
THE
EXCHANGE
TRX
Climate Change Adaptation
& Resilience Plan
lendlease
THE EXCHANGE

Contents

The Exchange TRX will encompass a new international financial district underpinned by a world-class residential, retail, leisure and cultural offering.

This 584,720 square meter built space over 17 acres comprises of a boutique hotel, six residential towers and a large-scale retail destination connected to Park and dedicated Mass Rapid Transport (MRT) station. The focal point of the development will be The Exchange TRX, a vibrant shopping, dining, leisure and entertainment destination featuring over 500 of the world's leading retailers, anchored by a premier department store, flagship fashion outlets, diverse dining offers, red carpet events and entertainment.

The Exchange TRX will integrate a 41,763 square meter public park offering open green space, children's play facilities, cultural celebrations, immersive garden dining and global events.

It aspires to be Kuala Lumpur's most progressive and sustainable new city precinct with reduced energy use through efficient lighting and centralized cooling, use of recycled water and rainwater, high-level diversion of operational waste, and integration of nature and greenery. On top of LEED Neighborhood Gold & GBI Township Platinum masterplan certifications, individual buildings within The Exchange TRX are also targeting Gold-level green building ratings.

Introduction

The Exchange TRX will encompass a new international financial district underpinned by a world-class residential, retail, leisure and cultural offering.

Context and background

Climate change represents one of the greatest challenges facing humanity in the present century. There is unequivocal evidence that human activity, in particular the burning of fossil fuels, is causing our planet to warm and changing our climate.

The Intergovernmental Panel on Climate Change (IPCC) reported that anthropogenic warming had reached 1°C above pre-industrial levels in 2017, the impacts of which are already observed globally through changing weather patterns, more frequent and intense storms, heatwaves and other extreme weather events.

This trend is expected to continue into the late century with climate change impacts projected to increase in both frequency and magnitude.

To avoid the much larger and more severe impacts of climate change, there is an urgent need for coordinated action to not only reduce global greenhouse gas emissions, but to also increase the adaptive capacity and resilience of our built environment and communities.

Our commitment to climate action

Lendlease has developed its new Sustainability Framework in response to the growing pressure that climate change has placed on our planet and people. Our new framework responds to the need to plan for future generations by integrating an environmental and social focus into every part of our business.

At Lendlease, we understand that our work plays a significant role in creating vibrant, socially inclusive communities that are adaptive and resilient to the impacts of climate change and valued by the people who will live, work and play there.

Lendlease has undertaken a climate risk analysis of The Exchange TRX to inform its design and support planning around the key climate risks that are likely to impact the development and its community.

This Climate Change Adaptation and Resilience Plan presents the methodology and findings of our climate risk analysis and highlights the key strategies and features of The Exchange TRX that reduce its vulnerability to climate change impacts and increase the adaptive capacity and resilience of its community.

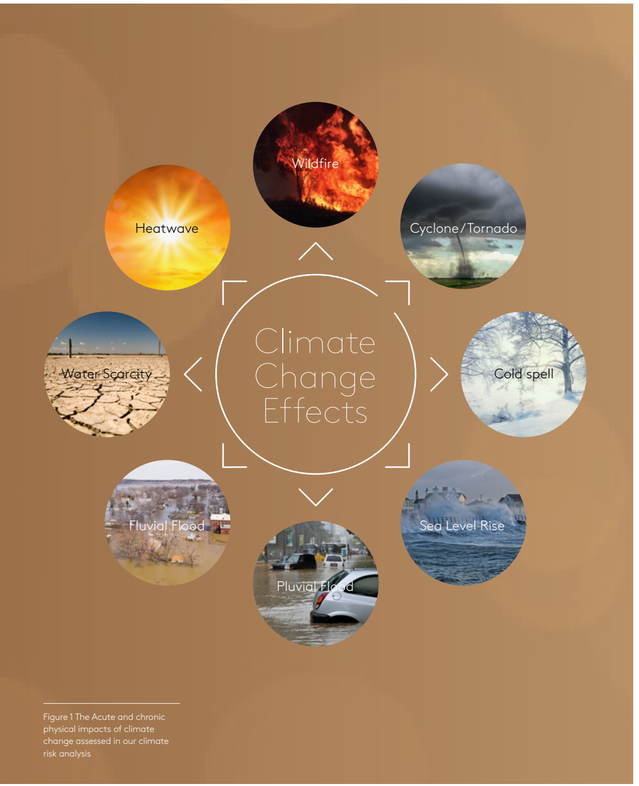


Figure 1 The Acute and chronic physical impacts of climate change assessed in our climate risk analysis

Climate Risk Analysis

Understanding the likelihood and consequence of future climate change events enables the project team to identify the areas of the development that are sensitive to climate change impacts.

Taskforce on Climate-related Financial Disclosure (TCFD)

Responding to the impacts of climate change requires a systemic, risk-based approach. The recommendations of the Taskforce on Climate-related Financial Disclosure (TCFD) seeks to provide a consistent framework for organisations to assess and disclose their climate-related financial risk and opportunities.

The TCFD is underpinned by a scenario planning process that sets to build resilience by facilitating a forward thinking, strategic approach to managing the physical and transitional risks associated with climate change.

Lendlease has endorsed the recommendations of the TCFD and in 2018 commenced analysis into the impact that alternative climate scenarios would have on our business strategy, assets and operations. We established four planning scenarios based on the plausible emission trajectories defined by the IPCC Representative Concentration Pathways (RCPs).

Our Resignation scenario, which is consistent with a RCP8.5 high emissions trajectory, represents a world where no climate action is taken. We use this scenario to assess worst case physical risks across our operations and supply chain.

Physical Risk Assessment

Physical risks pose the greatest threat in a Resignation scenario where climate change impacts are most severe.

The assessment of physical risk is considered in terms of the following two types of physical impact:

Acute impacts - such as cyclone, tornado, wildfire and flooding that are highly localised and produce immediate and severe direct impacts to our developments.

Chronic impacts - such as water scarcity, temperature increase and sea level rise which impact our developments incrementally over a longer time period.

Methodology

The climate change risk assessment involves analysis of the likelihood and consequence of a climate change risk event, followed by response to the impact.

The following sections outline the methodology applied to identify and evaluate the level of risk associated with climate change impacts. The risk assessment methodology applied is in accordance with ISO 31000:2018 Risk Management – Guidelines and aligned with the Lendlease Group Risk Management Framework.

Risk Identification

Climate change risks have been identified in consultation with a broad range of stakeholders through several workshops.

Participants identified the potential ways that climate change can impact the organisation and developments in the context of the following areas:

- Operations
- Markets
- Supply chain
- Products and capabilities
- Reputation and brand

Lendlease maintains a register of risk register that has been developed over time and will be periodically reviewed and updated based on lessons learnt, research and new findings.

Likelihood of Risk

The physical impacts of climate change are site specific and determined by the asset's geographic location.

The first stage of the risk analysis is to screen the development location to assess exposure of the asset against the climate change effects shown in Figure 1.

This is achieved by reviewing regional climate change projections and overlaying the asset location with climate models.

Climate change projections are viewed across multiple time periods to understand the likelihood of risk now and in the future as it relates to the anticipated service life of the asset.

Likelihood is scored in accordance with the Lendlease Risk Management Framework likelihood rating criteria.

Consequence of Risk

The second stage of the analysis is to evaluate the consequence (impact) of the identified climate change risk event.

The impact score is determined accordance with the Lendlease Risk Management Framework consequence rating criteria and holistically considers the potential direct and indirect environmental, social and economic impacts of the risk event to both the development and organisation.

Creating the risk priorities

The level of risk priority is evaluated as a function of the likelihood and consequence in accordance with the risk rating matrix shown in Table 2.

Understanding the likelihood and consequence of a climate risk enables the project team to identify the areas of the development that are sensitive to climate change impacts to then design and plan around the key priority risks.

The key priority risks that were identified as "critical" or "significant" for The Exchange TRX have been addressed in the Climate Adaptation Plan.

		Impact				
		Very Small	**Small**	**Medium**	**Large**	**Very Large**
Likelihood	**Very High**	Minor	Moderate	Significant	Significant	Critical
	High	Minor	Minor	Moderate	Significant	Significant
	Medium	Minor	Minor	Moderate	Moderate	Significant
	Low	Negligible	Minor	Minor	Minor	Moderate
	Very Low	Negligible	Negligible	Minor	Minor	Minor

Table 1 Lendlease Risk Management Framework - Risk Rating Matrix

Risk Rating	Description & Required Response
Critical	These risks demand the most attention and current design practice cannot be simply accepted as part of the solution.
Significant	These risks demand the most attention and current design practice cannot be simply accepted as part of the solution.
Moderate	These risks are the most severe that current design practice can be accepted but they will be the responsibility of the most senior management and reported upon at the executive level.
Minor	These risks can be expected to form part of current design practice but they will be explicitly maintained under review and reported upon at senior management level.
Negligible	These risks will be maintained under review but it is expected that existing controls will be sufficient and no further action will be required.

Table 2 Lendlease Risk Management Framework – Risk Tolerance

Climate Change Projections

To predict the effects of climate change, we must first forecast greenhouse gas emissions then simulate the possible outcomes that alternative emission scenarios may have on our future climate.

A changing climate

Our climate is constantly changing - natural cycles bring hot weather and drought followed by cooler weather and increased rainfall. Human activity however, (in particular the burning of fossil fuels) is releasing more greenhouse gases in our atmosphere, causing our climate to change.

The increase of greenhouse gases in our atmosphere creates the primary climate effects of increased temperatures, rainfall and sea-levels. These changes then stimulate the secondary effects of drought, flood, cyclone and other extreme weather events that are being observed globally.

To predict the effects of climate change, we must first forecast greenhouse gas emissions then simulate the possible outcomes that alternative emission scenarios may have on our future climate.

Predicting climate effects

The IPCC Fifth Assessment Report defined four greenhouse gas emission scenarios, called Representative Concentration Pathways (RCP), that can be used in climate scenario modelling. Each RCP represents a specific emissions pathway characterised by different levels of greenhouse gas emissions, air pollution and land-use scenarios consistent with socio-economic predictions for the future.

Characteristics of the four RCPs are outlined in Table 1. Our climate risk assessment adopts climate projects under the RCP8.5 high emissions trajectory to assess the potential worst-case impacts that climate change will have on the development.

The following sections outline the climate trends occurring across Malaysia, and projections for the climate variables assessed.

RCP	Characteristics	Description
2.6	490 CO2 ppm, 1.5 °C Temp anomaly	RCP2.6 is representative of scenarios in the literature that lead to very low greenhouse gas concentration levels. It is a 'peak-and-decline" scenario in which greenhouse gases and radiative forcing is reduced substantially, over time (Van Vuuren et. al, 2011)
4.5	650 CO2 ppm, 2.4 °C Temp anomaly	RCP4.5 is a stabilisation scenario in which total radiative forcing is stabilised shortly after 2100, without overshooting the long-run radiative forcing target level.
6	850 CO2 ppm, 3.0 °C Temp anomaly	RCP6 is a stabilisation scenario in which total radiative forcing is stabilised shortly after 2100, without overshoot, by the application of a range of technologies and strategies for reducing greenhouse gas emissions.
8.5	1370 CO2 ppm, 4.9 °C Temp anomaly	RCP8.5 is characterised by increasing greenhouse gas emissions over time, representative of scenarios in the literature that lead to high greenhouse gas concentration levels.

Table 3 Characteristics of RCP scenarios. RCP8.5 is used to assess the physical impacts of climate change.

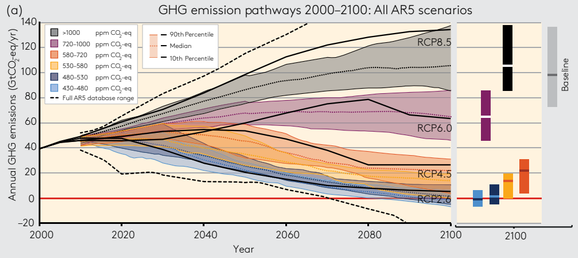


Figure 2 Global greenhouse emissions in baseline and mitigation scenarios for different concentration levels (AR5 IPCC)

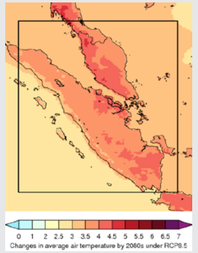


Figure 3 Changes in average November –January air temperature by 2080 under RCP8.5 (NDJ), CCRS

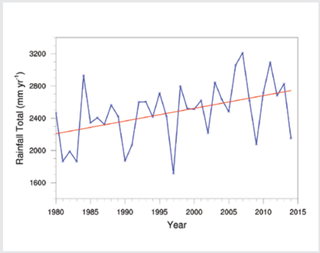


Figure 4 Plot of annual rainfall totals in Malaysia shows an upward trend of 15.7mm per year, based on linear fit from 1980 to 2014, CCRS.

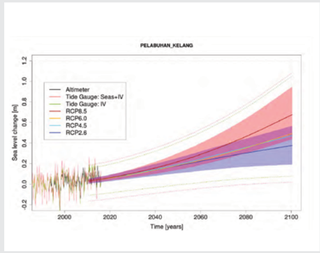


Figure 5 Sea level rise projections relative to a 1995 baseline (NAHRIM)

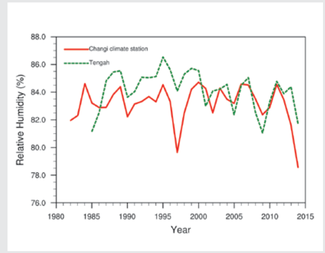


Figure 6 Annual mean relative humidity recorded 1982-2014 (CCRS)

Changing Temperatures

Increases in minimum, maximum and mean temperatures are projected across Malaysia over the next 100 years. The mean daily temperature is projected to increase by approximately 4°C under a RCP8.5 scenario for the end century period (2070-2099) relative to a reference period of 1995 baseline.

Hot days (>34.1°C) in February-May will increase dramatically to more than 100 additional warm spells each year under a RCP8.5 scenario. Warmer nights above 26.2°C are also expected to occur during June-September by mid-21st century.

Changing Precipitation

Analysis of annual mean rainfall change over Malaysia shows considerable variation amongst climate models, ranging from positive to negative change, independent of the RCP.

In all cases, long term projections indicate Malaysia's annual average rainfall will continue to be dominated by natural variability with increasing intensity and frequency of heavy rainfall events as the world warms. This is consistent with our current understanding that the frequency and intensity of heavy rain events increase in a warmer atmosphere with a higher water vapour content.

On a seasonal basis, the contrast between the wetter and drier months is projected to become more pronounced. The models generally project an upward trend in seasonal mean rainfall during the wet season of November to January, as well as reduced precipitation in the dry months of February, and June through to September.

Sea Level Rise

Sea level change represents the combination of a complex range of processes that vary by time and location. The projections using data from the CMIP5 suggest trends in mean sea level far greater than those already experienced in the last few decades.

Rates of sea level rise due to glacial melt and ice sheet melt are somewhat higher for Malaysia due to its position near the equator.

Under the RCP8.5 scenario, the Malaysian region is projected to experience average sea level rise of 0.22m by 2050 and 0.68m by 2100.

Sea Surface Temperature

Sea surface temperatures over the South China Sea have increased significantly over the past decade, with a peak between the early 1970s and later 1990s.

Sea surface temperatures are expected to continue rising, posing significant threat to marine species around the coast.

Changing Relative Humidity

All studies project statically significant negative changes in Malaysia's average relative humidity under both RCP scenarios through the century (Figure 10). Overall, relative humidity is projected to decline by 2.8% and 4.6% at the end of the century with respect to the reference period under RCP4.5 and RCP8.5 scenarios (i.e. decrease from 83.0% in 1980-2009 to 79.2% (RCP8.5) and 80.7% (RCP4.5) in 2070-2099).

Severe wind

Malaysia will continue to be dominated by the northeast and southwest monsoons. By the end of the century, there are no substantial changes in wind direction but there is some indication of increasing wind speeds of 5-10% during the northeast monsoon season under RCP8.5.

Climate change projections summary

The following table summarises the climate change projections used to inform the climate change risk assessment. The risk assessment considers two timeframes, 2070 and 2100, which correspond with the anticipated service life of the development.

All climate change projections presented are measured relative to the baseline year 1995 in accordance with the recommendations of the IPCC Fifth Assessment Report.

Climate Variable	1995 (Baseline)	RCP4.5		RCP8.5	
		2070	2100	2070	2100
Mean daily temperature	27.4°C	+1.4°C	+2.7°C	+2.9°C	+4.6°C
Mean maximum temperature - Annual	31.8°C	+1.5°C	+2.8°C	+3.1°C	+4.9°C
No. of warm days in February-May above 34.1°C	25 days	74 days	108 days	105 days	ALL days
Annual average rainfall (mm/yr)	2488.4mm	-12.4%	+10.3%	-17.2%	+26.8%
Northeast monsoon rainfall (mm/mth)	261.8mm	-13.6%	+42.9%	-23.1%	+67.5%
Southwest monsoon rainfall (mm/mth)	174.6mm	-12.4%	+12.3%	-30.3%	+1.2%
February rainfall	142.1mm	-82.4%	23.9%	-83.2%	16.5%
% contribution to annual rainfall from very wet days(as defined by historical 95th percentile value)	22.8%	21.1%	35.3%	21.5%	44.1%
No. of days with WBT above 27.7°C	37 days	280 days	329 days	313 days	357 days
Mean sea level	0 (baseline)	+0.30m	+0.47 m	+0.38m	+0.68 m
10m wind	No significant change in prevailing wind directions. Some indication of increased wind speeds under RCP8.5 during the northeast monsoon season.				

Table 2 Summary of climate change projections for the region

Image: Designed by Freepik

Risk Analysis Results

Climate change adaptation and resilience planning workshops were held over two days and involved a broad range of stakeholders.

The focus of the workshops were to address the key physical risks of climate change that are most likely to impact The Exchange TRX in the near and long-term future.

The key climate change impacts addressed include heatwave, urban flood and wildfire. The following 37 risk scenarios were identified as having the highest potential to cause direct and indirect environmental, social and economic impact.

Heatwave

1. Heatwave leads to restricted work hours for outdoor work (e.g. landscape maintenance, building envelope cleaning) resulting in increased maintenance costs and reduced precinct amenity.
2. Heatwave leads to accelerated degradation of materials and services leading to increased maintenance requirements (e.g. carbonation of concrete, softening of pavements).
3. Increasing air and surface temperatures of external spaces lead to health and safety risks of visitors/residents/tenants e.g. heat stress and surface burns.
4. Increasing air and surface temperatures of external spaces lead to negative customer/stakeholder experience.
5. HVAC systems/passive design features are not adequate leading to occupant discomfort.
6. Increased utility/operational costs/costs of living due to greater cooling requirements.
7. Higher temperatures increase spatial demand for air conditioning plant in the future.
8. Increased energy demand decreases ability of asset to maintain energy efficiency/sustainability ratings.
9. Decrease in asset network capacity causing power outages and disruption to essential services.
10. Substation temperatures exceed design criteria leading to substation failure/outages.
11. Retailers experience a decline in footfall due to heatwave in the city resulting less people travelling to the precinct.
12. Retailers with external dining spaces experience declining trade due to external spaces becoming too hot.
13. Higher temperatures amplify odours from waste bins leading to a negative stakeholder experience.
14. Increased temperatures/drying out of soil increase subsidence risk, foundation cracking.
15. Earthing and bonding affected by increased temperatures/drying out of soil increasing health and safety risks.
16. Increases in relative humidity may result in the build-up of mould and condensation within buildings leading to increased maintenance requirements.
17. Changing climates may lead to environment becoming more suitable for water-borne diseases exposing building stakeholders to increased health and safety risks.

Urban Flood

18. Local flooding disrupts access and egress of people to and from the asset.
19. Local flooding disrupts delivery of goods and services and waste removal to the asset.
20. Increased number of flood events impacting the asset leads to increasing costs/access to insurance.
21. Inundation of essential plant and equipment resulting in increased maintenance/replacement costs e.g. substation, transformers, lifts, escalators, fire escape etc.
22. Drainage systems (civil and roof) unable to cope with increased rainfall intensity.
23. Increased frequency and severity of extreme rainfall events increases ground water levels leading to bunding and waterproofing failures.
24. Increased frequency and severity of extreme rainfall events leading to flooding or saturation of embankments and ground conditions which results in subsidence.
25. Increase in rainfall increases slip hazards in areas not designed for water ingress e.g. building entries.

Wildfire

26. Reduced air quality due to more frequent wildfires leads to health and safety risks of visitors/residents/tenants e.g. health complications due to increased air-borne particulates.
27. Reduced air quality due to more frequent wildfires decreases capacity of assets to maintain indoor air quality at acceptable levels.
28. Reduced air quality leads to restricted work hours for outdoor staff (e.g. landscape maintenance, building envelope cleaning) resulting in increased maintenance costs and reduced precinct amenity.
29. Increased frequency and severity of wildfires leads to increased HVAC maintenance and air filtration media replacement/upgrades.
30. Retailers with external dining spaces experience declining trade due to high levels of air pollution in spaces open to ambient air.
31. Retailers experience a decline in footfall due to poor air quality in the city resulting in less people travelling to the precinct.
32. More frequent air quality issues result in increased spatial demand for air conditioning filtration systems in the future.

Water Scarcity

33. Drought conditions result in the city implementing harsh water restrictions reducing availability of water for water cooled HVAC systems.
34. Drought conditions result in the city implementing water restrictions reducing the availability to maintain landscaping/green roofs/vertical gardens etc.
35. Reduced availability of water results in increased utility and operational costs/cost of living for residents.
36. Drought conditions result in the city implementing water restrictions reducing the availability to effectively clean and maintain assets.

Risk Diagram

The diagram summarises the inherent risk assessment of the 33 climate-risk scenarios identified. Risk scenarios identified as "moderate" or higher are the key priority risks addressed by the development team.

Figure 6 Inherent and residual risk rating of the climate-risk scenarios identified

Climate Adaptation Plan

Our work plays a significant role in creating communities that are adaptive and resilient to the impacts of climate change. The built environment has a powerful impact on the adaptive capacity of the community it serves – focus must be given to initiatives that make communities safer, more connected, and better prepared for natural hazards and emergencies.

The future adaptation and resilience of our developments consists of two main elements – the built environment and its community. It is the combination of these two elements and how they interact that will create good levels of resilience.

The precincts and communities that will bounce back from future climate change impacts will be those that have built a strong sense of ownership and belonging. Building that sense of belonging at the start of the creation of a new community is one of the fundamentals to future resilience.

The Exchange TRX has been consciously designed with a strong focus on establishing a connected community and creating a collection of climate resilient buildings and supporting infrastructure.

The following sections highlight the key design features of The Exchange TRX that future-proof the precinct's buildings and infrastructure against the impacts of climate change and the initiatives that connect residents, workers and visitors to create a strong sense of community.

Built Environment Initiatives

Our built environment must be designed not just for today's climate, but for the future climate as well.

Often this will take the design beyond current minimum compliance, however this is essential in maintaining the resilience of our developments well into the future.

The Exchange TRX features a number of design features that respond to these key priority risks; these are described in the following sections.

Heatwaves

Passive design such as buildings' orientation, awning structures and vegetation have been carefully planned to provide natural shading in open space areas. A range of trees, climbers and understory gardens have been strategically placed to provide solar shading to pedestrian areas and to reduce urban heat island effects. Additionally, outdoor furniture will be primarily positioned beneath shaded areas and will utilise materials with low conductivity to prevent potential for contact burns during extreme ambient temperatures. Water features have been planned as part of the design of recreational areas to increase comfort during hot outdoor conditions.

Precinct walkways will feature a selection of high albedo pavements of predominantly light grey and salt-wash concrete finish to reflect solar radiation and reduce urban heat island effects.

The residences, hotel and office facades have been designed above industry standard and will be equipped with high performance glazing to reduce solar penetration into the buildings.

The MRT pedestrian connection will provide conditioned access routes to The Exchange TRX to reduce heat stress on workers and visitors to and from the precinct.

Urban Flood

The public realm will be located on an elevated podium while the stormwater system has been specifically designed to effectively attenuate and cater for extreme rainfall and urban flood events.

The precinct will feature a 10-acre park comprising of sprawling landscapes, permeable paving and water sensitive urban design strategies that have been adopted to maximise onsite retention of water from storm events, maximise infiltration and protect assets both onsite and downstream from potential localised flooding events due to increased rainfall intensity.

The Exchange TRX has adopted necessary measures to protect against inundation under flood modelling during the lifetime of the development.

With the flood level identified at RL 39.3, the overall public realm (North-West Plaza, MRT Plaza) level is designed to be at least RL 40 and above. The Exchange TRX platform was further raised to RL 41.0, giving the precinct a 1.7-metre buffer against flooding.

Ramps with humps at all ingress points and dewatering pumps within the basement act as additional measures to mitigate flood concerns.

Wildfire

More frequent and intense wildfires, whether within or outside our country's borders, will increase the risk of poor air quality and smoke penetration into buildings and the precinct. This risk may negatively impact human health and decrease occupant satisfaction and comfort.

Building façades have been designed with well-sealed envelope to minimise air quality issues and improve passive energy performance of building. Commercial buildings will also be equipped with MERV14 filtration, capable of filtering 71% of harmful PM2.5 particles. Combined with the stringent low VOC materials requirements of LEED and GBI, all internal spaces will provide a high degree of healthy indoor air quality.

Water Scarcity

A site-wide water strategy has been developed to reduce water consumption. The Exchange TRX is targeting to reduce potable water demand by 50%, through the selection of water efficiency measures, maximising onsite rainwater retention and water recycling systems (managed by Veolia Water Technologies) to recover over 80% of wastewater. Recycled water produced by the plant will be used for toilet flushing, landscape irrigation, and cooling tower make up.

Community Resilience Initiatives

A community thrives when its people are constantly engaging with each other through conversation, mutual interests and sharing in fun activities.

When creating a new community like The Exchange TRX, it is essential to establish frameworks and systems that foster interaction and connections in order to create good levels of community interdependency and to build resilience.

A number of community initiatives are provided at The Exchange TRX to build community connections, described in the following sections.

A Place to Connect

Home to the newest public park in Kuala Lumpur city centre in over 20 years, The Exchange TRX will function as a town centre, offering a vibrant, open space for the community to meet and mingle. The precinct's 10-acre public park offers access to nature, children's play facilities, spaces for cultural celebration, immersive garden dining and a space for local and global events.

Financial Position

To support the very nature of TRX as an international financial district, the precinct is designed to ensure 24-hour utilisation and assets that are complementary to one another, providing the perfect opportunity for a live-work-play community.

Healthy Precinct

The Exchange TRX will be a place where physical and mental wellbeing for all age groups can be catered for. In providing visitors and occupants alike access to activated outdoor spaces and expansive greenery, the precinct is better placed to tackle the stresses of day-to-day life as well as during times of crisis.

Connectivity

Connecting The Exchange TRX to the rest of Klang Valley is Kuala Lumpur's largest MRT interchange, bringing visitors from near and far. This added to the MEX and DUKE highways that connect directly into the precinct, The Exchange TRX is designed with ease of access in mind that facilitates and encourages people to shop, dine, and play at a destination that has it all in one place.

Climate Awareness

Increasing awareness starts with the release of this Climate Change Adaptation and Resilience Plan. We hope this report will start the conversation around the topic of climate change and what we can do as a community to be better prepared.

As part of our plan, ongoing education and engagement with the community and stakeholders will be fundamental to increasing the adaptive capacity of the community and maintaining resilience of TRX into the future.

Climate Adaptation and Resilience Highlights

Built Environment Initiatives
Community Resilience Initiatives

Thermal Comfort
Buildings are designed to exceed compliance standard (20% improvement over ASHRAE) and will be equipped with high performance glazing to improve thermal comfort.

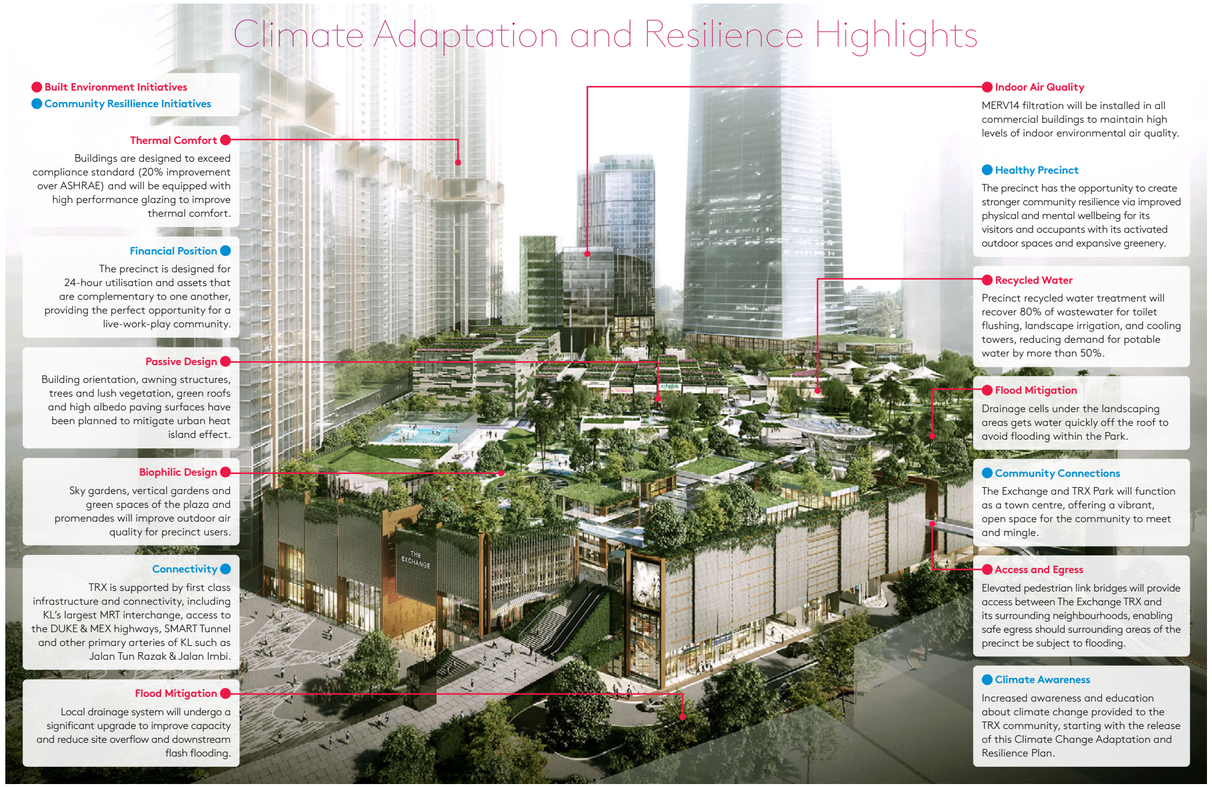
Financial Position
The precinct is designed for 24-hour utilisation and assets that are complementary to one another, providing the perfect opportunity for a live-work-play community.

Passive Design
Building orientation, awning structures, trees and lush vegetation, green roofs and high albedo paving surfaces have been planned to mitigate urban heat island effect.

Biophilic Design
Sky gardens, vertical gardens and green spaces of the plaza and promenades will improve outdoor air quality for precinct users.

Connectivity
TRX is supported by first class infrastructure and connectivity, including KL's largest MRT interchange, access to the DUKE & MEX highways, SMART Tunnel and other primary arteries of KL such as Jalan Tun Razak & Jalan Imbi.

Flood Mitigation
Local drainage system will undergo a significant upgrade to improve capacity and reduce site overflow and downstream flash flooding.



Indoor Air Quality
MERV14 filtration will be installed in all commercial buildings to maintain high levels of indoor environmental air quality.

Healthy Precinct
The precinct has the opportunity to create stronger community resilience via improved physical and mental wellbeing for its visitors and occupants with its activated outdoor spaces and expansive greenery.

Recycled Water
Precinct recycled water treatment will recover 80% of wastewater for toilet flushing, landscape irrigation, and cooling towers, reducing demand for potable water by more than 50%.

Flood Mitigation
Drainage cells under the landscaping areas gets water quickly off the roof to avoid flooding within the Park.

Community Connections
The Exchange and TRX Park will function as a town centre, offering a vibrant, open space for the community to meet and mingle.

Access and Egress
Elevated pedestrian link bridges will provide access between The Exchange TRX and its surrounding neighbourhoods, enabling safe egress should surrounding areas of the precinct be subject to flooding.

Climate Awareness
Increased awareness and education about climate change provided to the TRX community, starting with the release of this Climate Change Adaptation and Resilience Plan.

Looking Ahead

Lendlease's vision to create the best places is underpinned by its commitment to sustainability as a core operating principle.

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Lendlease acknowledges that human-induced climate change is occurring and the science supporting this. For several years, Lendlease has identified climate change as a material risk to creating the best places and continues to work with wider industry and government partners to develop plans to respond to the physical risks of climate change on our business.

We also acknowledge the dynamic and transitional risks and opportunities of decarbonising society in line with a 1.5 degree global warming target, including policy fluctuations, market movements, technology evolution and reputational impacts. We recognise these risks and opportunities may differ by region.

Cities will need to respond to both the physical risks of climate change, as well as the transitional risks and opportunities of a decarbonised society and the property sector will play a vital role in both resiliency and decarbonisation. New and existing buildings need to be resilient to short and long-term climate change impacts, as well as maximise energy efficiency and onsite renewable energy to reduce the burden on decarbonising the city's electricity grid.

Working with city partners, investors and our supply chain, we believe that the property sector can take a leading role in demonstrating leadership through creating places that are future ready for both the physical impacts of climate change and the need for city level decarbonisation.

Sharing our approach to assessing and managing climate-related risks and opportunities is one of the key steps we are taking to collaborate with our city partners, investors, competitors and our supply chain.