



KIX completes work to enhance disaster resilience

Kansai Airports is pleased to announce that it completed essential work to enhance disaster resilience of Kansai International Airport (KIX) on October 28, 2021, well ahead of the original schedule.

Undertaken in the wake of Typhoon Jebi which struck the airport in September 2018, the series of disaster prevention and response measures will significantly reduce flood volume and help maintain crucial airport functions in the event of a massive typhoon equivalent in strength to Jebi. On top of the infrastructure measures, we have taken operational steps in accordance with the company's BCP which include establishment of the emergency response system, enhancement of the communication plan, and review of the passenger response flow.

Kansai Airports Group will continue to enhance disaster resilience of KIX to provide safety and security for all airport guests.



- **Key measures**



Raising of seawalls



Placement of
tetrapods



Relocation of
electrical facilities
above ground



Large pump trucks

- **Reference: Kansai Airports BCP**

The BCP is designed to ensure appropriate actions in all three phases: prevention, disaster resilience & response, and speedy restart.

<http://www.kansai-airports.co.jp/en/efforts/safety/disaster-prevention-plan.html>

Contact Information

Public Relations

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Kansai Airports was established by a consortium made up of VINCI Airports and ORIX Corporation as its core members. Kansai Airports took over the operations of Kansai International Airport ("KIX") and Osaka International Airport ("ITAMI") from New Kansai International Airport Company ("NKIAC") and has been operating the two airports since April 1, 2016.

Kansai Airports Kobe, Kansai Airports' wholly-owned subsidiary, took over the operations of Kobe Airport ("Kobe") from Kobe City and started its business as an operating company on April 1, 2018.

Under the concept of "One Kansai Airports Group", Kansai Airports group strives to continuously improve its services for all airport guests through appropriate investments and efficient operations, with safety and security being the top priority. Kansai Airports group aims to maximize the potential of the three airports, for the benefit of the communities they serve.

For more information, please visit : <http://www.kansai-airports.co.jp/en/>

Kansai Airports

Location	1-banchi, Senshu-kuko kita, Izumisano-shi, Osaka	Shareholders	ORIX 40%, VINCI Airports 40%, Other investors 20% ¹
Company Representatives	Representative Director and CEO: Yoshiyuki Yamaya Representative Director and Co-CEO: Benoit Rulleau		
Business Scope	Operation and management services, etc. of Kansai International Airport and Osaka International Airport		

Kansai Airports Kobe

Location	1-ban, Kobe-kuko, Chuo-ku, Kobe-shi, Hyogo	Shareholder	Kansai Airports 100%
Company Representatives	Representative Director and CEO: Yoshiyuki Yamaya Representative Director and Co-CEO: Benoit Rulleau		
Business Scope	Operation and management services, etc. of Kobe Airport		



About ORIX:

ORIX Corporation (TSE: 8591; NYSE: IX) is a financial services group which provides innovative products and services to its customers by constantly pursuing new businesses.

Established in 1964, from its start in the leasing business, ORIX has advanced into neighboring fields and at present has expanded into lending, investment, life insurance, banking, asset management, automobile related, real estate and environment and energy related businesses. Since entering Hong Kong in 1971, ORIX has spread its businesses globally by establishing locations in 31 countries and regions across the world.

Going forward, ORIX intends to utilize its strengths and expertise, which generate new value, to establish an independent ORIX business model that continues to evolve perpetually. In this way, ORIX will engage in business activities that instill vitality in its companies and workforce, and thereby contribute to society. For more details, please visit our website: <https://www.orix.co.jp/grp/en/>

(As of March 31, 2021)



VINCI Airports, the leading private airport operator in the world, manages 45 airports in 12 countries in Europe, Asia and the Americas. We harness our expertise as a comprehensive integrator to develop, finance, build and operate airports, while leveraging our investment capability and expertise in optimising operational performance, modernising infrastructure and driving environmental transition. VINCI Airports became the first airport operator to start rolling out an international environmental strategy, in 2016, with a view to achieving net zero emissions throughout its network by 2050.

www.vinci-airports.com

¹ ASICS Corporation; Iwatani Corporation; Osaka Gas Co., Ltd.; Obayashi Corporation; OMRON Corporation; The Kansai Electric Power Company, Incorporated; Kintetsu Group Holding Co., Ltd.; Keihan Holdings Co., Ltd.; Suntory Holdings Limited; JTB Corp.; Sekisui House, Ltd.; Daikin Industries, Ltd.; Daiwa House Industry Co., Ltd.; Takenaka Corporation; Nankai Electric Railway Co., Ltd.; NIPPON TELEGRAPH AND TELEPHONE WEST CORPORATION; Panasonic Corporation; Hankyu Hanshin Holdings, Inc.; Rengo Co., Ltd.; The Senshu Ikeda Bank, Ltd.; Kiyo Holdings, Inc.; The Bank of Kyoto, Ltd.; THE SHIGA BANK, LTD.; The Nanto Bank, Ltd.; Nippon Life Insurance Company; Mizuho Bank, Ltd.; Sumitomo Mitsui Trust Bank, Limited; MUFG Bank, Ltd.; Resona Bank, Limited; and the Private Finance Initiative Promotion Corporation of Japan.

Disaster Prevention (KIX Disaster Resilience Enhancement Project)

October 29, 2021



Shaping a New Journey



Project overview

We have implemented the following measures to protect the airport against flooding in preparation for massive typhoons and other natural disasters in the future. We will continue to enhance KIX's disaster resilience to provide safety and security for all airport guests.

- Details

	Description	
(1) Wave overtopping prevention measures	<ul style="list-style-type: none">• Revised the design wave (or the 50-year stochastic wave) for the south, north and east seawalls on Island I given recent changes in climate, data from Typhoon Jebi, and other factors in order to identify the necessary height of seawalls to block storm surge and high waves, keeping also in mind placement of tetrapods on the seaward side of seawalls to dissipate waves• Determined desirable seawall construction heights given the amount of future settlement and sufficient raising of Runway A• Based on the above, raised the south, north and east seawalls followed by Runway A, and placed tetrapods on the seaward side of the south and east seawalls	
(2) Anti-flooding measures	Protect the airport against flooding due to torrential rain or high waves overtopping the necessary height of a seawall	<ul style="list-style-type: none">• Relocated electrical facilities above ground in T1 and installed water barriers and watertight doors in order to maintain and secure crucial airport functions
(3) Measures to secure drainage functions		<ul style="list-style-type: none">• Deployed large pump trucks and mobile generator trucks and sheltered electrical facilities for drainage pumps in order to ensure quick restoration of airport functions

(1) Wave overtopping prevention measures

The raised south, north and east seawalls and south cut-off wall along with the placed tetrapods will significantly reduce the flooded area and volume.

- Raising of seawalls

Length South seawall: 1,000 m, North seawall: 1,000 m, East seawall: 4,000 m

Height 1.5 - 2.7 m

- Raising of south cut-off wall

Length 1,100 m

Height 1.5 m

- Placement of tetrapods

Length South seawall: 1,200 m, East seawall: 3,500 m

Number of tetrapods 40,000



Raising of seawalls



Raising of south cut-off wall



Placement of tetrapods

(2) Anti-flooding measures

Relocated electrical facilities above ground and installed water barriers, watertight doors and others in order to maintain and secure crucial airport functions in the event of flooding.



Water seal sheets



Raising and extension of cut-off walls (concrete walls)



Relocation of electrical facilities above ground



Installation of large water barriers



Installation of watertight doors

(3) Measures to secure drainage functions

Deployed large pump trucks and mobile generator trucks and sheltered electrical facilities for drainage pumps in order to ensure quick restoration of airport functions in the event of flooding.



Drainage pump facilities



Sheltering of drainage pump facilities

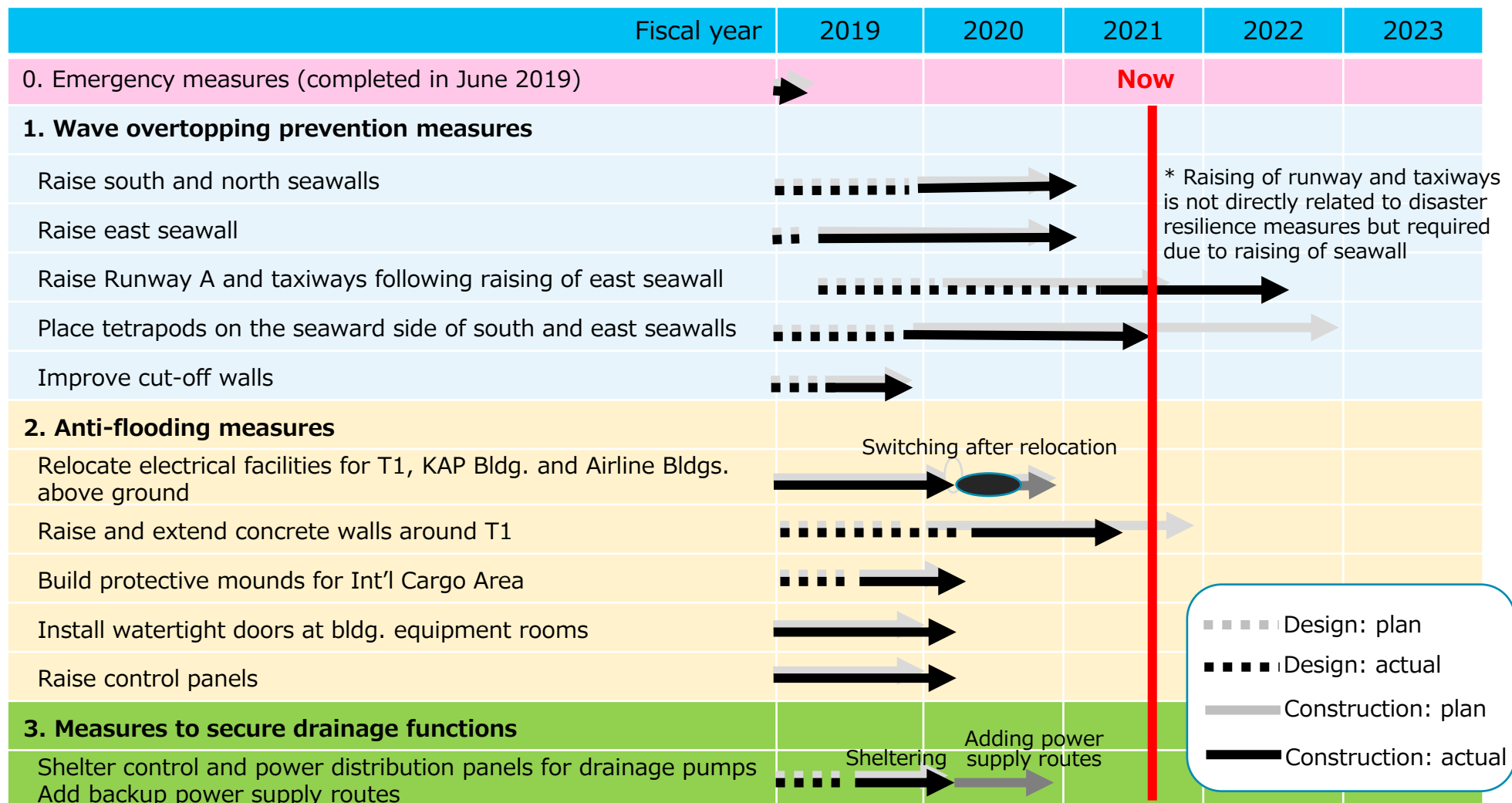


Large pump trucks



Mobile generator trucks

Schedule



* Install water barriers in T1 and watertight doors at basement equipment rooms in T1; raise control panels in the basement of T1; prepare water seal sheets for cargo warehouse in Int'l Cargo Area; introduce large pump trucks, small drainage pumps, and emergency runway edge lights