

**Arrangement of The Government of Hong Kong for Natural Disaster –**

**Flooding**

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**Arrangement of The Government of Hong Kong for Natural Disaster – Flooding**

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## Background

Natural disaster do not discriminate among people or countries, they affect some parts of the world more severely than others. This is especially true in developing countries, where includes Hong Kong, the affects of natural disaster are deteriorated by vulnerable conditions such as population growth, increased level of poverty, inadequate construction, rapid and uncontrolled urbanization.

## Introduction

Hong Kong is affected by at least a type of natural disaster, which increased poverty, raid and uncontrolled urbanization and economic circumstances, every year.

However, The Hong Kong Government does not appreciate the damage level of these natural phenomena, such as earthquakes, cyclones, volcanic eruptions, tsunamis, wildfires, floods, landslides and droughts, etc.

## Incidence

In 1960, Typhoon Mary affected Hong Kong, causing 45 deaths and 127 injuries. It also destroyed about 10,000 people's homes.



Source: <http://en.wikipedia.org>

**Typhoon Mary**

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Typhoon is a tropical cyclone, when a mature tropical cyclone can release heat at a rate upwards of  $6 \times 10^{14}$  watts. Tropical cyclones on the open sea cause large waves, heavy rain, and high winds, disrupting international shipping and sometimes sinking ships. However, the most devastating effects of a tropical cyclone occur when they cross coastlines, making landfall. A tropical cyclone moving over land can do direct damage in high winds, storm surge, heavy rain and, tornado and decrease etc.

High winds - Hurricane strength winds can damage or destroy vehicles, buildings, bridges, etc. High winds also turn loose debris into flying projectiles, making the outdoor environment even more dangerous.

Storm surge - Tropical cyclones cause an increase in sea level, which can flood coastal communities. This is the worst effect, as cyclones claim 80% of their victims when they first strike shore.

Heavy rain - The thunderstorm activity in a tropical cyclone causes intense rainfall. Rivers and streams flood, roads become impassable, and landslides can occur.

Tornado activity - The broad rotation of a hurricane often spawns tornadoes. While these tornadoes are normally not as strong as their non-tropical counterparts, they can still cause tremendous damage.

Often, the secondary effects of a tropical cyclone are equally damaging. They include: Disease, Power outages, Transportation difficulties

Disease - The wet environment in the aftermath of a tropical cyclone, combined with the destruction of sanitation facilities and a warm tropical climate, can induce epidemics of disease which claim lives long after the storm passes. One of the most common post-hurricane injuries is stepping on a nail in storm debris, leading to a risk of tetanus or other infection. Infections of cuts and bruises can be greatly amplified by wading in sewage-polluted water.

Power outages - Tropical cyclones often knock out power to tens of thousands of people, prohibiting vital communication and hampering rescue efforts.







Transportation difficulties - Tropical cyclones often destroy key bridges, overpasses, and roads, complicating efforts to transport food, clean water, and

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medicine to the areas that need it.

Therefore, the Hong Kong Government contrived some disaster contingency plan for controlling loss of life, disruption of socio-economic activities, damage to property and natural recourses are some of common outcomes of these events.

### Serious Flooding Scenario in Hong Kong

 <p>Fanling Ping Che, 24-5-1998</p>	 <p>Ho Sheung Heung , 21-5-1989</p>
 <p>Hong Fai Road, Tuen Mun, 25-8-1999</p>	 <p>Kung Um Road &amp; Tai Shu Ha East Road, 25-8-1999</p>
 <p>Man Kam To, 27-9-1993</p>	 <p>San Tin, 24-8-1999 (original post from Ta Kung Po)</p>

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Sham Tseng San Tsuen, 24-8-1999



Shatin Pai Tau Tsuen, 3-7-1997  
(original post from Ta Kung Po)



Shek Wu San Tsuen, 14-4-2000



Shek Wu San Tsuen, 24-5-1998



Tuen Mun, 14-4-2000



Ta Kwu Ling, 9-8-2002

Source: <http://www.info.gov>

Hong Kong is on the common track of tropical cyclones and can experience very heavy rainstorms at times. The annual average rainfall is about 2200 millimeters, one of the highest among the cities in the Pacific Rim.

Hong Kong had experienced remarkable extremes in storm rainfall, and is in the track of tropical cyclones and associated tidal surges from 1960 to 2002. There were found serious flooding problems in the North West and North Districts of the New Territories as during these rainstorms, flooding in the rural low-lying areas and natural flood plains in the northern part of the territory and in parts of the older urban areas

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will not be uncommon. There is a serious example, that a heavy rain brought about by Typhoon Dot in 1993 flooded over 1,000 hectares of land.

### **Flooding reason in Hong Kong**

After these cases, Hong Kong government has been investigating the flooding reason. They totally found out the causes as follows:

1. Natural floodplain inundation
2. Land use changes
3. Obstruction of natural drainage paths
4. Inadequate drainage provisions
5. Lack of maintenance

### **Flooding management of Hong Kong**

The Hong Kong government delegated some different government departments to improve the system to protect against flooding.

1. Reducing active floodplain storages
2. Constructing flood plain flow
3. Re-directing natural-drainage
4. Temporarily obstructing drainage during construction
5. Contributing to soil erosion and thus downstream situation
6. Reducing former drainage gradients following land reclamation

### **Government's Concepts on Emergency Response**

The Commonwealth recognizes four concepts of emergency management.

1. The all hazards approach
2. The comprehensive approach
3. The all agencies approach
4. The prepared community

### **Significance of Civil Care and Security**

Hong Kong Government is still responsible for dealing with disaster yet. Hong Kong Government establishes a framework for effective and rapid cooperation between different civil protection services when mutual assistance is needed. Such

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as, Agriculture, Fisheries and Conservation, Auxiliary Medical Service, Aviation Security, Building Department, Civil Aviation Department, Civil Aid Service, Chief Executive Committee, Department of Health, Education and Manpower Bureau, Environmental Protection Department, Food Control Committee, Food and Environmental Hygiene Department, Hong Kong Police Force, Fire Service Department, Government Flying Service, Government Laboratory, Government Logistics Department, Hospital Authority, Home Affairs Department, Housing Department,. Hong Kong Observatory, Information Policy Committee, Information Services Department, Leisure and Cultural Services Department, Lands Department, Marine Department, Transport Department, Social Welfare Department, public utility provider and voluntary agencies, etc.

They are very importance that the Governments committed to provide emergency plan and disaster management to all situations, even emergency or non-emergency.

### **Reaction-Post disaster analysis and recovery**

Mitigations attempt to prevent the disaster from ever occurring or reduce the effects of the disaster.

Flood and storm damager are the most common disaster in Hong Kong. So for example, a project can raise the level of a city so that a storm surge will drown thousands.

### **Flooding-Preparations**

The most important government preparation, and one of the cheapest is simply for a city or region to have an emergency operation center, and a practiced, region-wide doctrine for managing emergencies.

### **Got Information and ready to Turn Out**

After having identified and evaluated the flooding reason. Hong Kong Government identified the characteristics of Flood and how to tackle flooding after 1992 and set up a clear natural disaster management policy (Contingency Plan for Natural Disaster) in 2004.

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That Contingency Plan for Natural Disaster stated that the weathers handle by the Hong Kong Observatory “HKO”, who will be responsible for issue all weather-related warnings and general precautionary announcements to the public. Providing meteorological advice to other departments and giving advice on precautions to the loss of life and damage to property followed by supplementary information and advice as the situation develops.

EMSC, Police, Fire Service and Information Service Department will be hourly received summarizes of the weather warning whenever Tropical Cyclone Warning signals, Rainstorm Warning Signals, Landslip Warning and Flooding Warning from HKO. These warning will be disseminated by Information Service Department, the Security Bureau Duty Officer “SBDO” or EMSC, the police, Fire Service Department, Transport Department, Marine Department, AAHK, PCCW HKT and other parties for ready to turnout.

Hospital Authority will handle injury or sick person. Police will handle operational matters, such as traffic accidents, traffic congestion, road diversions and road closure.

### **Flooding-Response**

There are totally three Rainstorm warning signal in Hong Kong. When the HKO issues the Amber Rainstorm Warning Signal implies that there will be flooding in some low-lying and poorly drained area. The Red and Black Rainstorm Warning Signal indicate more serious flooding, which could cause major disruption.

Based on the flooding problems are always occurred in the North West and North Districts of the New Territories. The Drainage Service Department “DSD” has installed 21 River Stage Gauges covering flood prone area in northern and northwestern New Territories. When any river stage exceeds its alert level, DSD will alert Fire Service Department, Home Affairs Department “HAD”, the relevant HAD District Officer and SBDO/EMSC.

When a Special Announcement on Flooding in the northern New Territories is issued, the Drainage Service Department Mainland North Region Emergency Control Center will be activated. Drainage Service Department and contractor staff will stand ready to clear blocked drains and watercourses in northern and northwestern New Territories. Fire Service Department, Police, Government Flying Service and CAS will make available rescue and ambulance resources for providing evacuation



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and rescue services for flood victims, emergency treatment to casualties and their conveyance to hospitals. These resources will be strategically developed in the flood prone areas having regard to the Drainage Service Department flood alert, if issued. The Emergency Duty Officers of North and Yuen Long District Offices should liaise closely with Fire Services Department and Drainage Service Department.

### **First priority - Rescue**

Hong Kong Government pays attention to rescue of life, protection of property and containment of the situation or incident to prevent any further deterioration in any incident.

### **Recovery**

This period is to return the community considered acceptable by the community.

The Police will assume overall responsibility for the disaster site, subject to Hospital Authority's role as Government spokesman and relief coordinator, and also subject to the discharge of any duties or responsibilities vested in any Government Department or agency by law or agreement. They will follow up action including the collection of human bodies and remains, identification of fatalities and the recovery and safe custody of unattended property.

Home Affair Department "HAD" District Officer will co-ordinate relief measures by Social Welfare Department, Housing Department and other bodies if necessary, at the scene with the support of her District Emergency Co-ordination.

Information Service Department and HAD officers should liaise closely on site and discuss with other relevant departments to determine the best on site press release strategy to deal with media and public enquires.

### **Restoration**

This phase is to restore the community to the state prior to the disaster.

The disaster site should be released as soon as possible but this cannot be done until investigation and other on-site activities have been completed. The police will not vacate the site until it has been properly handed over to the owner, occupier or responsible Government Department.

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## Shenzhen Flooding Scenario

The Shenzhen Authority has agreed to give pre-warning to Hong Kong when water discharge from Shenzhen Reservoir is being considered. As far as possible the decision on water discharge will be passed to Hong Kong 3 hours before discharge. In the unforeseen circumstances where the 3 hours prior notice is not feasible, the Shenzhen Authority will notify Hong Kong as soon as possible.



Extensive flooding in Shenzhen River and Ma Tso Lung areas, Sheung Shui, during Typhoon Dot in 1993



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## The completed Shenzhen River Regulation Project Stages I & II



Extensive flooding in Ho Sheung Heung, Sheung Shui, during Typhoon Dot in 1993



Ho Sheung Heung during the rainstorm on 9 Aug 2002, after the completion of the river training works for River Beast

Source: <http://www.info.gov>

## Conclusion

Over the years, Hong Kong Government intensive development associated with urban development has taken place in the flood plains. This has turned large areas of

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natural ground into hard paved areas and rainwater, which formerly was retained, now quickly becomes surface flows. The extension of built-up areas in close proximity to the major watercourses has also reduced their flood carrying capacity and has further aggravated the flooding problem.

In the old urban areas, flooding occurs because storm water drainage systems built decades ago to the older protection standards are becoming inadequate due to aging of the systems and the expansion of the built-up urban area.

The Northern New Territories and Northwestern New Territories are the two major flood prone areas in the territory. Due to the low-lying topography in these areas, the overflow of natural watercourses, which do not have adequate capacity to cater for the discharge, in times of heavy rain, causes severe flooding. The problem has been exacerbated in recent years by intensive developments on natural flood plains.

Since 1997, we have implemented a comprehensive flood prevention strategy that is based on the large-scale river training works for main watercourses and the village flood protection scheme for low-lying villages. The Government has committed considerable resources (about \$9.1 billion) to implement these projects in order to reduce the livelihood of rivers overflowing their banks. Most river training works include the widening, deepening and straightening of existing rivers. These projects are at various stages of planning, design and construction.

In addition to river training projects, there are 21 village flood protection schemes operating very successfully to protect low-lying villages that are at levels below the water levels in the drainage channels. Four new schemes are under construction for completion in 2004 and 2005, 2 Schemes will have the construction starts in mid 2003 for completion in 2005.



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Flooding in Mong Kok, 1997



A flood storage tank has been constructed under Tai Hang Tung Recreation Ground to solve the flooding problem in Mong Kok

Source: <http://www.info.gov>

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## **Recommendation**

Hong Kong has experienced catastrophic flooding since 1960, then relies heavily on government support and technology to combat flooding.

Therefore, Drains need carefully managed and Hong Kong Government should closely monitored the new developments project in NT reliant on artificial defences for protection from floodwaters.

Flooding still is major problem in Hong Kong, in which no Flood insurance policy for the Hong Kong Government. I suggest that they should have found appropriate insurance agency assistance as necessary.

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## **Reference:**

### **English Information:**

1. Disaster Management – A disaster Manager’s Handbook, Carter, W.Nick (ed.), 1992
2. Weather Warning and Precautionary Measures, Emergency Support Unit, Security Bureau Government Secretariat, 2004
3. Reconstruction After Disaster, Adenrele Awotona, ASHGATE, 1997
4. Risk Management, Ertugul Alp, Alp & Associates, 2000
5. Man-Made Disaster, Barry A. Turner and Nick F. Pidgeon, Biddles Ltd, 1997
6. Protect, Survive & Prosper, Jarret B Wollstein, Medina Ltd, 1999

### **Website Information:**

7. <http://www.yahoo.com.hk>
8. <http://www.google.com>
9. [http:// www.sb.gov.hk](http://www.sb.gov.hk)
10. <http://www.info.gov>
11. <http://www.isd.gov.hk>
12. <http://en.wikipedia.org>
13. <http://www.chp.gov.hk>
14. <http://www.esdlife.com>
15. <http://www.hd.gov.hk>
16. <http://www.swd.gov.hk>
17. <http://www.hko.gov.hk>

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