東京の防災

Disaster Prevention at the Port of Tokyo

東京港の地震・津波・高潮対策について

Measures against earthquake, tsunami and storm surge at the Port of Tokyo

東京港は、南西向きに開いた閉鎖性が高く水深の浅い東京湾の湾奥に位置するため、高潮の影響を極めて受けやすい地域となっています。

また、東京港の背後には、首都中枢機能や業務・商業等の都市機能が極めて高度に集積しています。

さらに東京都東部には、満潮面以下のゼロメートル地帯が広がり、ひとたび浸水すれば甚大な被害を及ぼす浸水危険度の高い地域が存在しています。

このため、津波や高潮から都民の生命・財産を守り、都民が安全で安心して暮らせるよう、防潮堤、内部護岸、水門、排水機場などの海岸保全施設の整備に取り組んでいます。

東京港の海岸保全施設は、国内最大級であった伊勢湾台風級の台風による高潮からの防護を目的として昭和 36 年（1961 年）より本格的な事業として整備が進められ、高潮などから国土を守る外郭防潮堤、水門、排水機場は概成し、高潮防護水準に対する安全性は確保されています。

東日本大震災が発生し、東京都防災会議から新たな被害想定が示され、これらを踏まえ、平成 24 年 12 月に新たな海岸保全施設の整備計画を策定しました。この計画を着実に推進することにより、地震・津波・高潮対策の一層の強化に取り組んでいきます。

また、水門や陸こう等の操作体制の迅速性・確実性を確保するなど、防災機能の一層の強化にも取り組んでいます。

東京港海岸保全施設配置図

The Port of Tokyo is located deep within the Bay of Tokyo, which is highly isolated to the southwest and has very shallow waters. As such, the area is highly susceptible to the effects of storm surge.

Also, to the rear of the Port of Tokyo is a high concentration of municipal functions, including core metropolitan functions, operations, and businesses.

Furthermore, in the eastern area of Tokyo is a vast “zero meter zone” where the ground is below sea level at high tide, meaning that there are areas of the city facing a high level of flood risk that would cause massive damage in the event of flooding.

As such, we continue to work on the development of coastal protection facilities including tide embankments, interior embankments, floodgates, and drainage pump stations in order to protect the lives and assets of our residents from tsunami and storm surge as well as provide a secure, worry-free living environment.

The Port of Tokyo coastal protection facilities have been in full-fledge development since 1961 with a goal of creating a system of protection from storm surge equivalent to those caused by typhoons like the Ise Bay Typhoon, one of largest typhoons to ever hit Japan. These facilities include outside tide embankments, floodgates, and drainage pump stations designed to protect national land from storm surge and are managed according to outlined storm surge Protection Standards.

The Great East Japan Earthquake resulted in new damage estimates delivered from the Tokyo Metropolitan Disaster Prevention Council. Taking this into consideration also, in December 2012 we decided a new development plan for all coastal protection facilities. In steady implementation of this plan, further efforts shall be made to reinforce countermeasures to disasters due to earthquake, tsunami and storm surge.

Also, for further strengthening of disaster prevention functions, we take initiatives such as maintenance of rapidity and certainty in operating system of floodgates, inland locks and other relevant facilities.

防潮堤　Tide Embankment

高浜運河（内部護岸）
Takahama Canal
(Interior embankment)

防潮提、水門、排水機場、陸こう

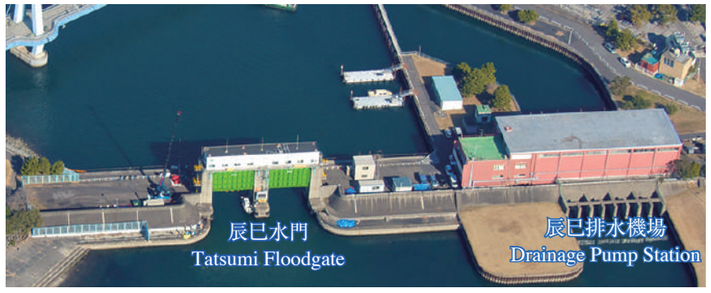
Tide embankments, Floodgates, Drainage Pump Stations, and Inland Locks

東京港臨海部には、津波や高潮から都民を守るため、海岸保全施設を整備しています。防潮堤は干潮面から高さ 4.6 ～ 8.0 m の高さで設置し、運河部には水門を設け潮位の上昇により浸水のおそれがある時には閉鎖します。排水機場は水門を閉じた後、降雨による水門内側の運河の水位上昇を抑えるため、ポンプを運転し海水を外水側に強制排水する施設です。防潮堤や水門の内側にある埋立地には、水辺への親しみやすさ等にも配慮し、防潮堤より低い高さで内部護岸が整備されています。防潮堤と道路が交差する箇所や、港湾貨物を扱うふ頭の出入口など、防潮堤を連続させられない箇所には防潮機能を有する開閉式の門扉（陸こう）を設けています。通常は車両などの通行を確保するため開放し、潮位の上昇により浸水のおそれがある時には門扉を閉鎖します。

これらの海岸保全施設がそれぞれの機能を果すことによって、津波や高潮による水害から市街地を守っています。

In the Port of Tokyo coastal region, coastal protection facilities have been set up in order to protect the populace from tsunamis and storm surge. The tide embankment is built at a height of 4.6-8.0m from the low tide water level, and a floodgate is built in the canal part which closes when there is a danger of flooding due to rising tide levels. The drainage pump station is designed so that after the floodgate is closed, a pump can be operated to forcibly drain the seawater into the outside water in order to prevent canal water levels from rising on the inside of the floodgate due to rainfall. With consideration for approachability toward the waterfront as well, in the interior embankment located inside the tide embankment and floodgate there is an internal shore bank constructed at a height which is lower than the tide embankment. In places where the tide embankment intersects with roads or the tide embankment is blocked its continuity such as gateways in cargo handling berths, openable gates (inland locks) are installed. Such gates are opened so that vehicles and other traffic can pass at normal times, and they are closed when there is a risk of flood due to rising tide levels.

By fulfilling their respective functions, these coastal protection facilities protect the town areas from flood damage due to tsunami and storm surge.



高潮対策センター

Strom Surge Management Center

地震、津波、高潮などの非常事態に迅速に対応するため、東京港には水門の操作等を統括する高潮対策センターが設けられています。東京港の水門には昭和 54 年から「遠隔制御システム」を順次導入し、情報の集中管理、指揮・命令系統の一元化及び水門操作等の迅速化を図ってきました。

更に、危機管理体制の強化を図るため、第二高潮対策センターを配置し、両センターから、廃止予定の港南４水門を除く全水門を遠隔操作ができるようになりました。これにより、相互にバックアップ可能な体制を整えています。

また、全ての海岸保全施設が確実に機能するよう、日々の施設管理・維持点検並びに機器の動作確認を行っています。

To ensure rapid response to earthquake, tsunami, storm surge and other emergency situations, a Strom Surge Management Center, which controls the operation of floodgates and other facilities, has been established in the Port of Tokyo. For floodgates in the Port of Tokyo, “Remote Control System” has been introduced sequentially since 1979 to ensure uniform management of information gathering and centralization of chain of command as well as speed up of operations such as floodgate control.

Moreover, in order to work toward strengthening the crisis management system, 2nd Strom Surge Management Center was set up. This Center together with the abovementioned Strom Surge Management Center enables remote operation of all floodgates excluding deprecated 4 floodgates in Kounan Zone. In this way, a system which enables mutual back-up is set up.

Furthermore, to ensure all coastal protection facilities function properly, we conduct daily facility maintenance, inspections, and equipment operational checks.

第二高潮対策センター　Second Strom Surge Management Center