SOCIO-ECONOMIC BENEFITS OF METEOROLOGICAL AND HYDROLOGICAL SERVICES

CASE STUDIES

ITEM	DESCRIPTION
Sector	Leisure and Sports
Sub-sector	Water sports
Case Study Name	Effectiveness of the Lightning Webpage
Case Study Description	To evaluate the effectiveness of the Lightning Webpage providing real-time lightning location information and automatic alerts for the managers of the public and housing estates outdoor swimming pools.
Location	Outdoor swimming pools in Hong Kong
Tools employed	Lightning Webpage
Description of application	The Lightning Webpage is tailor-made for individual users, who need to manage outdoor swimming pools in Hong Kong. Audio and visual alerts will be automatically triggered when lightning activity is detected within a region centred at the user's pre-defined location of swimming pool. Users have the flexibility of choosing alarm rings up to a maximum of three with different ranges from the centre and each with different alarm tones. Based on the alarm triggering on the Lightning Webpage and the Thunderstorm Warning issued by the Hong Kong Observatory, Hong Kong, China (hereafter The Observatory), pool managers are able to make informed decisions on whether to suspend the operation of their swimming pools or not. When no lightning activity is detected within all chosen alarm rings for 30 minutes, the audio alarm will also be triggered automatically as a cancellation alert. With this information, pool managers may consider resuming the swimming pool services.
Outcomes of application	The pool managers consider the Lightning Webpage tool very useful for their operation of swimming pools as the tool provides objective location-specific information for them to decide whether to suspend or resume pool services in thunderstorm situations. They were willing to change their practice of closing swimming pools merely based on the issuance of the

	Thunderstorm Warning which is a territory-wide warning in Hong Kong. After applying the tool in the decision making process of pool services in thunderstorm situations, the pool managers received less complaints from swimmers.
Cost/Benefits	The tool enables pool managers to provide enhanced pool services to users with minimal cost.
Characteristics of the Case Study	The Hong Kong Observatory will issue thunderstorm warning whenever thunderstorms are expected in any parts of the territory of Hong Kong, irrespective of whether they are widespread or isolated. The thunderstorm warning is a territory-wide warning and pool managers would suspend the operation of outdoor swimming pools when the thunderstorm warning had been issued, irrespective of the weather conditions at the site. Some members of the public complained the unjustified closure of swimming pools if thunderstorm activities were localised and their region was not affected. Considering the nature of thunderstorms and practicability of the regional thunderstorm warning in such a small place like Hong Kong, the Observatory has implemented a lightning location information service to supplement the thunderstorm warning instead. Real-time lightning location information is provided on the Observatory's website for the public and a tailor-made Lightning Webpage tool is made available to special users on request. In the design phase of the web interface for displaying the lightning location information, views gathering session had been held to collect comments from potential users and weather enthusiasts. Comments were also collected via a suggestion form on the Observatory's website. The Observatory also organised briefing sessions on the use of the Lightning Webpage for pool managers and explained to them the characteristics of thunderstorms and the meaning of the thunderstorm warning before they subscribed to the service. After the provision of the Lightning Webpage tool, not only the pool managers received less complaints from swimmers, the Observatory also received less complaints from the public in relation to the issuance of thunderstorm

	warning.
Consultation mechanisms	Liaison meetings, views gathering sessions and email communications.
Structural interface	The Observatory's website.
Delivery mechanism	Dedicated webpage with password protection.
Feedback mechanism	Feedback could be made through emails, letters and suggestion forms on the website. Verbal comments could also be gathered at liaison meetings and briefing sessions.
Review Mechanism	Upon receipt of comments from users through emails and letters, enhancements would be made to the tool subject to the availability of resources and practicability of the suggestion.
Other	Nil
Lessons learnt	The provision of real-time observational data would be useful in supplementing weather warnings. This could form an objective basis for users to make informed decisions according to their own levels of acceptable risk.
Best Practice Advice	The Observatory adopted a proactive role in promoting lightning location information service to pool managers in Hong Kong to assist them in improving pool services. Involving users in the service design would better meet users' needs and requirements and enhance the effectiveness of the tool.
Possible future advances	To include a forecast element in the lightning product using nowcasting techniques.
Comments	Nil
URL	Nil
Others	Nil