PSE and the site staff. As a result, the duty to ensure that works were carried out in accordance with the standards laid down in the Specification was vested with a team of frontline staff who barely had any experience in PPC piling. (see paragraphs 2.23, 2.24, 4.41, 4.42, 6.12 and 6.13)

Failure of safeguards to ensure safety of piling design

7.12 The Select Committee finds that in a design-and-build PPC piling contract, the contractor has a lot of flexibility in the piling design. It is not enough on the part of HD to merely stipulate all the standards and requirements in the Specification and then expect voluntary compliance by the contractor and, where any problem surfaced, rely on contractual remedies. Furthermore, given the hefty daily liquidated damages for delay in completion of works, should problems arise the rectification of which might lead to such delays, the contractor would be tempted to cover up. The passive philosophy adopted by HD did not help to prevent irregularities, especially in the case of a piling

contract where irregularities of works were not easily observable. Even when they were subsequently unveiled, the scope of remedial actions that could be taken was very limited. To make the situation worse, there were loopholes in the Specification to allow the contractor to by-pass some of the safeguards as explained in the following paragraphs.

Site investigations

7.13 The first safeguard in the system was the conduct of site investigations to obtain information about the site. Detailed information on the site conditions, including the existence of "hard pans", and the need to prebore for PPC piles were provided in the Acer Report, but it was HD's policy not to provide foundation advice reports to tenderers to avoid being prejudiced in possible claims by contractors. This was exactly what M J Tomlinson (one of the references stated in the Specification) described as a fallacy. Tomlinson stressed that in so doing, *"the contractor will either allow in his tender for the unknown risks involved or will take a gamble."*³⁶. (see paragraphs 3.6 and 3.8)

7.14 In the TCC case, the withholding of the Acer Report was not the key problem. A pre-tender meeting was held to brief prospective tenderers on the ground conditions. The problem was that HD gave insufficient weight to technical matters in its consideration of the tenders. HD insisted on the inclusion of PPC piles, the cheapest pile type, in the tender and refused to make preboring, which was costly, mandatory despite the warnings about the "hard pans". The outcome could almost be predicted. In a competitive bidding exercise, it was unrealistic to expect the tenderers to propose other pile types or adopt preboring in the piling process. Besides, HD did not critically scrutinize the technical viability of the tenders against its own earlier technical assessment, but as was normally done, awarded the contract to the lowest bidder. No query was ever raised despite the much shorter and fewer piles proposed in the tender of Franki (B+B). Franki (B+B) never had any intention to prebore. The designed pile lengths were never intended to reach the "hard pans". All the discussions on "hard pans" and "preboring" in the

³⁶ "Foundation Design and Construction" (7th Edition) by M J Tomlinson (Page 1)

Acer Report, during preparation of the project estimates and at the pre-tender meeting, were academic. (see paragraphs 3.7 to 3.18 and 3.23 to 3.27)

Verification of the piling design

7.15 As the TCC was a design-and-build piling contract, Franki (B+B) should substantiate its design in accordance with the parameters set out in the Specification. For piles not resting on bedrock, the design should satisfy the static formula, the dynamic formula, static load tests and differential settlement. As explained in Chapter V, notwithstanding the stringent requirements laid down in the Specification for achieving the standards, the Contractor was given a lot of flexibility to carry out its works and to justify its design. Here are some of the examples:

- (a) Preliminary piles should be installed prior to driving working piles to obtain data for verifying the pile strength in the piling design by way of static formula. GEO in its "Pile Design and Construction" recommends the installation of at least two preliminary piles for the first 100 piles in unfamiliar ground conditions and one additional pile for every 200 piles after the first 100 piles³⁷. For some 300 piles in each block of TCC, only one preliminary pile was required. The Contractor was also allowed to proceed with the driving of working piles before the results of preliminary piles were known. By the time the results of PP1 and PP2 were available, 99% of the working piles had already been driven into the ground, of which around 87% and 66% of the working piles for Blocks 1 and 2 respectively had achieved final set. With the daily liquidated damages of almost \$300,000, it was quite clear that the Contractor would find ways to justify the piles already driven when the test results of PP1 and PP2 could not substantiate the piling design.

³⁷ "Pile Design and Construction" (Page 71, paragraph 5.10)

- (b) The Contractor was allowed under the Specification to install additional preliminary piles. GEO in its "Pile Design and Construction" advised that *"the preliminary piles should be located in the area with the most adverse ground condition"* ³⁸. In the TCC case, insufficient attention was paid to the soil condition when deciding on where to put the piles. Moreover, none of the preliminary piles, pitched before the soil became denser after driving of working piles, was installed near the two boreholes with the weakest soil readings within the area, namely boreholes A31-75 and A31-73.
- (c) The Specification stipulated the piling sequence. However, there was no mechanism to track the sequence of piling and the sequence of final set.
- (d) The Specification stated that if loading tests of all preliminary piles were not completed within two months from the commencement of works, all piling works should stop until after the loading tests had been completed. HYA allowed piling works to continue after the two-month period because of the tight piling programme and the high liquidated damages.
- (e) Final set is an important step to test whether the piles could satisfy the dynamic formula. The Specification laid down clear procedures and requirements on final set. In practice, the role of ACW/TCC and the two WSs/TCC was mainly to certify the final set forms and graphs. However, they could not even explain the meaning and purpose of the data recorded in the forms, let alone knowing the tricks which the Contractor could play with the plotting of the last 10 blows. They also admitted afterwards that some of the plotted graphs appeared to be flawed and they should not

³⁸ "Pile Design and Construction" (Page 70, paragraph 5.10)

have certified them. No one queried why as many as 60 piles could achieve final set on one single day. It was highly doubtful that final set could be properly done within such a short time, not to mention that there were at the most only two machines being utilized and three site staff to perform the required supervisory duties at any one time. The investigation commissioned by JSM in 2000 and 2001 also uncovered that of the 32 piles in Blocks 1 and 2 drilled to their founding depths, the actual lengths of 30 piles were found to be shorter than the as-built records in the RSE Report. Some piles in question showed a significant discrepancy of up to 7.5 m or more.

- (f) Results of the additional preliminary piles were known as late as in January 1997. With the new values obtained from the additional piles, together with the use of the more favourable set of data on PP2, Franki (B+B) was able to use the linear regression method to come up with a set of calculations to confirm that the required kN could be achieved, hence justifying its original piling design. The preliminary piles therefore did not serve as a safeguard, but a tool to manipulate results in the TCC case.
- (g) The Specification provided that the relative settlement of piles at working load between any two adjacent piles within the same building/structure must not exceed 1/300 times the distance between the centre lines of the piles. In practice, the measurement of relative settlement was between boreholes rather than between any two adjacent piles. In TCC, only 15 boreholes were used against a total of 591 piles in Blocks 1 and 2. The relevant provision in the Specification was impracticable, but was simply adopted as a matter of routine.

- (h) In calculating differential settlement, all borehole data should be used. However, in the RSE Report, not all calculations of the relative settlement between boreholes were included. The unfavourable data of A31-73 and A31-75 were ignored. Evidence submitted to the Court shows that had the unfavourable data been included in the settlement calculations, the permissible differential settlement ratio of 1 in 300 would be exceeded for Block 1³⁹. The RSE Report was endorsed by JMK and accepted by HYA.
- (i) The final means to track the extent of differential settlement was through the installation of settlement markers on the superstructure when it was built to the sixth floor. The markers in TCC were not installed until the superstructure had been built to the 17th floor. The delay in installing the markers undoubtedly delayed the discovery of signs of excessive relative settlement, making it more difficult to remedy.
- (j) The Specification required the Contractor to appoint a RSE to design the piles and certify the RSE Report. However, there was no requirement that the RSE had to be independent from the Contractor. In the TCC case, the RSE, being the employee of the Contractor, carried out the roles of both designing and certifying its design in compliance with the Contract. The appointment of in-house staff as RSE facilitated the Contractor to adopt an aggressive design with the minimum pile lengths.

Registered Structural Engineer's Report

7.16 For a contract which totally relied on the contractor to justify its design and so much leeway being provided in the method of design and the

³⁹ See pages 43, 44, 54 and 58 of the transcript of the summing-up of the trial

construction process, the RSE Report was the last and most important safeguard to ensure that all relevant standards and requirements were complied with. It was, however, an acceptable practice of HD to allow the RSE Report to remain outstanding at the time when the Certificate of Completion was issued. That is to say, works relating to the superstructure were allowed to proceed even without the RSE Report. Since the commencement of the building contract hinged on the completion of the piling contract and given the tight construction time in HA projects, there was pressure on the Contract Manager to issue the Certificate of Completion despite that some items are outstanding. The Select Committee believes that the Certificate of Completion was issued before the RSE Report was available so as to meet the scheduled completion date. Considering the difficulty in undertaking remedial works on the foundation, HD was running a very serious risk in allowing the superstructure to be built without first ascertaining whether the foundation was safe. The submission of the RSE Report became a formality rather than for achieving any useful purpose. (see paragraphs 4.34 to 4.36)

Responsibility of the parties concerned

7.17 The Select Committee is amazed at the way the TCC project was carried out. Right at the beginning, a great deal of flexibility was given to the design of the pile lengths. Then at the construction stage, the piles were not driven to their designed depths, resulting in even shorter piles. Whilst acknowledging the part played by criminality, the Select Committee finds that the various parties involved in the project were carrying out their work perfunctorily without due vigilance and alertness to the inherent and potential risks. There was a general lack of the sense of duty required of them as professionals, as public servants, or as party to the project. Their perfunctory working attitude gave room for perpetration of the criminal acts.

Housing Department

7.18 The Select Committee is disappointed with the passive and irresponsible attitude of HD in managing the TCC project undertaken by the Consultant Architect. The senior management of HD failed in its duty to

ensure that the piling works for the project met satisfactory safety standards. Its method of procuring contractors was far from satisfactory. The focus of HD had always been on the price of the bids. Furthermore, HD was unnecessarily rigid in following the manuals without regard to the genuine and practical needs of individual situations. In these respects, the senior management of HD, particularly the then incumbents of Director of Housing and the head of the New Development Branch in the 90s, should be held responsible. (see paragraphs 2.12 to 2.13, 3.6 to 3.18, 3.26, 4.4, 4.34 to 4.37, 5.10, 5.11 and 6.4 to 6.11)

7.19 Although the TCC project was an outsourced project managed by HYA, the authority for finalizing the tender documents and making recommendation to BC on the procurement of contractor was in the hands of HD staff. Following its usual practice, HD recommended the award of the TCC Contract to the lowest bidder. Although there were provisions in the tender document and the Contract highlighting the existence of hard pans, insufficient attention was paid to properly deal with the risks associated with the use of PPC piles in the award of tender. In these respects, the relevant HD staff, namely, CSE1/TCC and the head of the professional engineering staff, should be held responsible. (see paragraphs 3.6 to 3.18 and 3.22 to 3.27)

7.20 There is an apparent discrepancy between the senior management of HD and the Liaison Team on the understanding of the latter's role in ensuring the quality of works. While the senior management conceded that the Liaison Team should have the responsibility to ensure the quality of works, there was, however, a general understanding among the staff of the Liaison Team that such responsibility should rest with the Consultant Architect. This discrepancy in understanding affected the working attitude of the Liaison Team towards the Consultant Architect. The confusion over the role and responsibility of the Liaison Team inevitably compromised the quality control of the TCC project. The Select Committee considers that both the senior management of HD and the Liaison Team should be held responsible in these respects. (see paragraphs 5.7 to 5.23 and 6.4 to 6.11)

The Consultant

7.21 HYA, the Consultant Architect for the TCC project, was responsible for ensuring that the carrying out of the works by Franki (B+B) was in compliance with the Contract. The Select Committee is disappointed with HYA's lack of prudence in supervising the work of the Contractor at site and in verifying the piling design to ensure that it was safe. It was also inappropriate for HYA to entrust the entire structural sub-consultant job in overseeing TCC to an in-house structural engineer who did not have the requisite knowledge and experience in PPC piling works. HYA failed to provide guidance to the staff concerned, in particular the site staff, hence making it not possible to detect problems at an early stage. The Select Committee concludes that HYA failed to properly deliver its service in respect of the TCC project. (see paragraphs 2.13 to 2.19, 2.23 to 2.26, 3.23 to 3.27, 4.4, 4.14 to 4.17, 4.27 to 4.42, 5.3 to 5.22, 6.12 and 6.13)

The Structural Sub-consultant

7.22 The Select Committee is surprised at the ignorance claimed by PSD/TCC of many significant events in the TCC project. As the head of the structural sub-consultancy team, he should have been aware of the installation of additional preliminary piles the details of which were contained in the RSE Report signed by him. Whether or not he was truly ignorant, the Select Committee considers that he had failed to deliver the structural sub-consultant services diligently, particularly when he was well aware that PSE/TCC had no previous experience with PPC piles. (see paragraphs 2.16, 4.41, 4.42, 5.9 and 6.13)

7.23 Although PSE/TCC identified many anomalies throughout the project and took follow-up actions, his efforts were not effective. He allowed Franki (B+B) to continue with the piling works notwithstanding that the loading tests of preliminary piles had yet to be completed two months after the commencement of the Contract. He approved a piling sequence that did not accord with the Specification. He accepted the linear regression method proposed by Franki (B+B) to justify the piling design. The Select Committee considers that given his lack of relevant experience and without the required

support from PSD/TCC, PSE/TCC could not discharge his structural sub-consultancy duties effectively. (see paragraphs 3.23 to 3.27, 4.2 to 4.11, 4.16 to 4.17, 4.23, 4.24, 4.35, 4.38, 4.41, 4.42, 5.7 to 5.16, 6.12 and 6.13)

The Geotechnical Sub-consultant

7.24 The Select Committee notes the dispute between HYA and JMK over the latter's scope of responsibility. For a design-and-build PPC piling contract based on calculations, verification of the formulae used to substantiate the piling design is of paramount importance. Input from the geotechnical sub-consultant is therefore most crucial. JMK, as the Geotechnical Sub-consultant, should have been more alert to the problems associated with the selective adoption of more favourable data in the calculations. The Select Committee concludes that JMK was not alert enough in performing its sub-consultancy services. (see paragraphs 3.24, 3.27, 4.10, 4.43 to 4.45, 5.2, 5.12 to 5.22 and 6.13)

The site staff

7.25 The Select Committee considers that the entire team of site staff employed by HYA on behalf of HD failed to perform their duties effectively. RE/TCC, in particular, failed to demonstrate the professionalism expected of an engineer. He failed in his duties as the supervisor of the site staff in providing guidance to them, or in monitoring their carrying out of the inspection work. He did not exercise the slightest vigilance in detecting irregularity in the final set process. The Select Committee finds it imprudent on the part of HYA to have recommended him for the appointment, in view of his lack of practical experience in PPC piling works, and on the part of HD to have approved his appointment. In this respect, both HYA and HD should also be held responsible. (see paragraphs 2.19, 2.23 to 2.26, 4.14, 4.37 to 4.40 and 6.12)

7.26 Similarly, both HYA and HD should not have appointed an entire team of site inspection staff with no relevant experience with PPC piles or even piling, namely ACW/TCC and the two Ws/TCC. Both HD and HYA should be held responsible for making such an imprudent decision. The Select Committee is of the view that the site staff completely failed to carry out their

inspection duties effectively. The lack of adequate technical knowledge and relevant experience might have accounted for the ineffectiveness of the two WSs/TCC in inspecting the works of Franki (B+B). In the case of ACW/TCC, the Select Committee notes in his statement made to the ICAC that he admitted knowledge of the fabrication of some of the piling records. ACW/TCC was also aware that some piles were shorter than their recorded lengths. The Select Committee notes that ACW/TCC has lodged an appeal against his conviction for conspiracy to defraud. Irrespective of the outcome of his appeal, ACW/TCC should be condemned for his irresponsible behaviour in supervising the works at site. (see paragraphs 2.23, 4.14, 4.15, 4.28, 4.30, 4.37, 4.39 and 5.6)

The Contractor

7.27 Franki (B+B) was responsible for the execution of the works in compliance with the requirements of the Contract. However, throughout the entire Contract, it made use of loopholes in the Specification and laxity in supervision without regard to the risks it could pose to the safety of the buildings. Franki (B+B) gave no regard to the soil condition, designed the pile lengths shorter than required, installed the piles even shorter than designed, manipulated the final set of piles, and deliberately ignored unfavourable borehole data. The Select Committee is of the view that Franki (B+B) is an absolutely irresponsible and untrustworthy contractor. (see paragraphs 3.17, 3.23 to 3.27, 4.6, 4.7, 4.11, 4.14 to 4.30, 5.8, 5.14 to 5.20, 6.14 and 6.15)

7.28 The Select Committees notes that RSE/TCC was charged with conspiracy to defraud and was found not guilty. However, being the designer of the layout and depths of the piles and having certified that the piles were installed in compliance with the Contract, RSE/TCC, in the view of the Select Committee, failed in his professional duties. (see paragraphs 2.20, 2.21, 3.17, 3.23 to 3.27, 4.11, 4.32, 5.8, 5.14 to 5.20 and 6.14)

7.29 QCE/TCC was responsible for ensuring the quality of the works. The Select Committee notes that he was convicted of conspiracy to defraud and has lodged an appeal against the conviction. On the basis of his conviction,

the Select Committee condemns him for the failure in his professional duties. (see paragraphs 2.20, 2.21, 4.16 to 4.17, 4.23 to 4.30 and 6.15)

Concluding remarks

7.30 In conducting this inquiry, the Select Committee received evidence from a total of 85 witnesses, including those who were convicted of criminal acts and imprisoned as well as those under investigation. Members are grateful to the witnesses for trying their best to recall even some minute details of what happened in the incidents so as to assist the Select Committee in its work. The Select Committee relies heavily on the co-operation of witnesses in order to come up with as complete a picture as possible of the incidents, draw its conclusions and make recommendations on what should be done in future to address the problems.

7.31 The Select Committee expresses great disappointment and dismay with the way HD withheld certain material evidence concerning the TCC incident. In September 2001, when the Select Committee commenced its hearings on the TCC incident, HD had nearly completed an investigation into the founding depths of some piles at Blocks 1 and 2, which were conducted from November 2000 to November 2001. By November 2001, HD already knew through this investigation that 30 piles out of 32 piles drilled to their founding levels were found to be shorter than recorded. This was an important piece of information which would have helped the Select Committee to focus on the central issues right from the start when directing its inquiry. However, throughout the entire hearing process from September 2001 to January 2002, neither HD nor its witnesses revealed to the Select Committee the undertaking of such investigation or its outcome. Even when the Select Committee provided its draft findings and observations on the TCC incident to HD for comment in September 2002, HD mentioned nothing about this investigation or its outcome. The Select Committee was only made aware of the investigation through other witnesses as late as October 2002. It was only upon the Select Committee's specific request then that HD subsequently forwarded the information with the excuse that they had planned to provide the information if asked. The much delayed provision of the information

necessitated the re-examination of the findings and observations of the Select Committee and calling for further evidence on the incident.

7.32 The Select Committee records its deep regret and disappointment with the attitude of HD's senior management. It fell far short of the undertaking made by the Administration to give the Select Committee due co-operation during the debate on the resolution to set up the Select Committee in the Legislative Council on 7 February 2001. The Council is empowered to summons witnesses in its inquiries into matters of public concern. The spate of incidents already indicated serious management and quality control problems in HD. It was all the more important for the parties concerned to put forward any evidence that was vital to the inquiry. HD, as a public organization, was expected to be more frank and forthcoming in the provision of any material information relating to the investigation. The failure of HD in providing material information in a timely manner reflected the passive and defensive attitude of the HD management in co-operating with the Select Committee. HD, in particular the then Director of Housing, Mr J A MILLER, and the former Senior Manager/Special Duties responsible for co-ordinating and supervising the work of the ad-hoc action team of HD in gathering information for the Select Committee, Mr Bruno YIM Tuen-yan, should be severely criticized. The Select Committee calls on the Administration to be more open and forthcoming in co-operating with any select committees appointed by the Legislative Council in future.

Further recommendations

7.33 In the First Report presented to the Legislative Council on 22 January 2003, the Select Committee made 13 recommendations to improve the quality of public housing. These recommendations aim to address the problems identified in the overall policies and systems in the production of public housing units. Amongst these recommendations, some are particularly relevant to the TCC incident, such as the need for sharing of information on the geotechnical conditions of sites, improving the management of organizational

changes, and better deployment of staff and provision of induction training⁴⁰. In addition to these recommendations, the Select Committee also wishes to make further recommendations in the light of the problems identified in the TCC incident. These further recommendations are set out in the following paragraphs.

(1) More stringent control over the work of contractors

7.34 It is evident in the TCC incident that the Specification and the control mechanism of the Contract provided a lot of flexibility to the Contractor. While a certain degree of flexibility is necessary to cater for exceptional circumstances, it is important that a contractor should not be able to make use of the leeway provided in a contract at the expense of quality. In this respect, the Select Committee recommends that:

- (a) The risk factor of each contract should be carefully assessed prior to the tender stage, and sufficient safeguards should be built into the contract according to individual circumstances. For example, where a project is to be awarded under a lump-sum design-and-build contract, there should be adequate precautions to ensure that works which can hardly be undone would not commence until after the required trial tests have been completed and results known. Even standard provisions in the general specification ought to be considered in each case if the inclusion of such would increase the risk factor of the project.
- (b) The extent of delegation of responsibilities over the supervision of the contractor's work should be more clearly defined. Apart from setting out clearly in the manuals the specific duties which can be delegated, it is also necessary to spell out the types of persons to which the duties can be delegated. It is important that only those with the requisite

⁴⁰ See paragraphs 9.56, 9.57, 9.64 to 9.67 and 9.68 to 9.72 of the First Report.

professional or technical knowledge and experience can be delegated with the duties.

- (c) There should be more stringent scrutiny of the technical competence of contractors and more effective monitoring of their performance. To achieve this, it is important that the appraisal system truly reflects the actual performance of the contractor. Suitable ratings which correspond with the actual performance should be duly recorded in the appraisal form. Adverse reports should be given if works are found to be below standard. There should be a system to enable the countersigning officer to cross-check the ratings given in the appraisal report with the monthly report on site progress.

(2) More vigilance in selecting and managing consultants for outsourced projects

7.35 While architect-led consultants are regarded as the extension of HD staff, the consultants may not be fully conversant with HD requirements. Liaison teams therefore play an important role in ensuring that the consultants will carry out their functions in the same way as HD's own in-house professional teams. With the reduction in public housing production target following the announcement of the statement on housing policy by the Secretary for Housing, Planning and Lands on 15 November 2002, it is expected that demand for architect-led consultancy services will decrease. Nevertheless, where it is necessary to engage consultants for outsourced projects or specific professional services, the Select Committee considers it necessary to give regard to the following:

- (a) To avoid confusion of roles and responsibilities between the lead consultants and sub-consultants, it may be necessary to clearly define their respective scope of responsibilities in the consultancy contracts. Tenderers for architect-led consultancy work should provide for HD's consideration information on their sub-consultants, including fees paid to

sub-consultants and composition of their professional teams. Where feasible, HD may appoint the consultants of various disciplines direct.

- (b) In procuring consultants, apart from checking the professional and financial capability of the companies in taking up the projects concerned, HD should also consider critically the competence and experience of the staff assigned by the consultants to undertake the projects.
- (c) HD should review the role of liaison teams and/or other related work teams to ensure that the role of HD in regulating the construction of its buildings would also be performed in outsourced projects. If consultants cannot be regarded as HD staff in checking the quality of works in the same way as the Building Authority does under the Buildings Ordinance, Cap. 123, someone in HD should undertake this role. In view of the setting up of the Independent Checking Unit in November 2000 to carry out checks similar to those currently conducted by the Building Authority in private building works, HD should re-examine the working relationship between consultants and HD staff to effect more meaningful and cost-effective management of outsourced projects or works.

(3) More constructive and positive attitude in the management and execution of works

7.36 There is no doubt that HD has put in much effort in ensuring all written documents are in order – from the preparation of voluminous work manuals, to the compilation of general specifications, particular specifications, tender documents, contract documents, submission papers to BC, and numerous inspection forms, appraisal forms, etc. However, there is no regard to the usefulness of all the written documents and how far the desired results can be achieved. The mechanical way of adhering to the written documents should be changed. At the planning level, due regard should be given to the

nature of individual projects and the conditions of project sites. Equal importance should be attached to the professional and technical issues apart from time and cost considerations. The flexibility given to contractors bidding for design-and-build projects must be balanced against the degree of risk entailed. At the working level, HD should foster a culture whereby professional and technical site staff are aware of their important roles in ensuring the quality of works. The work culture should also be extended to those who take up HD projects. Being the "client", HD is in a position to instil a positive and responsible culture in them.

(4) Better link and co-ordination between foundation works and superstructure

7.37 It has been HD's practice to separate the foundation works and the superstructure. The commencement of the superstructure works hinges on the completion of the foundation works. Where the works are awarded under separate design-and-build contracts, the contractors for the foundation works and the superstructure works are each under time pressure to complete the works on time. Co-ordination between foundation works and superstructure is therefore important. In the TCC incident, the extent of the problems in Blocks 1 and 2 might have been alleviated if the magnitude of uneven settlement were known at an earlier stage. The lack of co-ordination between the foundation and superstructure works resulted in remedial and strengthening works which cost some \$150.9 million and which were completed in June 2003, four years after the scheduled completion date of the superstructures.

7.38 Finally, the Select Committee notes that many recommendations contained in its First Report are being implemented. Also, the Administration has taken disciplinary action against officers who were found to be responsible for the incidents. The relevant Panels of the Legislative Council may wish to monitor the Administration's implementation of the recommendations in the First Report and this Report to further improve the quality of public housing.