HGC
Hutchison Global Communications

Hutchison Global Communications Limited
和記環球電訊有限公司
Hutchison Telecom Tower, 99 Cheung Fai Road, Tsing Yi, Hong Kong

www.hgc.com.hk
Oswald Kwok
Legal & Regulatory Department
Tel: 2128 3002
Fax: 2123 1365

Panel on Information Technology and Broadcasting
Legislative Council, Hong Kong SAR
Legislative Council Building
8 Jackson Road
Central
Hong Kong

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Dear Sir/Madam

**Issues relating to Internet Disruptions**
**Caused by Earthquake Damage to Undersea Cables**

Thank you for your letter of 7 January. We understand that the Panel would like to hear our views and understand the contingency plan that we have for similar events.

**Background**

The earthquake occurred in south of Taiwan on 26 December 2006 **("the Earthquake")** was a natural disaster that had caused tragic loss of lives and properties. It had also caused severe damage to one of the most critical clusters of undersea telecom cabling systems located in Luzon Strait (i.e. between Taiwan and the Philippines) **("Luzon Route")**. (Please refer to the regional cable map enclosed.) The damage in turn results in serious disruption to the telecommunications networks in the Region with most of the countries in the Region gravely affected.

Routing through Luzon Strait was one of the most popular cabling routings for all the cable consortia which deploy in the Region. Cable consortia favoured that location for laying telecom cablings due to geo-political-economical reasons e.g. it is an area free from deep-sea fishing activities and the seabed is suitable for submarine cable deployment.

For Hong Kong, the damaged cable systems are part of the most optimal cable routing for telecom traffic between Hong Kong and North East Asia (excluding Mainland China)/North America. From an engineering point of view, it is the most optimal routing after taking into account of the factors of distance and performance, such as transmission speed for conveying such traffic to the relevant destinations. Using other routes would potentially result in longer propagation delay and service instability.

The breakage of this route has caused aggravating impact on Internet users in Hong Kong due to the concentration of popular websites and important traffic exchanges in various destinations in the US, Taiwan and South Korea.

**The Existing International Network Configuration of Hutchison Global Communications Limited ("Hutchison")**

As in the case of other operators, the telecom traffic between Hutchison's network and those in North Asia and North America follows the Luzon Route. However, the topology of Hutchison's international network was designed with various diversifications to avoid single point of failure. The diversifications include different cable systems (submarine and terrestrial) and international gateway in different geographic locations for routing traffic.

Furthermore, Hutchison has direct interconnection arrangements with more than 130 carriers worldwide for delivery of both voice and Internet traffic. These direct interconnection arrangements are set up by way of worldwide mutual capacity matching and interconnecting via our own overseas points of presence (PoP).

Hutchison can therefore reduce the reliance on a few carriers and operators. Even more Hutchison can, where necessary, make use of the available resources of any one of its carrier partners to deliver its traffic effectively. This network of direct interconnection agreements for alternative cable arrangements would not be affected by any failure of a single or a few carriers/operators.

Besides, Hutchison has already put in place contingency arrangements with its cable/service providers for alternative cable arrangements. When an unexpected incident affects the normal performance of the service, Hutchison will coordinate with the cable/service providers to activate contingency arrangement so as to reduce the impact of the incident.

**Restoration Work – What Hutchison Did After the Earthquake**

When the effects of the damage caused by the Earthquake were detected, Hutchison activated its contingency plan that it had in place. Majority of its traffic was rerouted to its partner carriers in South East Asia to recover the traffic to the major destinations such as Taiwan, Korea, Japan, US and Europe.

This restoration route was longer than the normal path because of the round trip. Therefore, Hutchison immediately collaborated with other overseas carriers for additional alternate routing for those affected areas. It had worked with Mainland carriers in bringing up another direct route to Japan and US via Shanghai.

In addition, Hutchison made use of the spare capacity margin of its own overseas PoP to design and put into service a number of the alternate routes. This has enabled Hutchison to even assist other operators (local and overseas) by providing its spare capacity available through its alternative routings.

## Outcomes of Hutchison's Restoration Work

Due to our strenuous efforts and resilient network configuration, Hutchison has been able to continue its services to customers despite the scale of the disruption caused by the Earthquake. Hutchison's telecom services to the affected areas had not experienced total outage. Despite some impacts on the service levels, Hutchison has managed to achieve the following restoration outcomes:

- International voice traffic and fax services
    - All back to normal (except Taiwan) within 24 hours in terms of call set-up and connection rate
    - Taiwan resumed to normal on 28 December in terms of call set-up and connection rate
    - In fact, the utilization of Hutchison's international voice service to those most affected countries (Japan, Taiwan, US and Canada) has increased by about 20% over the normal usage during the period.

- Internet Service
    - 80% back to normal on 28 December
    - 85% back to normal on 30 December
    - The above recovery ratio is based on a host of important performance factors such as the available bandwidth, latency and packet loss rate. Calculation based on one mere factor (such as the available bandwidth) is not conclusive on the performance level.

- Corporate Customers Data Services
    - 98% back to normal capacity on 28 December
    - 99% back to normal capacity on 2 January
    - 99.5% back to normal capacity on 5 January
    - 100% back to normal capacity on 8 January

We believe that Hutchison is one of the earliest to restore the affected traffic, amongst the operators in Hong Kong as well as in the Region. Hutchison was also able to provide assistance to other local and overseas operators in the form of available capacity through our alternative routings.

## Future – Areas for Improvement

In the case of natural disaster, it is the responsibility of the industry, the regulator and the public to each performing its due share of care and efforts to keep the damage caused to the minimum.

As one of the leading telecommunications operators in Hong Kong, Hutchison worked hard during the restoration process to resume the services to its customers. Hutchison had also upon request provided valuable assistance to many other overseas operators in Taiwan, South Korea, Philippines and other European operators in the

Region. Hutchison's good network and contingency planning enabled it to achieve these results.

The breakdown of 6 cable systems all at once during an earthquake is an unprecedented incident and consumers' misunderstanding of the actual extent of the disruptions caused is understandable. For better management of similar future disaster incidents, it is important that the industry and the regulator should work together to maintain an effective process for informing the public of the salient information. In this regard, Hutchison would work with the Office of Telecommunications Authority to establish an appropriate process for providing the relevant information for the benefit of the consumers and the general public.

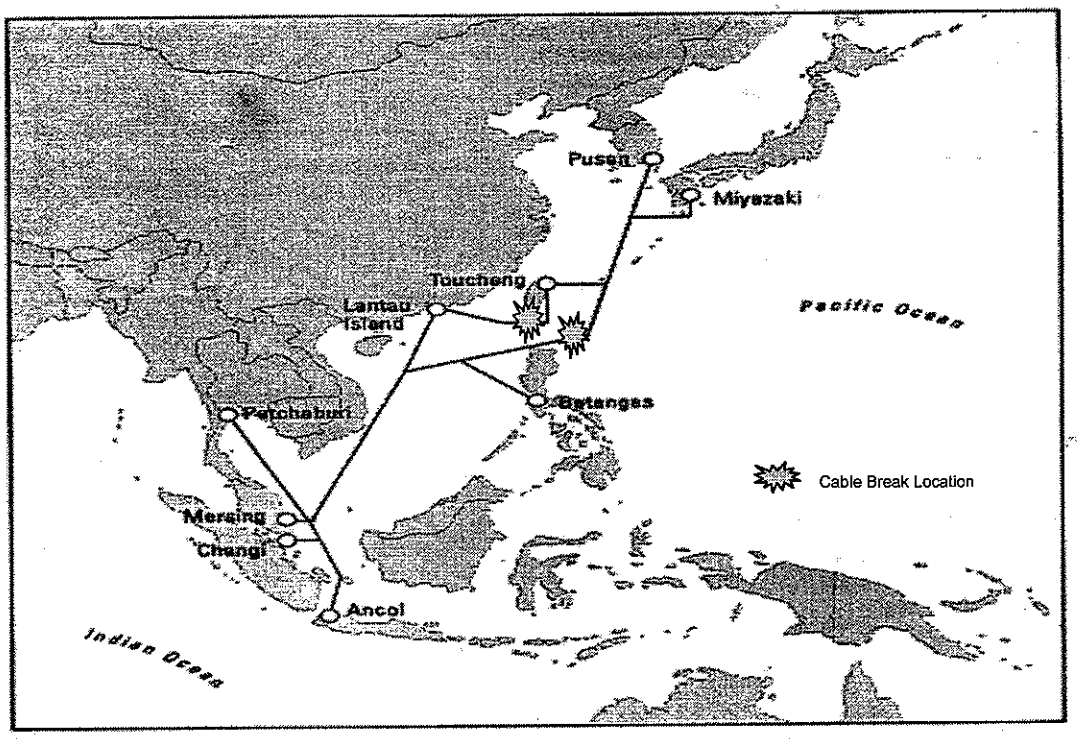
We look forward to working with the relevant parties to further improve the future management of similar disaster incidents.

Yours sincerely

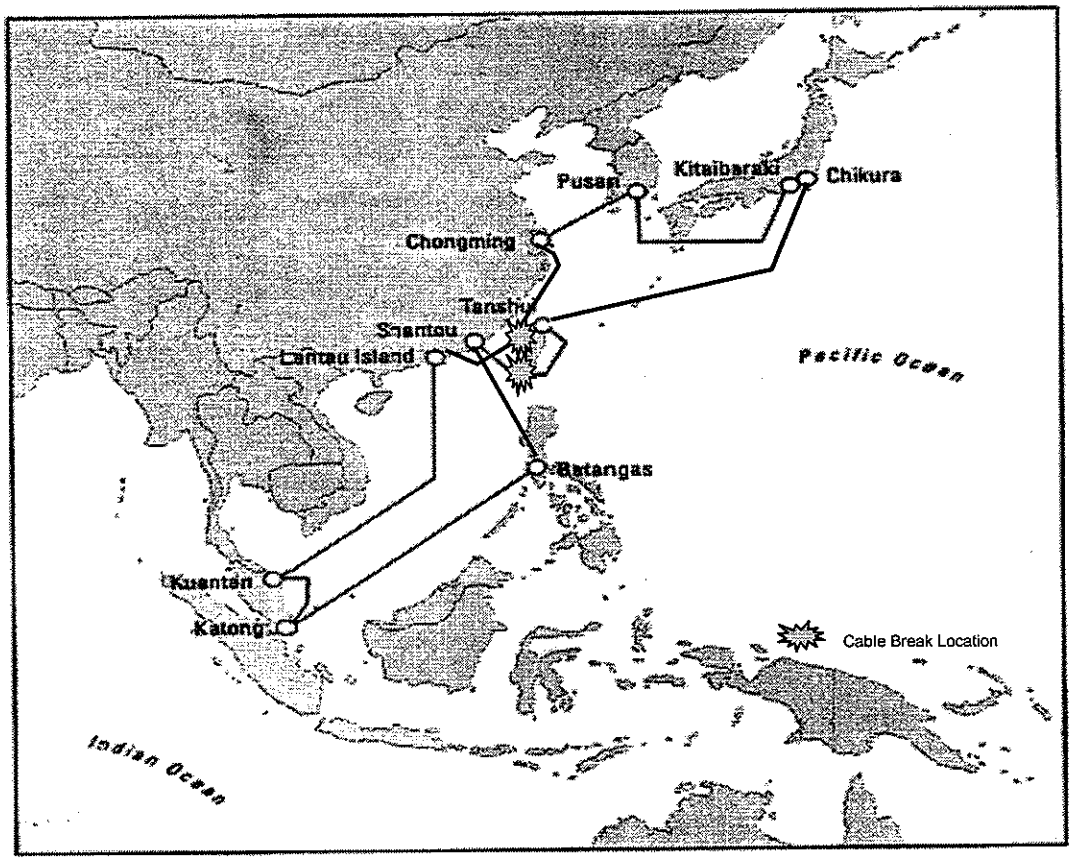
Oswald Kwok
Director of Legal & Regulatory
Hutchison Global Communications Limited

# Major Submarine Cable Systems in Asia ( 1 )

## APCN

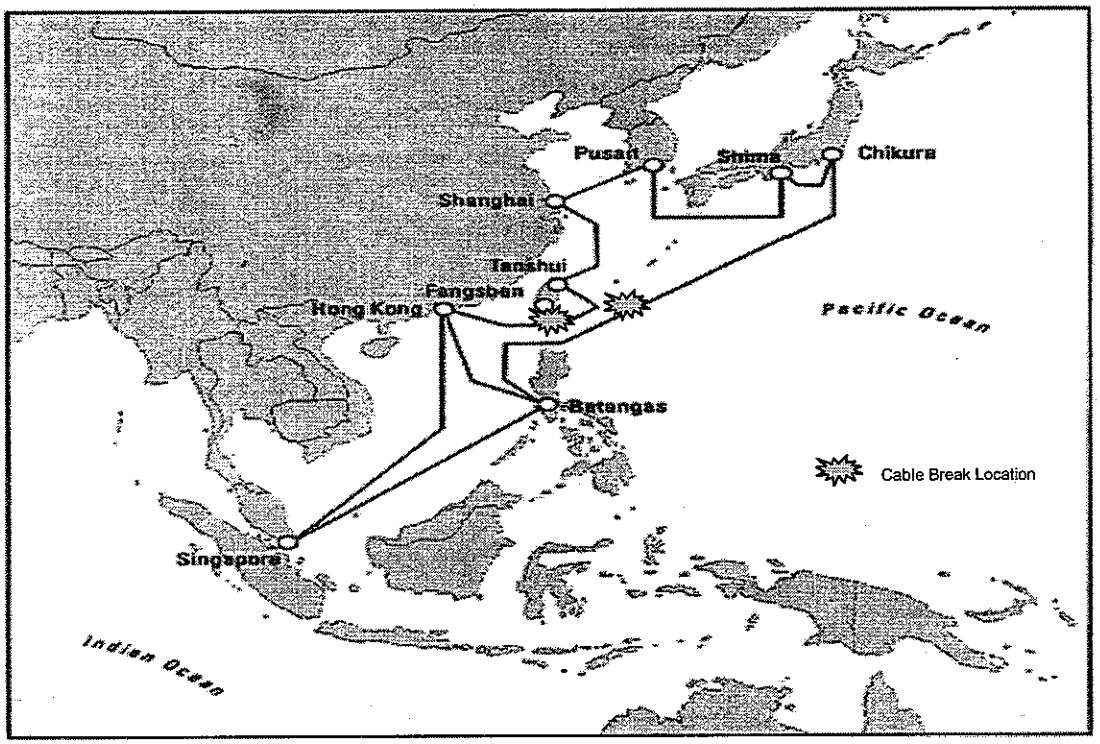



## APCN-2

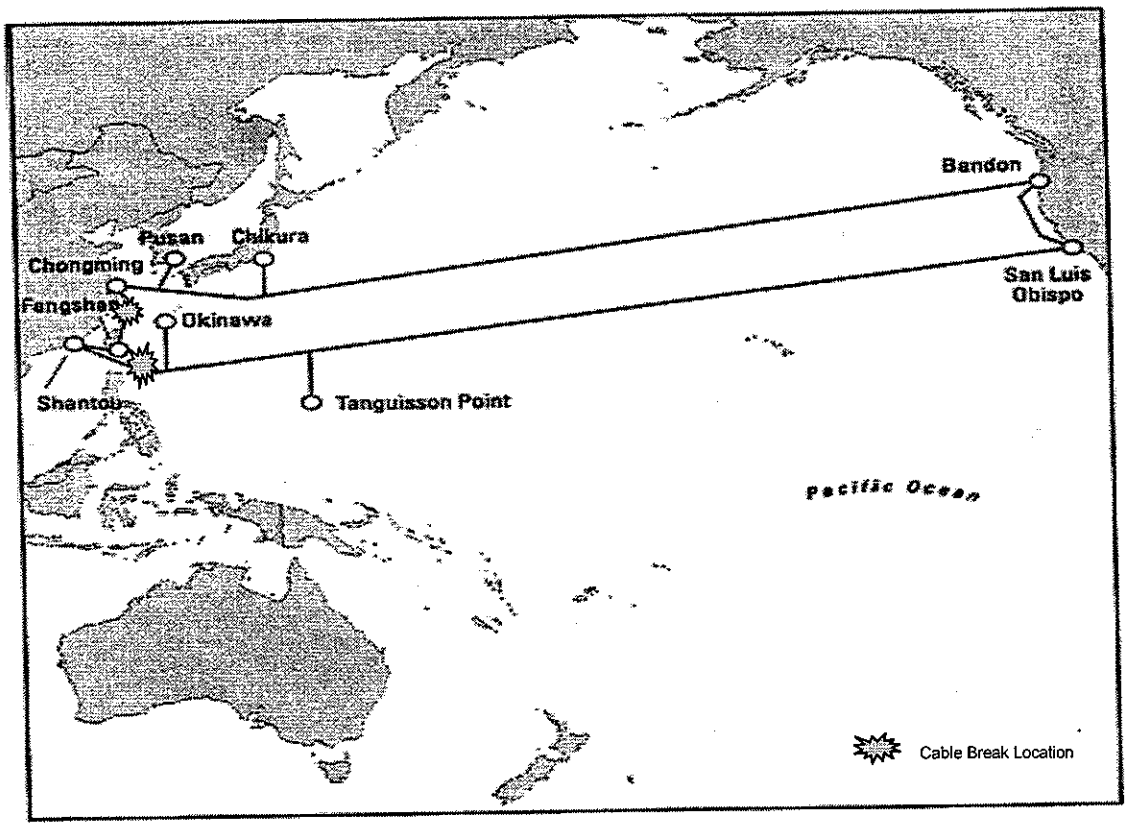


# Major Submarine Cable Systems in Asia ( 2 )

## C2C Cable Network

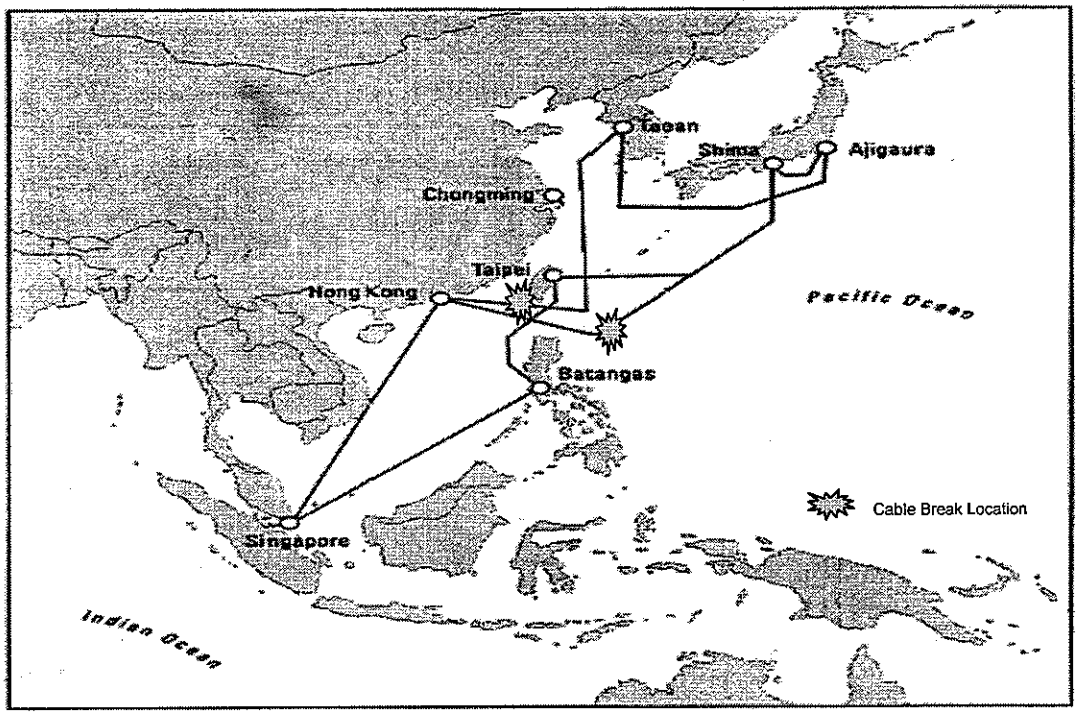



## China-U.S. Cable Network

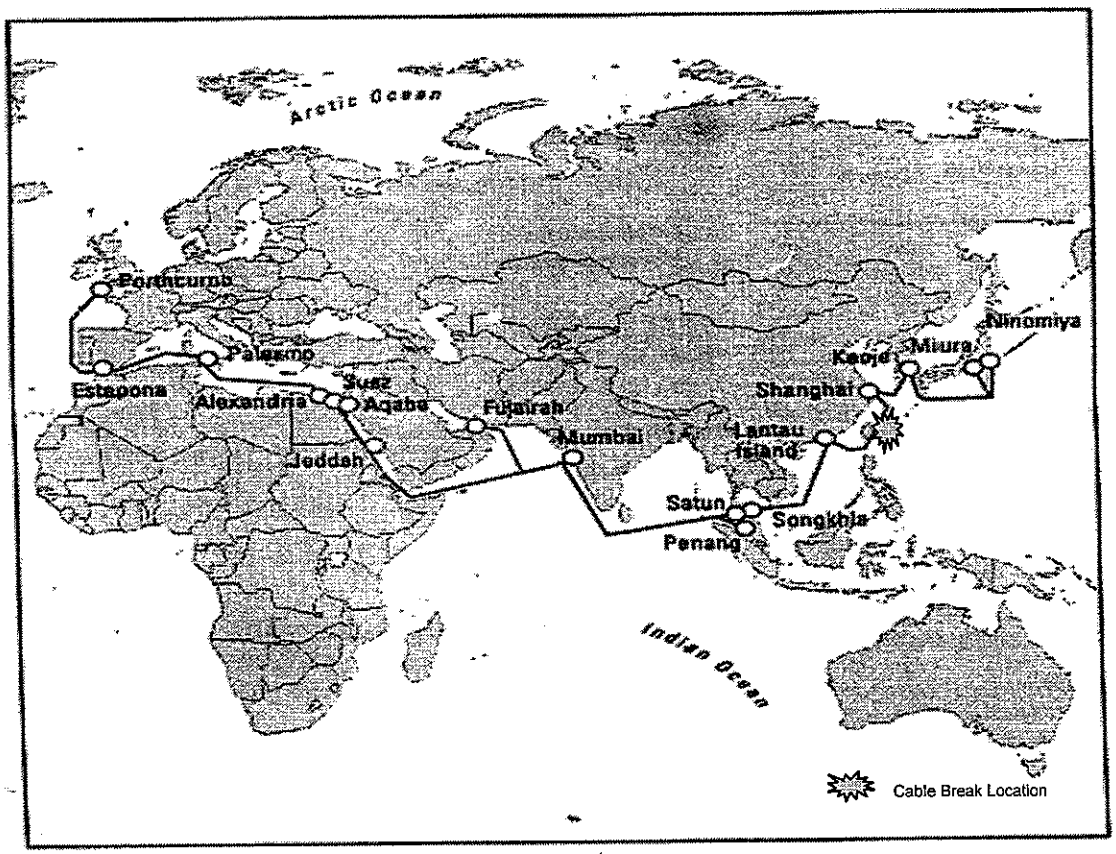


# Major Submarine Cable Systems in Asia ( 3 )

## East Asia Crossing (EAC)

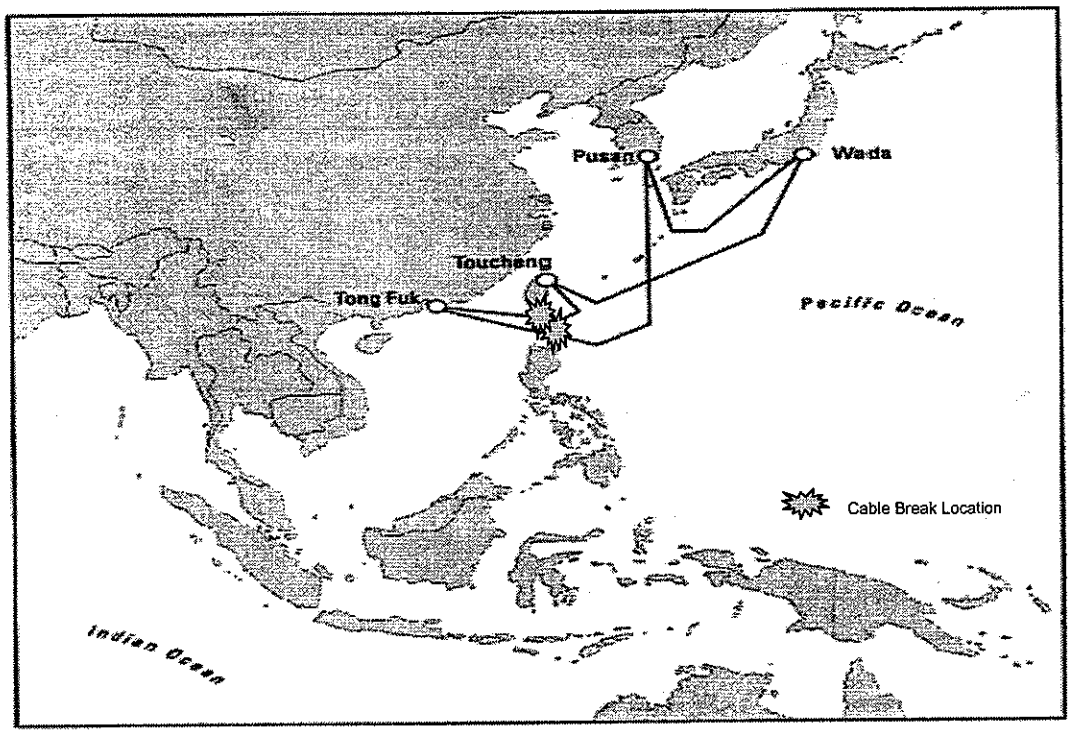



## FLAG Europe-Asia



# Major Submarine Cable Systems in Asia ( 4 )

## FLAG North Asia Loop/REACH North Asia Loop




## SeaMeWe-3