



### 東京港の地震・高潮・津波対策について

### Measures against earthquakes, high tides, and tsunami 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く、その水位上昇も高い海域となっています。

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、高潮や津波から都民の生命・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。今後は、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。

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 port is highly susceptible to the effects of high tide and rising water levels are considered high waters.

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 full 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 shoreline protection facilities including levees, interior embankments, flood gates, and draining pumping sites in order to protect the lives and assets of our residents from high tides and tsunami as well as provide a secure, worry-free living environment.

The Port of Tokyo shoreline protection facilities have been in full-fledge development since 1961 with a goal of creating a system of protection from high tides equivalent to those caused by typhoons like the Ise Bay Typhoon, one of largest typhoons to ever hit Japan. These facilities include outer levees, flood gates, and drainage pumping sites designed to protect national land from high tides and are managed according to outlined High Tide Protection Standards.

The Great East Japan Earthquake resulted in new damage estimates from the Tokyo Metropolitan Disaster Prevention Council. As a result, in December 2012 we drafted a new development plan for all shoreline preservation facilities. Moving forward, we will work diligently to promote the implementation of this plan and through this plan work to reinforce our earthquake, tsunami, and high tide response measures.

Furthermore, we are working to enhance all disaster prevention facilities, including ensuring the response times and accuracy of floodgates and levees.



防潮堤 Seawalls



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

### 防潮堤、水門、排水機場、陸こう

### Seawalls, Floodgates, 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 4.6～8.0m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。防潮堤が道路を横断する箇所、物揚場や倉庫等の入り口を遮断する箇所には、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たすことによって、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, shore protection facilities have been set up in order to protect the populace from tsunamis and flood tides. The embankment is built at a height of 4.6-8.0m from the low tide water level, and a sluice gate is built in the canal part which closes when there is a danger of flooding due to rising tide levels. The pump station is designed so that after the sluice gate 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 sluice gate due to rainfall. With consideration for approachability toward the waterfront as well, in the landfill located inside the embankment and sluice gate there is an internal shore bank constructed at a height which is lower than the embankment. In places where the embankment intersects with roads or blocks the entrances of shallow draft quays, storehouses, etc., a gate (floodwall gate) is installed which can be opened and closed. It is opened so that vehicles and other traffic can pass at normal times, and it is closed when there is a risk of flood due to rising tide levels.

By fulfilling their respective functions, these shore protection facilities protect the town areas from flood damage due to tsunamis and flood tides.



辰巳水門 Tatsumi Floodgate

辰巳排水機場 Tatsumi pump station

### 高潮対策センター

### High Tide 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。昭和54年からは「遠隔制御システム」が導入され、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います。

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、従来の各サブセンターの機能を両センターに集約するとともに、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っており、どちらかのセンターが被災により機能不全になっても、もう一つのセンターから遠隔操作ができ、相互にバックアップ可能な2拠点化の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作動運転を行っています。

To ensure rapid response to earthquakes, tsunami, high tide and other emergency situations, a High Tide Response Center, which controls the operation of floodgates and other facilities, has been established in the Port of Tokyo. A "Remote Control System" was created in 1979 to ensure uniform management of information gathering and disaster response instructions as well as speed up floodgate control.

Moreover, in order to work toward strengthening the crisis management system, set up a 2nd High Tide Countermeasure Center and consolidate the features of each existing sub-center at both centers. Also, remote operation of all water gates excluding deprecated 4 water gate in south harbor has become capable from both centers and even if one of the centers becomes inoperable due to disaster, remote operation can be conducted from the other center and a 2-position system which is capable of 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 High Tide Management Center