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(ACE Paper 29/96)
for information

**SHENZHEN RIVER REGULATION PROJECT
SITUATION REPORT ON
IMPLEMENTATION OF ENVIRONMENTAL MITIGATION
MEASURES FOR STAGE I WORKS**

A. Introduction

The 15th Meeting of the EIA Subcommittee on 13 November 1995 requested the proponent to report back on the progress of the implementation of mitigation measures for the Stage I works of the Shenzhen River Regulation Project.

This request was discussed in a meeting in Shenzhen on 3 May 1996 among the Shenzhen River Regulation Office (SZRRO), the Environmental Team (ET), the Shenzhen Environmental Protection Bureau and the EPD and DSD of HK Government. The meeting agreed that the construction works commencement anniversary (and half way through the contract period) would be an appropriate time to report back to the EIA Subcommittee and SZRRO and the ET undertook to prepare the report, in consultation with the DSD and EPD. Due to subsequent changes in personnel of the SZRRO, there was some delay in the preparation of the report. Following two more meetings in Shenzhen among the relevant parties on 27 May 1996 and 10 June 1996, the report was finally completed on 13 June 1996 and is submitted herewith to the EIA Subcommittee members as well as to the ACE full board members, as requested by the ACE Meeting of 29 April 1996.

B. Background

The Shenzhen River Regulation Project consists of a three-stage scheme to realign, widen and deepen some 17 km of the existing Shenzhen River (please refer to the attached layout plan), and the Stage I works comprise the training of two stretches of the River at Lok Ma Chau and Liu Pok.

The Hong Kong and Shenzhen Governments had agreed that management of the construction of the Stage I works would be undertaken by the Shenzhen Municipal Government (please see the attached chart on the Entrusted Works Management Structure). The construction of the Stage I works commenced on 19 May 1995 and the SZRRO of the Shenzhen Municipal Government had assumed the role of the Employer responsible for supervising and managing the construction contract. The SZRRO is assisted by an independent ET comprising the Beijing University, AXIS and CES (Asia) who undertake the environmental monitoring and audit of the Stage I works. According to the Environmental Monitoring and Audit Manual, the ET has been conducting environmental monitoring on the water quality, air quality, noise, and the ecology of the mudflats at the estuary of the Shenzhen River.

This situation report summarizes the monitoring results of the ET on the implementation of mitigation measures for the Stage I works covering the period from works commencement on 19 May 1995 to 6 June 1996.

C. Progress of Construction Works

The overall progress of the construction of the Stage I works is satisfactory and the value of the works completed at anniversary (ie. 50% of contract period) is around 61%. It is anticipated that the Stage I works will be completed in May 1997 on schedule.

D. Implementation of Environmental Mitigation Measures

The EIA for Stage I works was endorsed in August 1994. The mitigation measures proposed in the EIA were subsequently incorporated into the construction contract and imposed onto the Contractor. The following gives a detailed account on the implementation of the mitigation measures by the Contractor:

1. Noise

- . Selecting appropriate Powered Mechanical Equipment (PME) to reduce the noise level to meet the noise standards.
- . All major noise sources (PME) are not operated on the site at noon (12:00 - 14:00) and night (23:00 - 07:00).
- . Distributing the PME more reasonably around the site to minimise operating a large number of PME close to sensitive receiver, or the works sit boundary.
- . In order to reduce noise impacts on the surrounding environment, all plant and equipment to be used on the site are properly maintained in good operating conditions.
- . The speed of all vehicles, especially trucks, running on the 72m bridge across the Shenzhen River at Liu Pok is limited to 5km/h to reduce noise level.
- . Keeping trucks at a certain distance from each other on the haul road to reduce noise impacts on the sensitive receivers.

2. Dust

- . Hydroseeding the cut slope of Seung Ma Lei Yue Hill for reducing dust pollution.
- . Planting trees and hydroseeding the vicinity of the Engineer's site office to suppress TSP value.
- . covering the completed and not in operation work areas with nylon tarpaulin to reduce dust pollution and prevent erosion.
- . Limiting trucks' speed near the sensitive receivers to avoid dust pollution.
- . Watering the work sites and haul roads regularly with water bowsers. The Contractor has bought 7 bowsers.
- . Repairing and cleaning haul roads.
- . Regulating the environmental sanitation and keeping work sites clean.

3. Water Quality

- . Isolating the main excavation works from the river channel to minimize the effects of surface runoff, re-suspension and dispersion of sediment.
- . Using suction dredgers and closed operation method (recycling the muddy water after deposition) to prevent the river water from pollution.

4. Ecology

- . The excavation of river channel at Seung Ma Lei Yue Hill works area was carried out by high HP bulldozers instead of blasting. It reduced the impacts on nesting birds in this area considerably.
- . Fire control measures are strengthened.
- . The Contract requires the Contractor to restore vegetation on the cut slopes of Seung Ma Lei Yue Hill. The Contractor has already hydroseeded the slopes and will plant trees on the slopes and the adjacent areas in the near future, which will mitigate the habitat losses of birds.
- . There is a loss of 19 hectares of fish ponds as a result of the Stage I works. This loss will be compensated by changing the old river channel of the Lok Ma Chau bend to fish ponds, the total area of which is estimated to be 20 hectares. This will be carried out under Stage II works.

5. Mud Disposal

- . Dumping of the contaminated mud at specified disposal area at Lok Ma Chau, then capping with at least 1m of clean fill to prevent erosion.
- . Segregating all inert earthworks material deemed suitable for embankment formation and disposing of such material at specified disposal or temporary storage areas.
- . Disposing of all other unsuitable material at specified disposal areas.

E. ET's Monitoring Works and Results

The ET inspects the work areas every day, evaluating the situation of environmental protection, filling in monitoring diary, and informing the Engineer and Contractor of the monitoring results. The results so far indicate that in general, the noise level, water quality, air quality and the ecology of the area have not been adversely affected by the construction of the Stage I works and that the Contractor has basically complied with the mitigation measures requirement laid down in the Contract.

Since December 95, the ET have twice published their telephone number to local residents for lodgement of complaints.

Dredging operation in the existing river channel began at Liu Pok reaches on Feb. 22, 1996. Since then, the ET has been monitoring the water quality three times a week. Dredging works using inappropriate or unauthorised plant and method had some adverse impacts on the water quality and caused the SS value to exceed the trigger level. When exceeded, the relevant operations were stopped immediately by the Engineer and the SS values subsequently returned to normal.

Analyses of Cu content showed that it did not change much, being similar to its baseline level measured in 1994.

During the period covered by this report, the ET makes measurement of 24-hour average TSP level once a week (once every 6 days on Hong Kong side) and monitors 30-minute equivalent noise level weekly on each side of the River at Liu Pok and Lok Ma Chau. By adopting the proposed environmental mitigation measures, both the TSP level and the noise level were controlled within the acceptable ranges.

Birds survey was conducted along the Shenzhen River between Lok Ma Chau and Lo Wu border crossings. The survey was carried out once every month in September, October, November, December, January, February, March and May.

In Liu Pok area, as in earlier winter months wetland birds were virtually absent from the Tak Yuet Lau Village area due to progression of filling and channel construction works there. The combination of the fire on Seung Ma Lei Yue Hill (outside the works site) and drainage of the fish ponds at Tak Yuet Lau resulted in fewer birds being observed on this portion of the transect. Filling of ponds on the Shenzhen River flood plain was proceeding in the Liu Pok area. This reduced the available waterbird habitat and accounted for fewer birds observed in that area. But the fish ponds which supported the greatest numbers of birds are at the west end of the Liu Pok transect nearest the Ma Tso Lung Marshes. These ponds are remote from construction works and from human habitation, and have consistently been a preferred habitat for black-winged Stilts, Coots, and Teal. In March, Teal and Cormorants were particularly abundant on the Ma Tso Lung ponds.

In Lok Ma Chau, habitat impacts from construction were similar to that in Liu Pok.

Construction of Stage I works was underway at some distance from the sampling transect. From February through May 1996, barging and dredging were active in the old channel. Various dredging activities took place between the old and new channels, resulting in disturbance and some losses of habitat. The area on the north bank of the old channel which had been abandoned by Little Egrets during the February sampling period was not used in March. In terms of bird numbers, migrants have ranged from a low of 14 in September 1995 to a high of 212 in March 1996. There was a general increase over the past six months of sampling. Resident birds increased from a low of 119 in September 1995 to a high of 302 in February 1996, and similarly display a generally increasing trend. Residents recorded in March totalled 184 birds. Whereas the number of residents nearly trebled over the past six months of sampling, the number of migrants increased by more than a factor of 15. Monitoring of benthos were focused on indicator species that inhabit the Deep Bay intertidal zone, in terms of their numerical abundance (counts of

individuals) and biomass (ashfree dry weight). Up to now, no catastrophic phenomenon, e.g. mass mortality, has been observed. At the same time, no significant ecological changes have happened in the wetland of Shenzhen River estuary.

As regards water quality, air quality and noise, the total number of sampling conducted by the ET so far and the number of TAT level exceedance are summarised in the attached table.

F. Conclusion

The environmental mitigation measures proposed in the EIA and adopted by the Contractor have proved to be effective, accurate and adequate for mitigating the adverse impact of the construction works on the surrounding environment to within the agreed standards.

G. Attachment

- Summary Table of TAT Level Exceedance
- Layout Plan showing Shenzhen River Regulation Project
- Chart showing Entrusted Works Management Structure

Drainage Services Department
June 1996

Shenzhen River Regulation Project
Implementation of Environmental Mitigation Measures for Stage I Works
Summary of TAT Level Exceedance from 19.5.95 to 6.6.96

Parameter		No. of Exceedance	Total No. of Sampling	TAT Levels			Remarks
				Trigger	Action	Target	
Water Quality	SS		369	7	0	0	One exceedance was not related to Stage I works of Shenzhen River Regulation. All the others were related to inappropriate or unauthorised use of plant and method of working, which were stopped forthwith by the Engineer.
	Total Cu content		12	0	0	0	No apparent change was found during the past 12 months, as compared to the baseline monitoring data.
	DO		365	0	0	0	No apparent changes in these parameters were found during the past 12 months, as compared to the baseline monitoring data.
	COD		80	0	0	0	
	TN		80	0	0	0	
	TP		80	0	0	0	
Air Quality	TSP		219	1	0	0	One exceedance was found at Yumin village on Shenzhen side. It was due to the construction of concrete road near the air sampler, and was not related to the Stage I works of Shenzhen River Regulation.
Noise	Leq/ Complaint		225	2 Complaints	0	0	One complaint was related to truck noise, because the haul road was quite close to the No. 6 Building of Ludan Village, Shenzhen. Consequently, no trucks were allowed to work at noon and night. The other complaint was due to the construction of a pump station at the estuary of Buji River, but not related to Stage I works of Shenzhen River Regulation.

SHENZHEN SPECIAL ECONOMIC ZONE

深圳經濟特區



度假村
Holiday Camp

高爾夫球場
Golf Course

福田
FUTIAN

STAGE II
(第二期)

STAGE III
(第三期)



羅湖
LUOHU

STAGE II
(第二期)

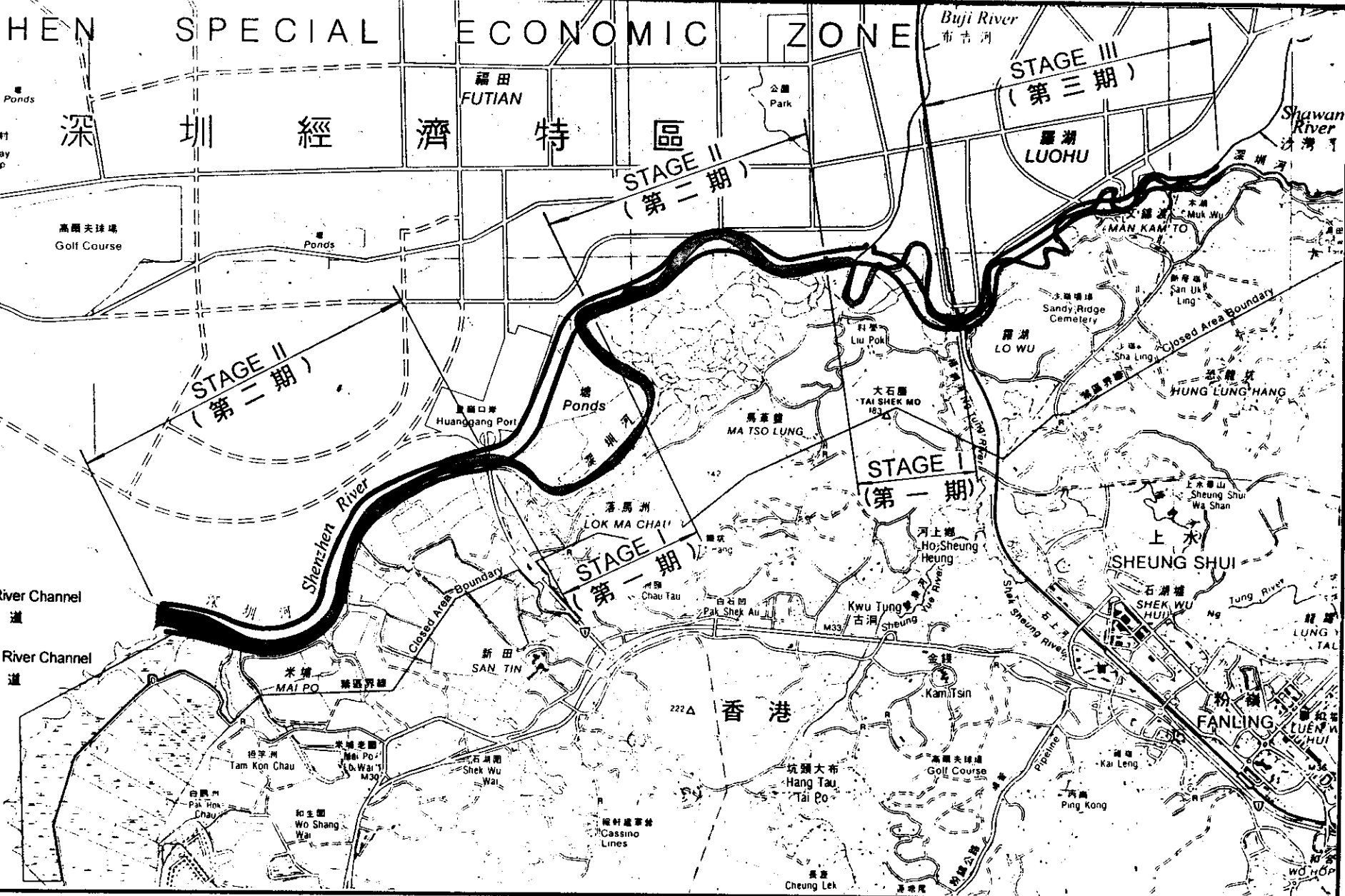
STAGE I
(第一期)

STAGE I
(第一期)

LEGEND:
圖例

-  Existing River Channel
現有河道
-  Proposed River Channel
擬建河道

大馬路
Tsang Tsou



(Drawing title)

圖例標題:

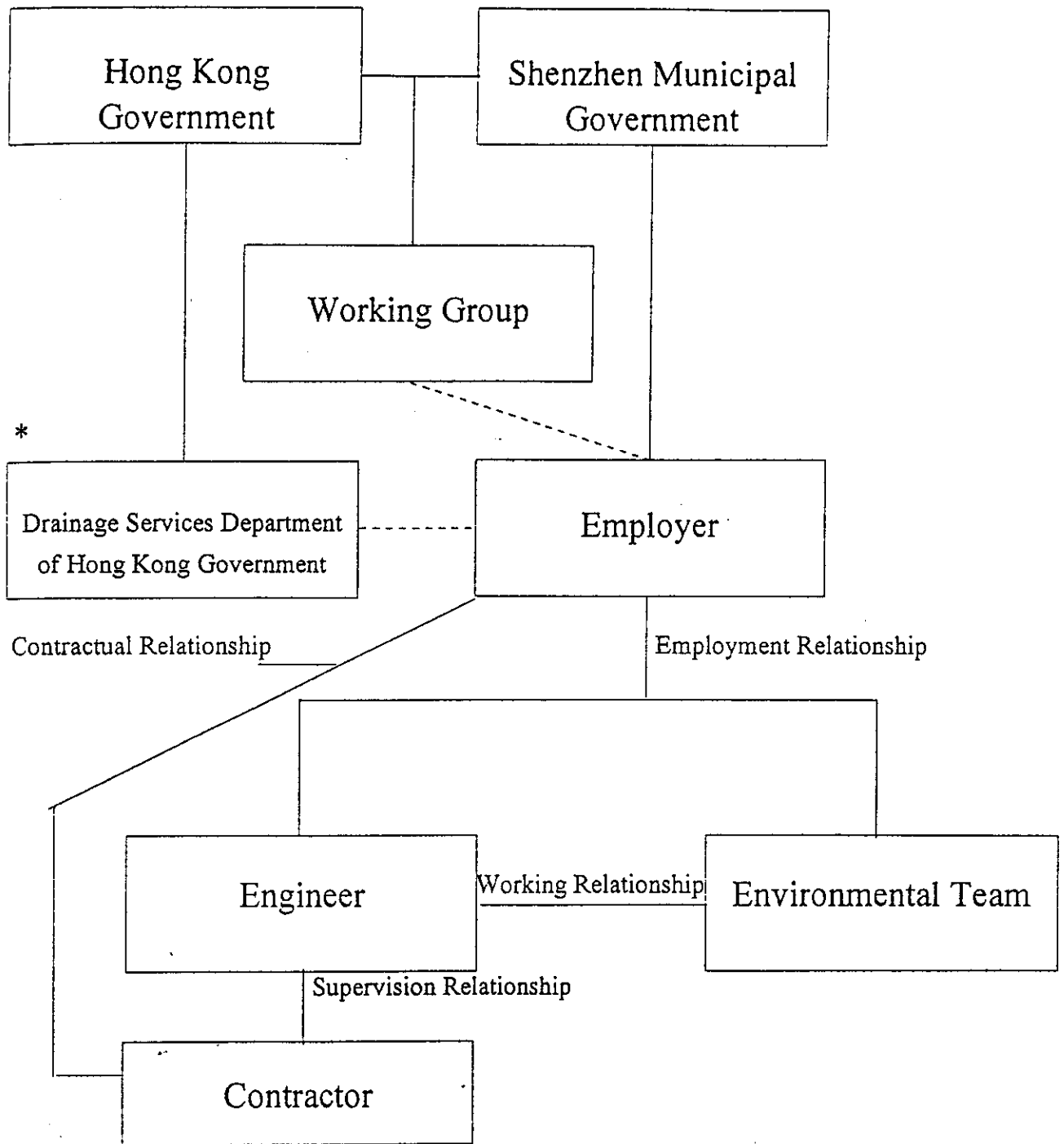
SHENZHEN RIVER REGULATION PROJECT

治理深圳河計劃

scale : 1 50,000
比例尺 :



DRAINAGE SERVICES
DEPARTMENT
HONG KONG
香港渠務署



* Drainage Services Department of Hong Kong Government - responsible for liaison and coordination of inspection and audit of the Entrusted Works by the Hong Kong Side

Entrusted Works Management Structure