

# Master of Architecture Design Studio CDE - Studio 10

Melbourne University. Melbourne School of Design

Semester 1, 2020

Faculty: David Mah & Leire Asensio Villoria

## H2O



Image credit: ©

### 01. COURSE OVERVIEW

Recent events have given many of us an ominous preview of the vicious disruptions that climate change will bring to our lives. Different studies have outlined the likelihood of Melbourne becoming subject to an even more volatile climate. Weather and resource emergencies are likely to become the new normal. More frequent and severe storms with projections for the consequences of sea level rise are expected to dramatically transform our environment. Projections for the regular flooding and even disappearance of some of the city's established neighborhoods and communities are potential scenarios for Melbourne's future under climate change. This studio will focus on addressing the looming urban risks related to water. This will be caused by its acute overabundance during what are projected to be increasingly severe storm events. Other risks also relate to its counterpoint, where Melbourne is expected to experience water scarcity.

Do the conventions and the preoccupations of contemporary architectural and urban design practice still hold water in light of this anticipated devastation? Established disciplinary knowledge and professional practice have been largely informed by the presumption of an environment with a stabilized climate. But given the different scenarios put forth by climate change, shouldn't the design community acclimatize itself to a new set of contexts, concerns and perhaps opportunities? Is it responsible to follow conventions and established practice when these have been predicated on a very different reality? If we are to face these challenges head on, can we be "radical enough"?

The studio is part of the Arc-DR3 Initiative (**The Architecture and Urban Design for Disaster Risk Reduction and Resilience Initiative**). **This international initiative** is coordinated by The International Research Institute of Disaster Science (IRIDeS) at Tohoku University in Japan, xLAB at The University of California Los Angeles (UCLA) and Miraikan, The National Museum of Emerging Science and Technology of Japan. This studio will be one of the University of Melbourne's contributions to this larger project.

The initiative will consist of research, symposia and exhibitions linked to design studios using existing programs by the participating universities. The larger aim of the initiative "is to create a more effective integration of theory (research) and practice (design) by creating an international platform for producing and exchanging knowledge on environmental design that reduces the risk of recurring disasters and enhances resilience."

Students undertaking this studio will be asked to give permission for their work to be published and exhibited at the Arc-DR3 Initiative events and publication. We intend to publish the work produced in the studio within academic and/or professional architectural journals. However, please be assured that consent for your work to be used for these research purposes will not be mandatory.

# MELBOURNE'S WATER CHALLENGES



## Drought

50% increase in time spent in drought by 2030, 60% by 2090



## Thunderstorms

22% increase in frequency of potential severe thunderstorm days



## Flooding

1000 times increase in flood event frequency per 0.5m of sea level rise, resulting in 1-in-100-year flood events occurring every month or so by 2100



## Extreme rain

17% increase in maximum one-day rainfall by 2100  
13% increase in likelihood of 1-in-20-year rainfall events

Sources:  
Cracking up the Intensity: Climate Change and Extreme Weather Events by Professor Will Steffen, Professor Lesley Hughes, Dr David Alexander and Dr Martin Rice.  
Lucas C, Hennessy K, Mills G and Bathols J (2007) Bushfire weather in southeast Australia: recent trends and projected climate change impacts.  
Bushfire CRC and Australian Bureau of Meteorology, September 2007, Consultancy Report prepared for the Climate Institute of Australia.  
Hunter J (2012) A simple technique for extracting an allowance for uncertain sea-level rise. *Climate Change*, 113: 239-252.  
McInnes KL, Church J, Moselesan D, Hunter JR, O'Grady JS, Hain ID and Zhang X (2015) Information for Australian Impact and Adaptation Planning in response to sea-level rise. *Australian Meteorological and Oceanographic Journal*, 64: 127-147.

Nan Hang Zhang & Briener Yu MSD Studio C,D,E 10 S1 2020 assignment 1

Melbourne is one of the few Australian cities to be known for cold, windy, cloudy and by association; rainy weather. Unlike Sydney, Brisbane and Perth, Melbourne is associated with its cold and gray skies rather than the conventional images of Australian beaches and sun.

While the city is certainly the cloudiest capital in the country, Melbourne's rainfall is actually modest and the city can be characterized as having a relatively dry climate. The associations with a rainy city are likely to be due to the even distribution of precipitation throughout the year, the regular occurrence of thunderstorms and those abundant cloudy days.

Also despite its wet reputation, projections are that Melbourne is set to experience a higher frequency and intensity of water-related disasters in the future. Interestingly, the city's water challenges span between the problems which arise from its scarcity to its intermittent overabundance.

Melbourne has been subject to drought and significant flooding at various times in recent past and expectations are that climate change will increase the frequency and exacerbate the intensity of these events.

## WATER SCARCITY – DROUGHTS

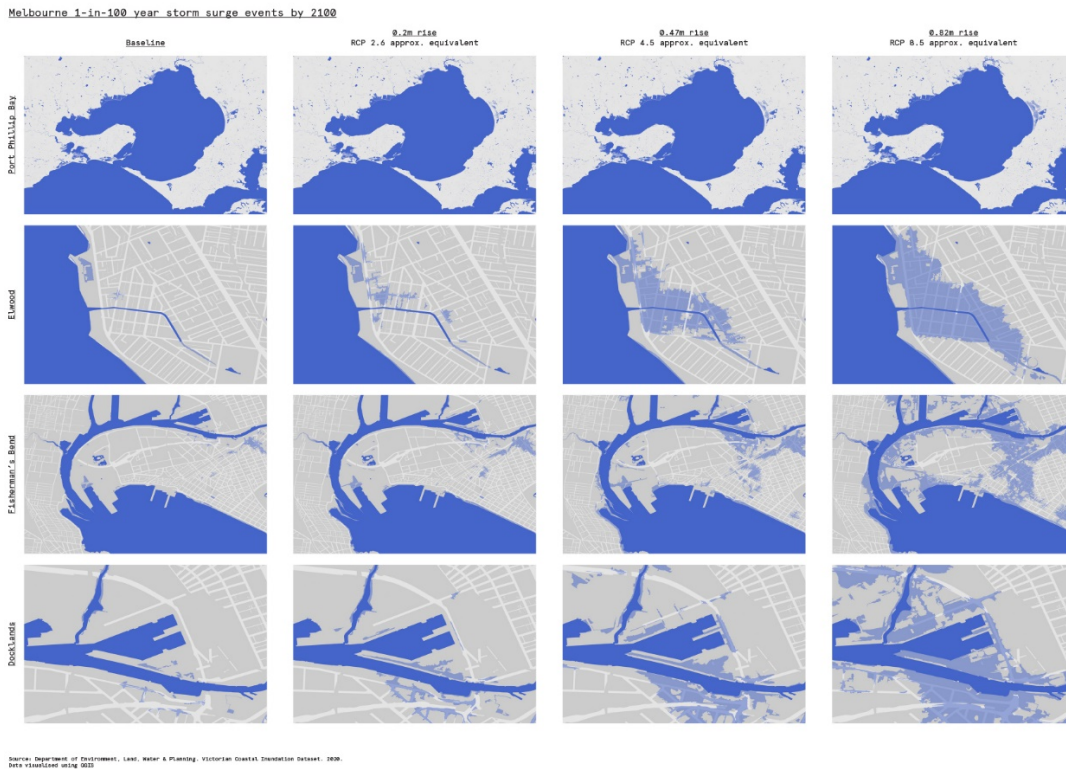
Under climate change, southern Australia is likely to see an overall reduction of annual precipitation. The pressures on water resources will also come from Melbourne's (pre-COVID) status as the fastest growing city in the country with projections for the population to reach 8.5 million by 2050 (under medium growth model) and potentially 12.2 million by 2066.

Strategies for managing and expanding the city's water resources have included the investment in a large desalination plant and plans for water recycling. Explorations into managed aquifer recharge and water

banking in the city are still at early phases owing to the limited history of the city’s reliance on groundwater as a resource. Despite these investments, the city is still forecast to fall short of its future demand.

The likelihood of more frequent drought and the added populational pressures on water resources will necessitate an exploration of other methods for water management. These are likely to include the restructuring of our current models of urbanization. Such strategies are likely to include the thoughtful embedding of water treatment and harvesting systems within urban environments. A systemic reconsideration of the metropolitan water management processes will be crucial for the city’s sustainability and resilience in the face of water challenges in the future. The city as a water harvester needs to be explored.

## FLOODING



Nan Hang Zhang & Briener Yu MSD Studio C,D,E 10 S1 2020 assignment 1

While water scarcity will be a matter of concern, the projected intensity as well as regularity of storm events coupled with sea-level rise are also expected to significantly impact coastal neighborhoods and infrastructure. Many areas within Melbourne already suffer inundation caused by combinations of riverine (fluvial), stormwater (pluvial) and coastal (tidal) flooding.

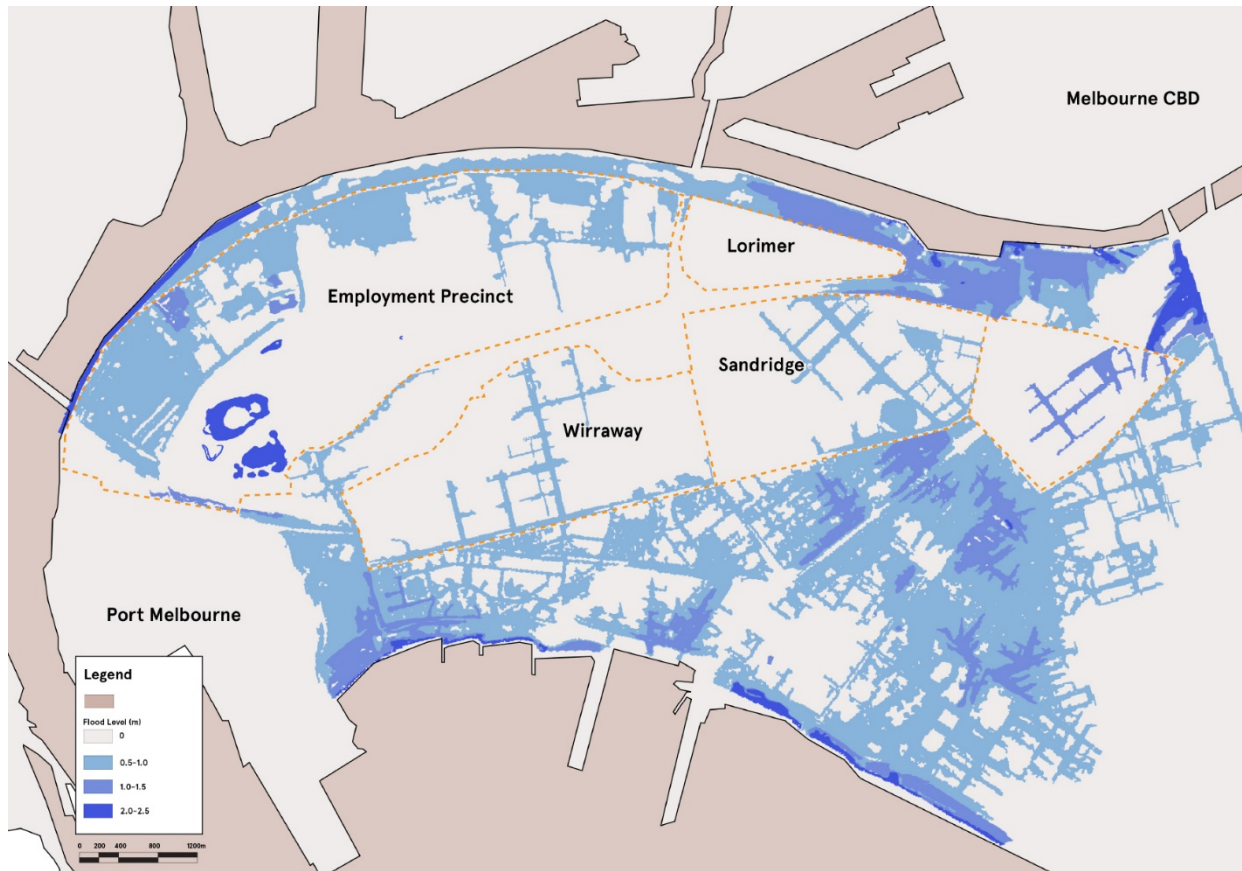
These problems will be more pronounced under the projected effects of climate change with many established and emerging waterfront neighborhoods expected to face significant public health crises, ecological damage and property loss associated with more regular and higher intensity of such flooding events. Under some projections, the recurrence of such events offer an alarming view of what is in store.

The current ICPP report outlines scenarios up to RCP 8.5, with an approximately 4.3C warming and a 0.8m sea-level rise by 2100. Compounded with modelling based on storm surges, many of Melbourne’s waterfront neighborhoods will experience significant and regular flooding across all of the sea-level rise scenarios covered in the report’s representative concentration pathways.

Current planning for the studio site attempts to address the challenges posed by the RCP 8.5 scenario. But as we all know, models for the impacts of climate change are continuously evolving. New models that will inform the next IPCC report (due next year) signal the likelihood of revisions upwards on the potential

impacts. If we are to engage with a notion of resilience that is pegged to ever moving targets, it seems that our design strategies will need to be able to factor in the possibility of transformation and a scaling up over time. There will need to be some aspects of the design which will be as much about urban strategies that allow for absorbing and addressing change as it will be about form and organization.

## CONTEXT – FISHERMAN’S BEND



Huey Jean Tan, Phoebe Shiyi Goh & Kah Yi Fern Cheong MSD Studio C,D,E 10 S1 2020 assignment 3

The studio site will be Fisherman’s Bend, a postindustrial site located adjacent to Melbourne’s Central Business District, Docklands as well as the Port of Melbourne.

Fisherman’s Bend was once the largest employment precinct for manufacturing in close proximity to the city center. Its manufacturing past included automobile and aerospace engineering as well as manufacture. It was once the site for the production of military aircraft during the major war efforts. In its industrial heyday, Fisherman’s Bend was a major contributor to the national economy and it looks like it may regain this prominence.

Today, Fisherman’s Bend is being redeveloped as the country’s largest inner city urban renewal precinct. Planned as a National Employment and Innovation Cluster (EIC), the site’s 480 hectares is expected to house 80,000 residents and 80,000 jobs by 2050. As an EIC identified in the Victorian Government’s strategic planning document: Plan Melbourne 2017-2050<sup>1</sup>, the site has been planned for a major aggregation of businesses and institutions with an ensuing concentration of opportunities for economic growth and jobs. This plan constitutes a major transformation of the precinct, (as of 2017, the site had a resident population of only 200) and will cover a site more than double the size of the current Central Business District.

<sup>1</sup> [https://planmelbourne.vic.gov.au/\\_data/assets/pdf\\_file/0007/377206/Plan\\_Melbourne\\_2017-2050\\_Strategy\\_.pdf](https://planmelbourne.vic.gov.au/_data/assets/pdf_file/0007/377206/Plan_Melbourne_2017-2050_Strategy_.pdf)

With a focus on post-COVID economic recovery beginning to gain momentum, the development is also likely to be one of the major areas identified for economic stimulus. Despite the site's de-industrialization, aerospace engineering, defense and light manufacturing remains on site and has been cultivated in recent years. Alongside further investment in defense research, film-making industries as well as major tertiary education and research institutions have been identified as anchor tenants/stakeholders<sup>2</sup>. This larger vision for Fisherman's Bend is informed by an ambition to further link Victorian research and industry with the wider global economy.

The site is planned for a high density, mixed-use and integrated transport development with an emphasis on knowledge and research-led focus alongside advanced manufacturing. The larger discussions surrounding on-shoring and a return of localized (and likely: advanced automated manufacturing) associated with the third / fourth industrial revolutions reverberates with these aims.

However, Fisherman's Bend is also located in a floodplain and was a wetland ecology prior to its industrialization. Like many of the postindustrial sites that have been redeveloped in the city (such as the Docklands and Southbank), Fisherman's Bend is far from being a traditionally geographical and geological optimized site fit for intensive development. The potential vulnerability and exposure of the site to sea-level rise, further flooding and the pressures of water scarcity for the city as a whole will all impact on the sustainability of the development.

The site has a long history of human occupation and was an ecologically rich site for a large part of its history. Its association with flooding and the impact of past sea-level rise events figure heavily in the history embedded in the indigenous understanding of the site. According to history shared by the people of the Kulin nation, Nerm (the Boonwurrung name for Port Philip Bay) was once a large hunting ground 7000 to 10,000 years ago. Sea-level rise would later claim the bay along with Fisherman's Bend and large tracts of what is now Melbourne before receding around 4000 years ago<sup>3</sup>.

In its early European history, the site had a negative association despite forming the gateway to the city. Owing to its low-lying topography alongside swamps and a susceptibility to flooding, Fisherman's Bend would be used as a dumping ground and would be settled by many of the city's marginalized. It was also a site which was subject to massive man-made transformations with a complete realignment of the river with the introduction of Coode's canal dredged to the north of the site in the nineteenth century. Its early industrial history would also see it come to be associated with noxious trades such as foundries, asphalt plants and abattoirs before its later transformation into the center for automobile and aerospace engineering as well as manufacturing in Australia.<sup>4</sup>

This complex and rich history of ongoing struggles between human occupation, ecologies and encroaching water at the site offers a highly emblematic context for exploring the notions of resilience. Despite its challenges, it is also one of the most captivating opportunities in the city to speculate on how urbanization may be rethought and re-designed with resilience and adaptation being the primary determinants of its design.

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<sup>2</sup> <https://www.aecom.com/au/wp-content/uploads/2018/10/Transforming-Fishermans-Bend-Link.pdf>

<sup>3</sup> <https://www.fishermansbend.vic.gov.au/social-history/aboriginal-country>

<sup>4</sup> [https://www.fishermansbend.vic.gov.au/\\_data/assets/pdf\\_file/0022/31675/Heritage-Study\\_Biosis\\_November-2016.pdf](https://www.fishermansbend.vic.gov.au/_data/assets/pdf_file/0022/31675/Heritage-Study_Biosis_November-2016.pdf)

## **OBJECTIVES**

### **GENERAL OBJECTIVES**

The overall objective of this studio will be to develop design proposals that draw from and extend urban design, landscape urbanism and architectural approaches that provide models for urbanization which adopt resilience and adaptability as its main design determinants.

### **SPECIFIC OBJECTIVES**

#### **Contextualization within wider systems**

The specific objectives of the studio will begin with the development of a strategic contextualization of design proposals within larger urban and ecological systems. Research and consideration of the ways in which these systems (such as water management systems) make the city vulnerable to disasters will be necessary to inform the design responses. The study of these existing systems should involve the identification of risk factors. There will need to be an awareness of the relationships between wider systems and the specific studio site.

#### **Prototypes**

The studio is also dedicated to the development of design prototypes that will help to imbue urban sites with a capacity for resilience and adaptability in relationship to water-related disasters and disruptions. What new elements may be introduced in the city to help it absorb shocks from such disasters? Are there existing urban elements and infrastructure that may be transformed to address these issues?

#### **Frameworks**

The studio will aim to develop urban frameworks that establish the infrastructures that helps in securing a site's capacity to engage with projected disaster scenarios and maintain critical operational continuity during such situations. This framework will also be the structuring elements which help to inform the way in which more resilient forms of urbanization may unfold on similar sites.

## **APPROACH**

The studio will be structured according to three distinct phases.

### **1- Research**

Two research assignments

The first assignment will study the existing systems which impact the site's capacity for resilience during water-related disasters. It will also identify specific risks related to the city and site as well as mapping the projections for the extent and effects of disasters under future climate change projections.

The second research project will involve studying existing and past precedents of design models which have been developed to address these disaster scenarios. Prior to designing, students will be required to conduct a review of projects, technologies and prototypes that resonate with their own design ambitions.

### **2- Design prototype**

The first design assignment involves developing prototypes at a more general level. These will be done with the specific issues and conditions related to the site challenges in mind but should be developed prior to an immediate application on site. The initial consideration of the variabilities and capacities of the prototypes will be developed at a general level.

### **3- Implementations (multiple scales)**

The general prototypes will be implemented and resolved at a number of scales on site. Students will work in teams to develop larger urban frameworks which are formed from the ways in which their prototypes may be coordinated and arranged to establish larger structuring infrastructures for urbanization. These will also need to be defined at smaller scales offering some idea of how these prototypes and frameworks may generate urban environments with capacities for resilience as well as an urbanism of specific qualities.

## **ArcDR3 Initiative**

Architecture and Urban Design for Disaster Risk Reduction and Resilience

This studio will be part of larger research initiative, the ArcDR3 Initiative, Architecture and Urban Design for Disaster Risk Reduction and Resilience established by the International Research Institute of Disaster Science (IRIDeS) at Tohoku University, Japan and xLAB at University of California Los Angeles (UCLA). As part of this Platform the University of Melbourne's MSD joins a network of professional and educational partners including organizations of the Association of the Pacific RIM Universities (APRU) such as the UCLA (USA), Tohoku University (Japan), Tsinghua University (China), The University of Tokyo (Japan), University of Washington (USA), UC Berkeley (USA), National University of Singapore (Singapore), Taipei University of Technology (Taiwan), University of Hong Kong (Hong Kong), The University of Auckland (New Zealand), The University of Melbourne (Australia), The Pontifical Catholic University of Chile (Chile). The studio will be part of a sequence of studios that will contribute towards a larger research agenda proposed by this initiative and that will be discussed in conferences, shown in exhibitions and compiled into a publication.

## **EVOLUTIONARY REGENERATIVE SYSTEMS (ERS) FOR ECOLOGICALLY, SOCIOLOGICALLY AND TECHNOLOGICALLY RESILIENT CITIES.**

**Across the globe, 21st century cities face a growing number of technological, social, and environmental challenges. An increased intensity of global risk establishes an urgency and opportunity to redefine strategies for designing buildings, cities, and environments. For urban systems to respond to various challenges, unpredictable events, and uncertain durations of after-effects, it is necessary to develop both malleable planning strategies and tactical redundancies.**

The ArcDR3 Initiative Grand Syllabus takes its inspiration from the Sendai Framework seeking to propel it forward using a collaborative approach to architectural education to demonstrate visionary design possibilities. The goal of the initiative is to contribute cutting edge design thinking towards the development of an international standard for risk reduction in the urban environment.

At the conclusion of this initiative, ideas formulated by participating universities will be shared with the Japanese Ministry of Economy, Trade and Industry with a view towards establishing the content for a new disaster risk reduction certification for the International Organization for Standardization (ISO.)

In a broad sense, while resilience serves as the theme for the ArcDR3 Initiative, it is up to date understandings of the term that must be visualized for this initiative. For if resilience is defined as...

*i. the capacity to recover quickly from difficulties; toughness;*

*ii. the ability of a substance or object to spring back into shape; elasticity*

...then such definitions suggest ONLY resistance to change and/or return to a previous state. However, given that today's changes unfold at unprecedented speeds with great degrees of unpredictability, resilience must be better defined as the capacity to respond and adapt to change, whether as sudden shock or a long-term trend. Between the scientific approach of calculating risk and understanding the impossibility of predicting the future, resilient design must balance in the space between the predicted and the unpredictable as a complex form of adaptivity. A compelling thematic for this kind of thought is captured in the phrase Evolutionary Regenerative Systems for Ecologically, Sociologically and Technologically Resilient Cities.

As Nel, du Plessis and Landman have noted with regards to complex adaptability, "(p)lanning for dynamic cities is a perennial problem that continues to grow in importance in a rapidly changing world." Hence there is urgent need for strategies that anticipate "urban change through a complex adaptive systems approach."

Such processes are both regenerative and evolutionarily so. They include "(1) describing the system through setting boundaries and identifying the properties of the system, (2) identifying the patterns of change across scales and (3) mapping the change over time. "

Thinking along these lines enables urban designers to firstly prepare for “the complexities of urban change and secondly, (setting) a foundation to engage with the challenge of developing alternative sustainable development models that are able to deal with the reality of complex, dynamic and interconnected urban systems and to cope with change and uncertainty in ways that build positive resilience and support regenerative design and development.” Darren Nel, Chrisna du Plessis & Karina Landman (2018) Planning for dynamic cities: introducing a framework to understand urban change from a complex adaptive systems approach, *International Planning Studies*, 23:3, 250- 263, DOI: 10.1080/13563475.2018.1439370

To this end each proposal must address context-specific Ecological, Sociological and Technological dimensions in order to deliver profound, contemporary urban design ideas that expand the understanding of resilience as a mechanism that is mutually evolutionary and regenerative.

Proposals will be developed at two scales (Systemic and Prototypical) and will respond to key Priorities for Action identified in the Sendai Framework.

## **B. THREE LENSES FOR THE DESIGN OF EVOLUTIONARY REGENERATIVE SYSTEMS**

**With a holistic goal in mind, ArcDR3 participants will design ERS for risk and resilience through one or a combination of the following lenses:**

### ***Technology***

Resilient, threat-resistant systems are characterized by suppleness, flexibility, and redundancy by interfacing with a changing array of objects, populations, and environmental situations.

### ***Society***

Urban systems that mitigate challenges and maximize opportunities created by shifts in the global population must pay particular attention to dynamic environments that can accommodate the diverse changes present in the near future.

### ***Ecology***

A resilient urban ecology enables multiple types of ecosystems to coexist and interface with each other. How can local considerations contribute greater to a global risk management system?

## **ArcDR3 Initiative. APPENDIX**

### **Sendai Framework for Disaster Risk Reduction 2015-2030**

The Sendai Framework for Disaster Risk Reduction (2015–2030) is an international document which was adopted by UN member states between 14th and 18th of March 2015 at the World Conference on Disaster Risk Reduction held in Sendai, Japan and endorsed by the UN General Assembly in June 2015. It is the successor agreement to the Hyogo Framework for Action (2005–2015), which had been the most encompassing international accord to date on disaster risk reduction.

The Sendai Framework sets four specific priorities for action: (1) Understanding disaster risk; (2) Strengthening disaster risk governance to manage disaster risk; (3) Investing in disaster risk reduction for resilience; (4) Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation and reconstruction

### **On Resilience**

Defining resilience more precisely is complicated by the fact that different fields use the term to mean slightly different things. In engineering, resilience generally refers to the degree to which a structure like a bridge or a building can return to baseline state after being disturbed. In emergency response, it suggests the speed with which critical systems can be restored after an earthquake or a flood. In ecology, it connotes an ecosystem’s ability to keep from being irrevocably degraded. In psychology, it signifies the capacity of an individual to deal effectively with trauma. In business, it’s often used to mean putting in place backups (of data and resources) to ensure continuous operation in the face of natural or man-made disaster (p7, Zolli, A., Healy, M.A.,

2012). Among them, noted disaster scientists Davis and Alexander defined the following: “Resilient recovery is robust and enduring. It has mechanism for solving problem particularly about the appointment of resources....It turns survivors into active protagonists” (p.255, Davis, I., Alexander, D., 2016).



Resilience is a multifaceted concept with many autonomous subsystems to turn surrounding resources into a good situation and a dynamic one with positive feedback for catching up to changing of the situation as follows. Paradoxically, resilience is often also enhanced by the right kind of clustering - bringing resources into close proximity with one another.

But it's a special kind of clustering, one whose hallmark is density and diversity - of talent, resources, tools, models, and ideas. It's this kind of clustered diversity that ensures the resilience of innovation hubs like Silicon Valley and old-growth forest alike. These principles—tight feedback loops, dynamic reorganization, built-in counter-mechanisms, decoupling, diversity, modularity, simplicity, swarming, and clustering—form a significant part of the tool kit for systemic resilience. (p.12, Zolli, A., Healy, M.A., 2012)

### **Association of Pacific Rim Universities (APRU) Multi-Hazards Program**

As one of the most disaster-prone regions in the world, frequent natural hazards – from tsunamis to floods to volcanic eruptions – threaten the lives and livelihoods of millions of people around the Pacific Rim and result in catastrophic destruction and damage. The losses and impacts that characterize disasters have much to do with the exposure and vulnerability of people and places as they do with the severity of the hazard event. While natural hazards cannot be eliminated, by sharing best practice, knowledge, and research, we can better understand risks and minimize the threat to human life. Over the past decade, the Multi-Hazards Hub hosted by Tohoku University in Sendai, Japan has worked to harness the collective capabilities of APRU universities for cutting-edge research on the shared threat of natural hazards facing the region. Of the top 100 institutions globally by scholarly output on natural disasters, APRU produces 23% of the publications and 28% of the citations. APRU collaborates with its members and partners to understand how academics, policy leaders, government, and communities can work together to facilitate disaster risk reduction and recovery. Whether it is enhancing the reach of the Sendai Framework or sharing expertise to mitigate the danger in countries most vulnerable to disaster risks, together we can Build a more resilient Asia Pacific.

### **World Bosai Forum**

The World Bosai Forum proposes solutions from various points of view to enable disaster risk reduction in Japan and overseas, and aims to promote the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 while learning from each other and creating new values. The first World Disaster Reduction Forum (2017) was led by Tohoku University and Sendai City, with a diverse group of stakeholders (United Nations, international organizations, governments, private sectors, media, NGOs, citizens, universities and research institutes).

We have brought in concrete solutions to reduce disasters, sharing information, discussed, and promoted the creation of a field to generate new collaborations.

The second World Bosai Forum (November 9-12, 2019) will address the Global Target E" in the Sendai Framework for Disaster Risk Reduction 2015-2030 that aims to achieve significant increase in the number of countries by 2020 with holding national and regional disaster management strategies. We will share many detailed contents to seek for better reconstruction which contains structural (hard), nonstructural (soft) and human-oriented (heart) measures. We will also share how to deal with climate change which is getting more serious in recent years, how to apply advanced technologies such as AI or IoT technology in disaster risk reduction.

### **International Research Institute of Disaster Science (IRIDeS)**

This institute was established in April 2012 at Tohoku University, which experienced an unprecedented disaster called the Great East Japan Earthquake. While bringing together the wisdom of Tohoku University and contributing to the reconstruction and rehabilitation of the affected areas, we are promoting the world's most advanced research on natural disaster science while collaborating with universities and research institutions both in Japan and abroad. The IRIDeS creates a new academia of disaster mitigation that subsumes the lessons from the 2011 Tohoku earthquake and tsunami disaster and the findings of the world-leading research into our societies with the aim of establishing the social systems responding promptly, sensibly and effectively to natural disasters, withstanding the adversities with resilience, passing and exploiting the lessons to the forthcoming disaster management cycles.

**xLAB**

xLAB is an international think tank initiative that examines architecture's elastic boundaries and considers new possibilities through interdisciplinary collaboration in the study of the future built environment. It is set within the Architecture and Urban Design Department at the University of California, Los Angeles (UCLA). xLAB hosts the xLAB Summer Program, where students from top architecture schools around the world to perform collective research around a specific theme. The themes have been Community (2017), Mobility (2018), and Resilience (2019). It is held in collaboration with The University of Tokyo, Shinkenchiku-sha (Japan Architect Publication) and The National Museum of Emerging Science and Innovation (Miraikan).

## 02. BASIC INFORMATION

Course:	Master of Architecture Studio C (ABPL90061), Master of Architecture Studio D (ABPL90143), Master of Architecture Studio E (ABPL90115)
Hours:	Mondays, 12-3pm and Thursdays, 12-3pm.
Credits:	25
Location:	MSD Room 140
Eligibility:	Open to Master of Architecture Students
Office hours:	By appointment only
Faculty:	Leire Asensio Villoria, Senior Lecturer in Architecture and Urban Design <a href="mailto:leire.asensio@unimelb.edu.au">leire.asensio@unimelb.edu.au</a> David Mah, Senior Lecturer in Architecture and Urban Design <a href="mailto:david.mah@unimelb.edu.au">david.mah@unimelb.edu.au</a>
Office:	MSD Room 403
Telephone:	0383.448.531

## 03. LEARNING OUTCOMES

Learning outcomes as defined in the University Handbook.

### **Master Architecture Studio (APL90143)**

- Successfully create and resolve the design of a building of medium complexity
- Develop performance-based design
- Test theoretical propositions in an urban context
- Translate regulatory constraints and urban policies into design parameters
- Identify performance differences and mutual impacts within spatial programs
- Understand the relationship between social programs and spatial form
- Communicate a complex design vision in a clear and professional manner.

### **Master Architecture Studio (APL90115)**

- Successfully create and resolve the design of a building of medium complexity
- Communicate a complex design vision in a clear and professional manner
- Integrate the diverse requirements of larger scale architectural projects
- Assess both the efficacy and the efficiency of their designs against possible alternatives
- Develop performance-based design
- Evaluate design decisions against industrial, environmental and site conditions, building scale and general principles of sustainability.

## 04. SKILLS

At the end of semester students will demonstrate the following abilities:

### **Master Architecture Studio (APL90143)**

- Time management, including designing within specific timeframes
- An understanding of ethical responses to issues
- Identification of emergent trends in practice
- Written, verbal and visual presentation of ideas
- Use of sketches and diagrams to analyse, design and communicate
- Critical evaluation of policies and practices
- Ability to analyse social and cultural contexts
- Information gathering and critical synthesis
- Creative response to complex problems
- Understanding of professional roles and responsibilities

**Master Architecture Studio (APL90115)**

- Identification of emergent trends in practice
- Understanding of relevant policies and practices
- Use of sketches and diagrams to analyse, design and communicate
- Appropriate use of technical terminology
- Analysis and synthesis of data in order to prepare proposals
- Evaluation of existing knowledge
- The ability to efficiently locate available information and to make effective use of it.

## 05. COURSE SCHEDULE

march	week 01	mon 02.03			LECTURE [studio overview] A.01 – RESEARCH I [handout]
		thu 05.03			DESKCRITS / LECTURE [by Josh Clough from Aurin]
	week 02	mon 09.03			DESKCRITS
		thu 12.03			DESKCRITS / LECTURE [by Emergency Services]
	week 03	mon 16.03			LECTURE [by Tim Olon from AECOM] PIN UP – A.01. A.02 – RESEARCH II [handout]
		thu 19.03			LECTURE [by Will Thickett from Arup] DESKCRITS
	week 04	mon 23.03			DESKCRITS
		thu 26.03			TEACHING PAUSE
	week 05	mon 30.03			DESKCRITS / LECTURE [by Todd Berry of the Fishermans Bend Task Force]
april		thu 03.04			PIN UP – A.02 A.03 – PROTOTYPES [handout]
	mon 06.04			NON-TEACHING WEEK	
	thu 09.04				
	week 06	mon 13.04			NON-TEACHING WEEK
		thu 16.04			
	week 07	mon 20.04			DESKCRITS / LECTURE [by Andrew Grant of Melbourne Water]
		thu 24.04			DESKCRITS
	week 08	mon 27.04			DESKCRITS
may		thu 01.05			DESKCRITS
	week 09	mon 04.05			DESKCRITS
		thu 07.05			MIDTERM REVIEW ( assignments 01,02,03) A.04 – IMPLEMENTATION. [handout]
	week 10	mon 11.05			DESKCRITS / LECTURE [by Craig Maclean of City of Port Philip and Milly Adamson of City of Melbourne]
		thu 14.05			DESKCRITS
	week 11	mon 18.05			DESKCRITS
		thu 21.05			DESKCRITS
	week 12	mon 25.05			DESKCRITS
		thu 28.05			DESKCRITS
	week 13	mon 01.06			DESKCRITS
		thu 04.06			PIN UP – A.04
june	week 14	mon 08.06			SWOT Vac – NON-TEACHING WEEK
		thu 11.06			
	week 15	mon 15.06			EXAMINATION WEEK
		fri 18.06			
	week 16	mon 22.06			PROJECT SUBMISSION & FINAL REVIEW Tuesday June 23 <sup>rd</sup> , 2020
		thu 25.06			

\*note that these dates may change

## 06. ATTENDANCE / FORMAT and PROCEDURES

Attendance of the design studio is mandatory. Each student is expected to attend the studio deskcrits, pin-ups, lectures and reviews scheduled for the class times. Students will be expected to bring new work that demonstrates appropriate project development at each deskcrit. Failure to do so will be considered as an absence.

The studio will support a semester-long project organized into a sequential set of assignments. Projects will be carried out in groups and should be understood as a semester long investigation. Work will be developed through digital and physical modeling, being continuously transferred in and out of digital media to determine with precision adjustments and evaluations. The students are strongly encouraged to work in the Studio space during the studio hours, where we will set up a laboratory atmosphere where discoveries are conveniently explored in collaboration and where desk-crits organize during the session.

## 07. ASSESSMENT & GRADING

A mid-semester jury review (critique) oral presentation equivalent to 100 hours of work demonstrating design output that may include physical or digital models, drawings, written assignments, site analyses, journals and sketches. Due mid-semester (30%).

An end of semester jury review (critique) oral presentation equivalent to 240 hours of work building on work developed throughout the semester demonstrating design output that may include physical or digital models, drawings, written assignments, site analyses, journals and sketches. Due end of semester (70%).

Hurdle Requirement: Students must attend 75% of studios

All students must meet the minimum criteria outlined by this course brief and all required work must be completed by the designated interim submissions and final jury periods as assigned by the course faculty. Any unfinished work will be reviewed at the discretion of the course faculty.

**MIDTERM REVIEW** 30%

**FINAL REVIEW** 60%

(Deliverables for these reviews will be specified in handouts that will be made available to the students at the appropriate times during the semester)

### FINAL BOOKLET SUBMISSION

Final Booklet 10%

(Deliverables for this booklet will be specified in handouts that will be made available to the students at the appropriate times during the semester)

## 08. WORK DOCUMENTATION

As part of the necessary requirements for the successful completion of this course, students are due to submit a copy of their final project:

- Hard copy in a bound 'booklet' letter format.
- Digital copy of the booklet in a 300dpi pdf format, following the below mentioned naming system in a correlative manner. ie. 2020\_S1\_Name of the project\_001.pdf
- Digital copy of the packaged InDesign file, following the below mentioned naming system in a correlative manner. ie. 2020\_S1\_Name of the project\_001.pdf

- Digital copy of physical models photographs in 300dpi jpg format, following the below mentioned naming system in a correlative manner. ie. 2020\_S1\_Name of the project\_001.jpg
- Animations developed during the semester, following the below mentioned naming system in a correlative manner. ie. 2020\_S1\_Name of the project\_001.wmv
- GH definitions developed during the semester, following the below mentioned naming systems in a correlative manner. ie. 2020\_S1\_Name of the project.gh

**All material is due at 9:00am on Tuesday, June 23<sup>rd</sup>, 2020**

## **09. OTHER SOURCES**

<https://aurin.org.au/>

<http://www.bom.gov.au/water/index.shtml>

<https://www.melbournewater.com.au/water/rainfall-and-river-levels#/>

<http://services.land.vic.gov.au/landchannel/jsp/map/PlanningMapsIntro.jsp>

<http://services.land.vic.gov.au/maps/interactive.jsp>

<http://www.1945.melbourne/>

<http://www.ala.org.au/>

<http://maps-collection.library.unimelb.edu.au/historical/1945melb/>

<https://www.slv.vic.gov.au/search-discover/explore-collections-format/maps>

<http://www.planmelbourne.vic.gov.au/Plan-Melbourne>

<https://mapshare.maps.vic.gov.au/vicplan/>

[http://planningschemes.dpcd.vic.gov.au/schemes/whitehorse/maps?queries\\_grids\\_query=hide&queries\\_enlargement\\_query=483145&asset\\_listing\\_157156\\_submit\\_button=Filter+maps](http://planningschemes.dpcd.vic.gov.au/schemes/whitehorse/maps?queries_grids_query=hide&queries_enlargement_query=483145&asset_listing_157156_submit_button=Filter+maps)