Business Continuity Planning
Construction Industry Productivity

Presentation for Construction Clients Group

February 2015

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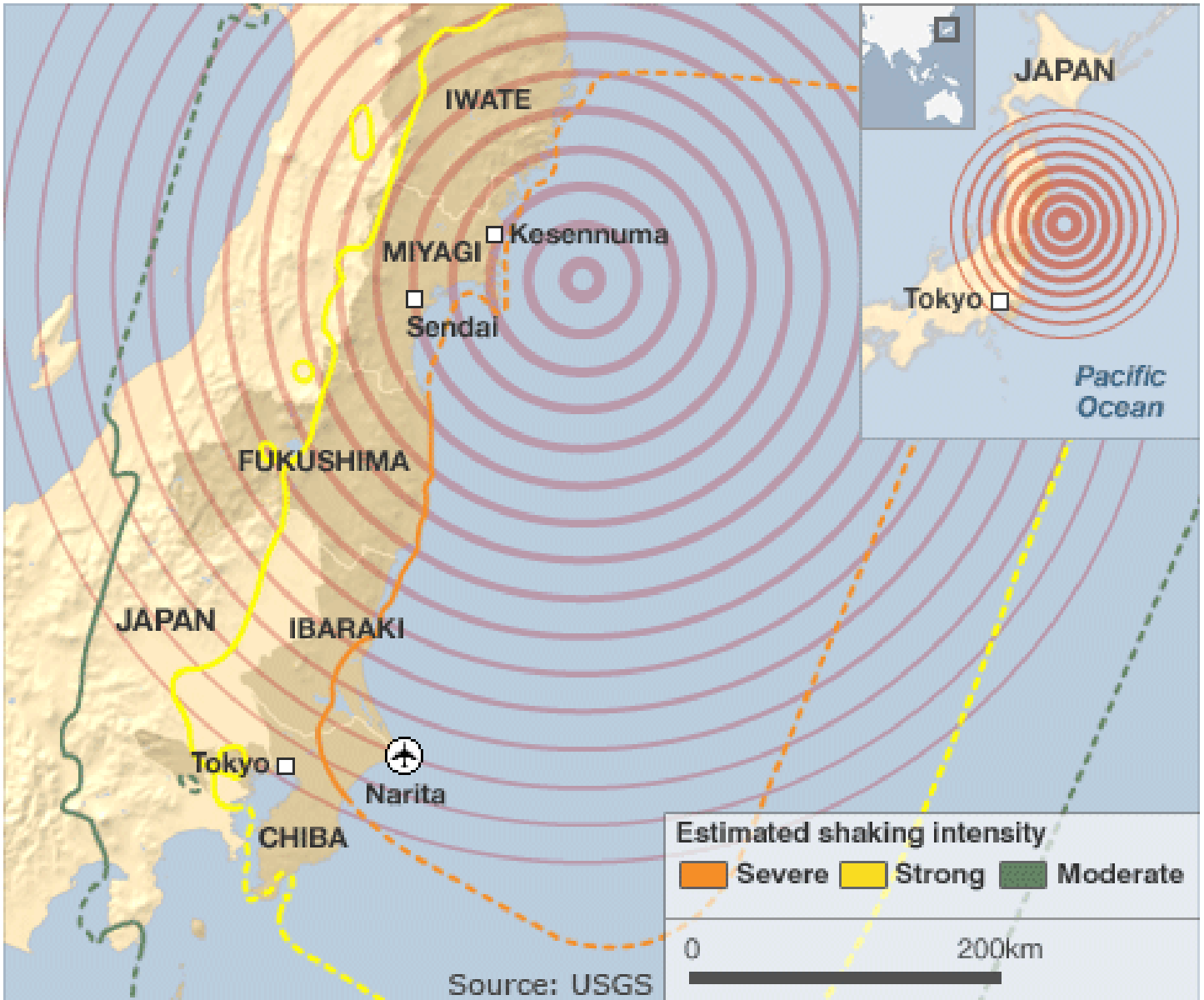
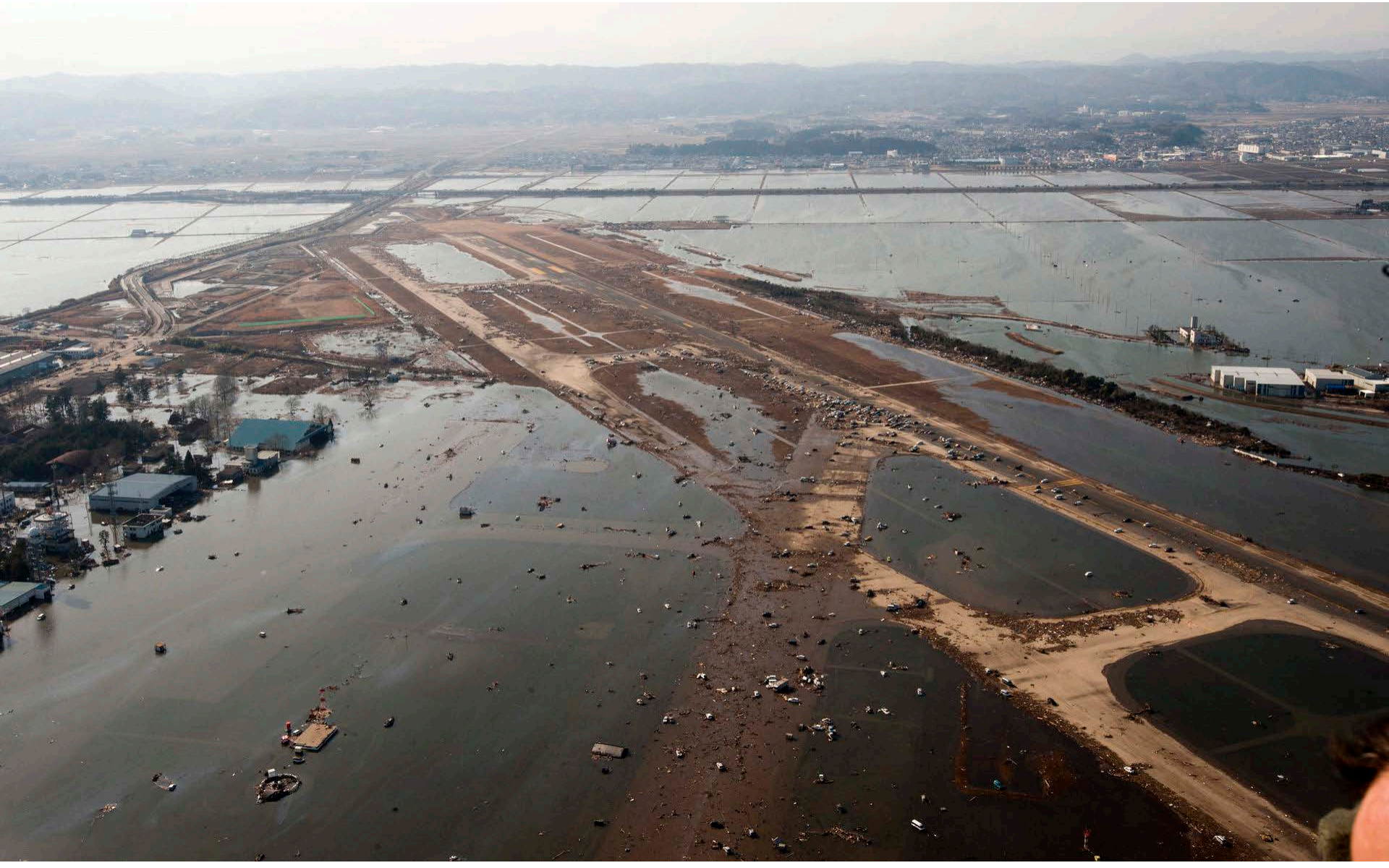
THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

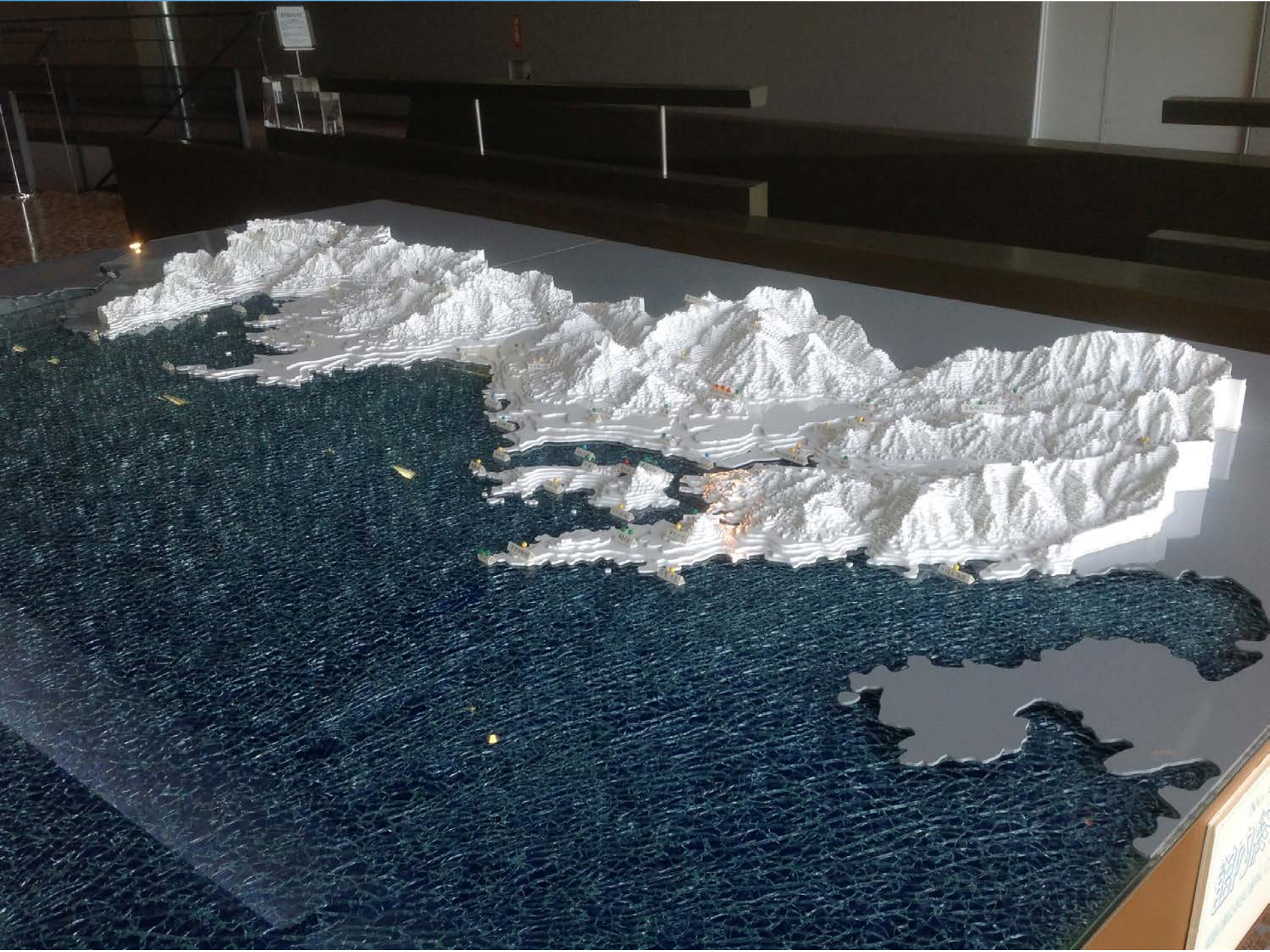
Japan

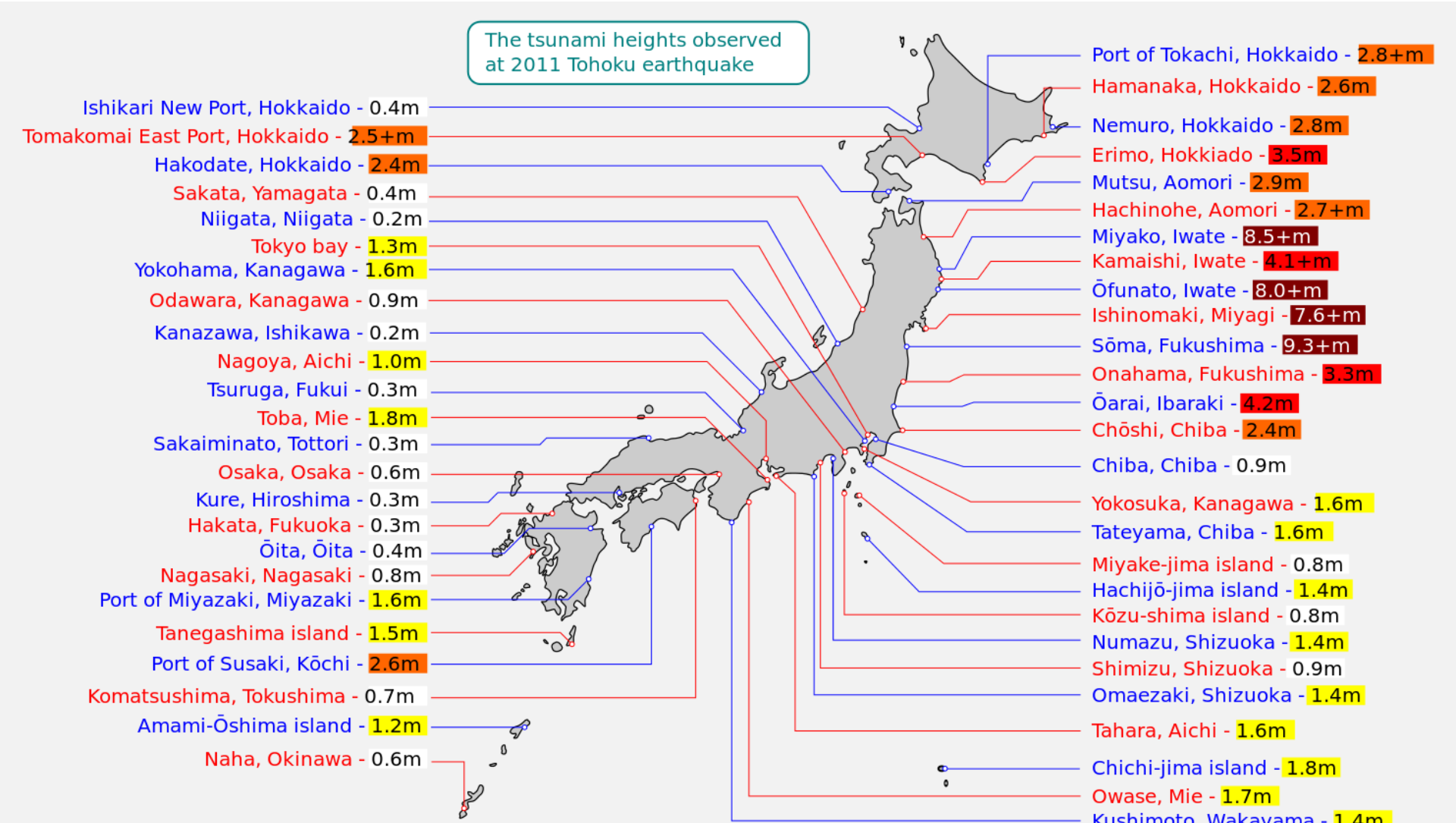
- https://www.youtube.com/watch?v=3xKMFzKOIfQ
- https://www.youtube.com/watch?v=noq8FYvRqgs
- https://www.youtube.com/watch?v=tPQ5iTcnXW0

Areas affected by the quake









Height with "+" symbol -
High precision data was not recorded because tidal gauging system were destroyed or flowed away by tsunami.


鹿折地区震災前


東京消防庁
鹿折地区震災直後


鹿折地区2012年3月1日現在
写真提供：街の情報誌「浜らいん」

What would we do if faced by a disaster event later today?

Please listen to 43 second recording

- https://www.youtube.com/watch?v=jIItailP-O4

- What would we do next?

UoA Business Continuity Plan
(Learning and Teaching Continuity Plan)

1. Ensuring that as high as possible number of students are kept on track for graduation
2. Minimising the adverse financial impact for the University
3. Protecting the University of Auckland's reputation by showing an ability to manage a catastrophe
4. Minimising stress for staff and students responding to an event
5. Positioning the University to play a role in society in the event of a major disruption

Lessons from UoC

- Clear and resilient communication channels
- Use of ICT and LMS for blended course delivery
- Staff who are competent with online learning and teaching
- Staff who are accessible and visible
- Online spaces that promote interaction, sense of community
- Central hubs of interaction (Facebook, Homepage etc)
- Routine to reduce anxiety and help students to focus
- Flexibility and adaptability;
- Psychological support to help cope with emotional shock.

Scenario Analysis

Scenario		Affects Access to...		Impact on Learning and Teaching		
				Delivering Courses	**Assessing and Giving Feedback**	**Communicating with Students**
Outbreak of swine flu	→	• **Staff** • **Physical environment**	→	- Face-to-face teaching may need to be suspended - Clinical placements of students in hospitals may have to be suspended	- Examinations may need to be rescheduled	- Staff may need to work remotely and conduct office hours virtually
Buildings on campus are damaged by a fire or earthquake	→	• **Physical environment**	→	- Classes in affected building/s would need to be relocated to an alternative venue - Alternative specialist facilities may need to be found - 1-2 weeks taken out of the teaching semester for affected classes while contingency arrangements are made	- Examinations may need to be rescheduled	
The University server is infected with virus	→	• **Internally hosted systems**	→	- Lecturers cannot access their teaching materials from the server or post course materials to CECIL.	-	- Students cannot access electronic course materials or announcements in CECIL -
Pacific Cable is damaged and there		• **Entire virtual environment**		- Staff and students are locked out of all internal and external online systems: LMS, Library databases, email communication systems		

1) That the University support the development of four overarching learning and teaching continuity strategies:

① Increase our adaptive capacity by delivery of courses via blended learning approaches;

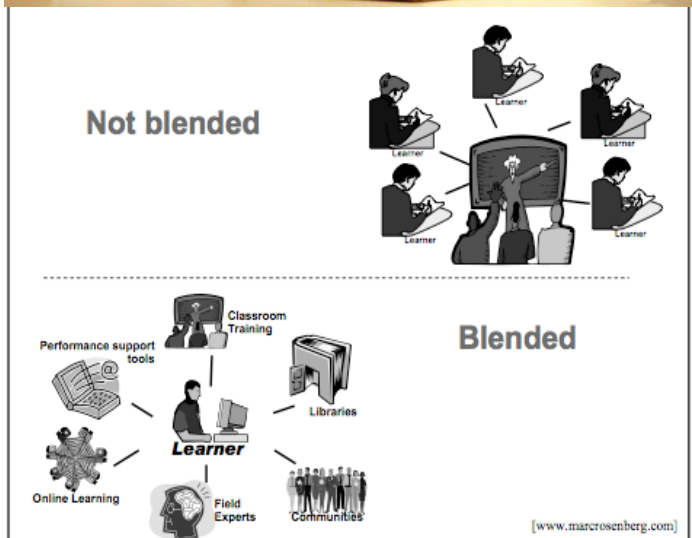
② Enhance our ability to respond by strengthening communication tools for mass announcements;

③ Strengthen our preparedness by provision of physical and virtual hubs for students and staff;

④ Reduce our risk factors by identifying alternative resources, venues and timetables.

2) That the University embed learning and teaching continuity planning and practice at the course level across the institution by:

i. Minimum online presence standard;
ii. Course outline - continuity statement;
iii. Project team to increase the blended learning;
iv. Support CLeaR's initiatives for advancement of blended learning;
v. Champion.



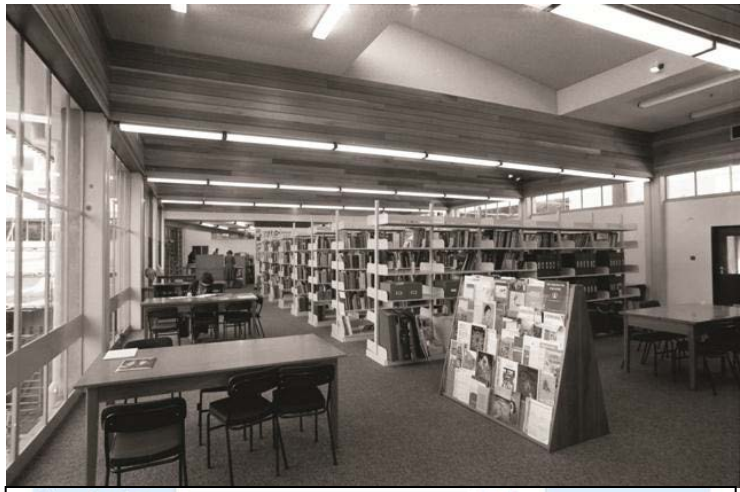
3) Lecture Recordings and 4) Lab Recordings:

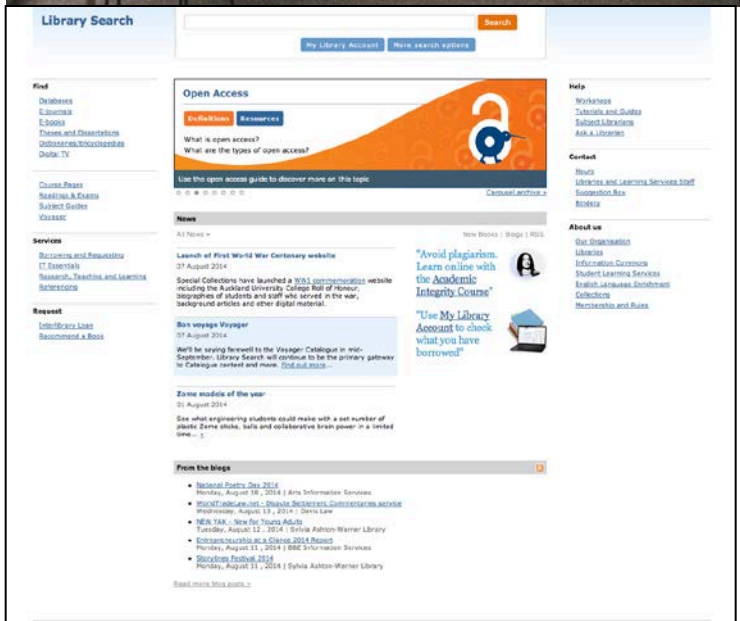
- That the University update its policy on lecture recording storage and associated resource requirements to support an increased volume of lecture recordings to a minimum of two years, for learning and teaching continuity purposes.

- That ITS investigate the feasibility and resource requirements of implementing audio-visual recording of laboratories, and that an approach be developed and piloted in the Faculty of Science.

5) Library:

That the University support the purchasing by the Library of specialist software for the integrated management of course-specific, published information resources, including “persistent” links to Library licensed electronic materials, digitisation and copyright clearance for print material, and discovery and delivery of those materials within a course context. In order to reduce copyright risk, and improve accessibility to these materials, it is also recommended that there be a VC mandate to centralise the management of course-specific, published materials.





6) That the University instigate on-going periodic practice drills to test and strengthen the ability of staff to deliver L&T remotely by:

i. Periodic ‘work from home’ days;
ii. Faculty of Science as an initial pilot;
iii. Embedding practice drills in Faculty Business Continuity Plans.

7) That the University prepare staff and students for potential changes to assessments in an unforeseen crisis by:

i. Disruption readiness statement to course outlines;

ii. Amend the Academic Calendar - that the University Emergency Management Statute has paramountcy in a crisis;

iii. Faculty has an agreed workflow for approving and implementing sudden changes to a course outline in a crisis.

8) That resources be developed centrally to support learning and teaching continuity, including:

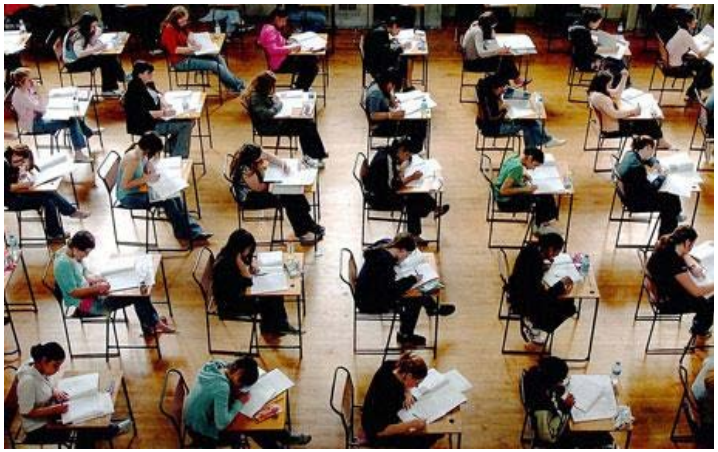
i. Guides for Faculties, teachers and students;
ii. Online continuity checklist for instructors;
iii. Sources of further assistance for staff and students dealing with psychological stress.

9) Broadcasting and 10) Sharing Resources

- That the current system for broadcasting messages in a crisis situation be clarified, tested, documented and made available on the staff intranet as a matter of urgency.

- That the University and Faculties regularly review its relationships with other universities and consider establishing memoranda of understanding for sharing of resources and facilities in a crisis.

11) Alternative timetabling and 12) Online exams:



- That the University regularly reviews the timetabling from the point of view of possible disaster scenarios, and maintains a plan for an alternative back-up exam timetable ready to implement at short notice.

- That the University undertake a detailed analysis of online examination options, as a possible back-up option for the administration of examinations after a disaster event.

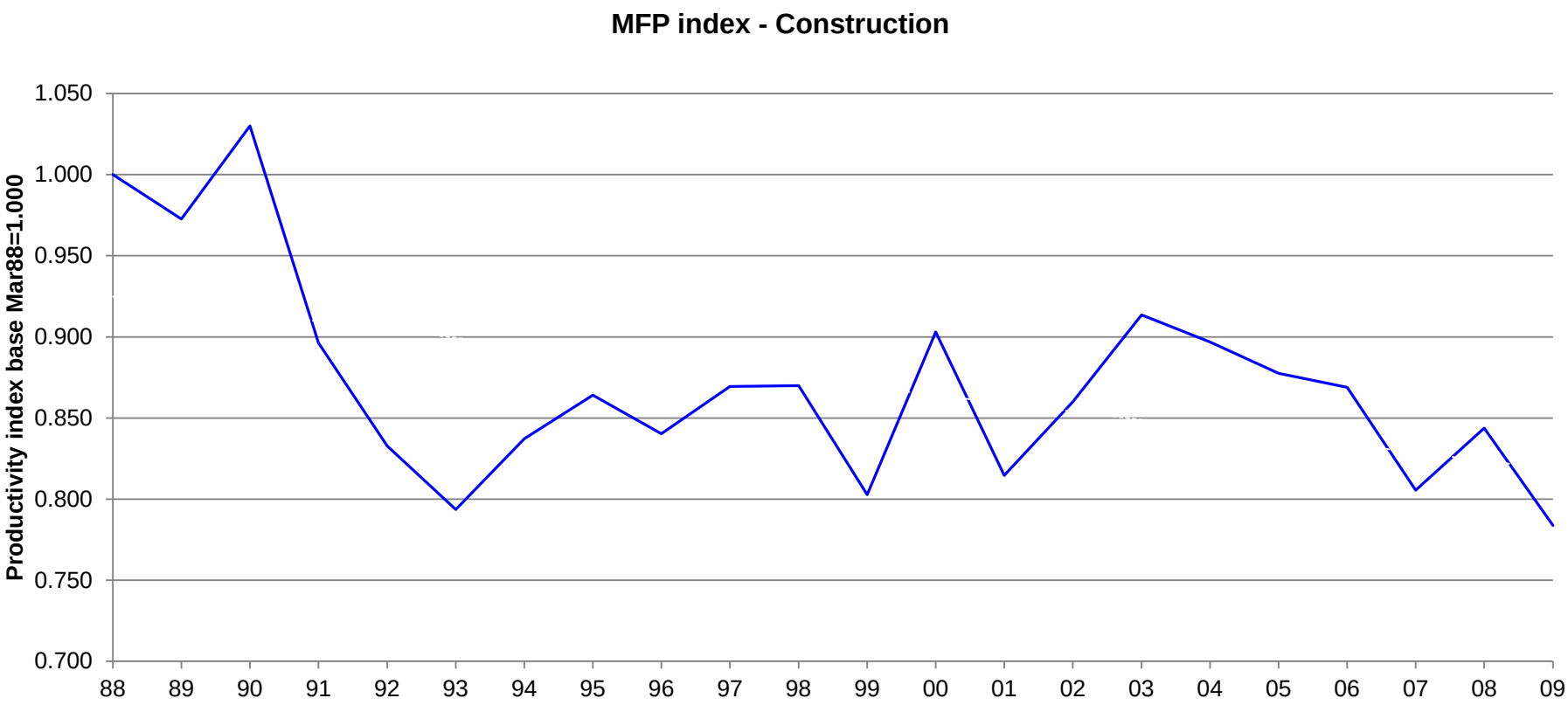
Feedback

Any comments?

New Zealand Construction Industry Productivity

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

Multi-Factor Productivity Performance



Source: Statistics NZ
Reported in Page (2010)

Productivity

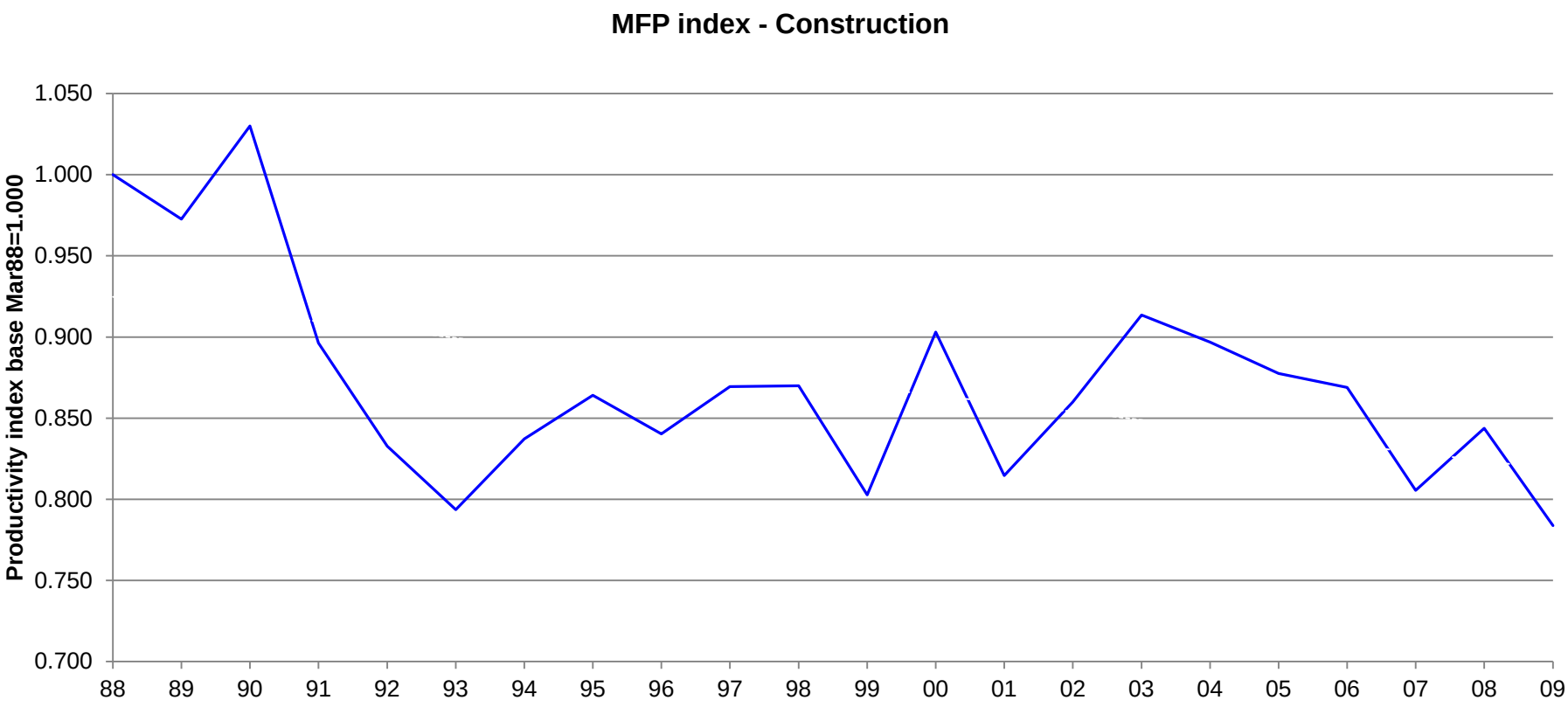
$$\text{Productivity} = \frac{\text{Output}}{\text{Input}}$$

Type of Output Measure	Type of Input Measure			
	Labour	Capital	Capital and Labour	Capital, Labour and Intermediate Inputs (energy, materials, services)
Gross Output	Labour Productivity (based on gross output)	Capital Productivity (based on gross output)	Capital-Labour Multifactor Productivity (based on gross output)	KLEMS Multifactor Productivity
Value Added	Labour Productivity (based on value added)	Capital Productivity (based on value added)	Capital-Labour Multifactor Productivity (based on value added)	-
	Single factor productivity measures		Multifactor productivity measures	

Source: OECD (2001)

Productivity

Multi-Factor Productivity Performance



Source: Statistics NZ
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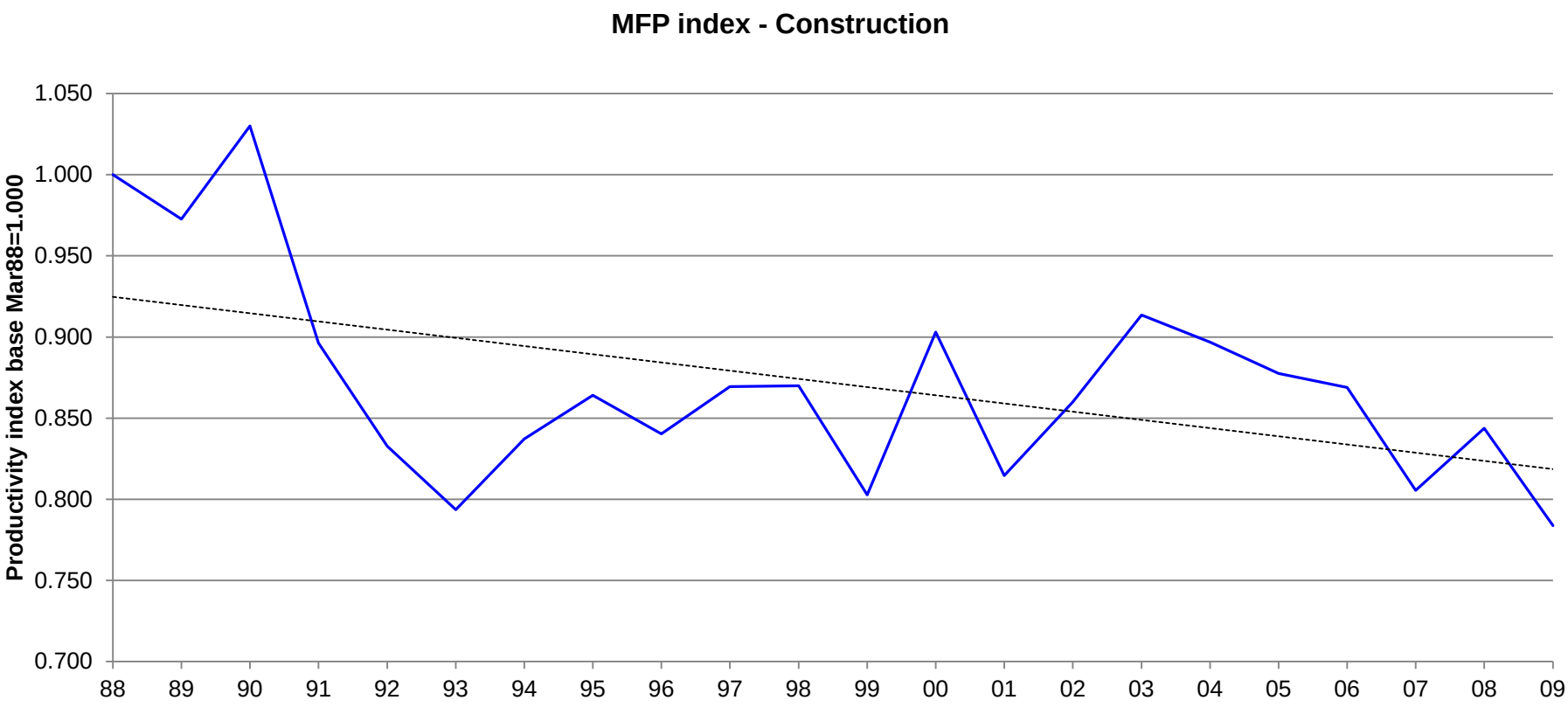
Multi-Factor Productivity Performance



Source: Statistics NZ
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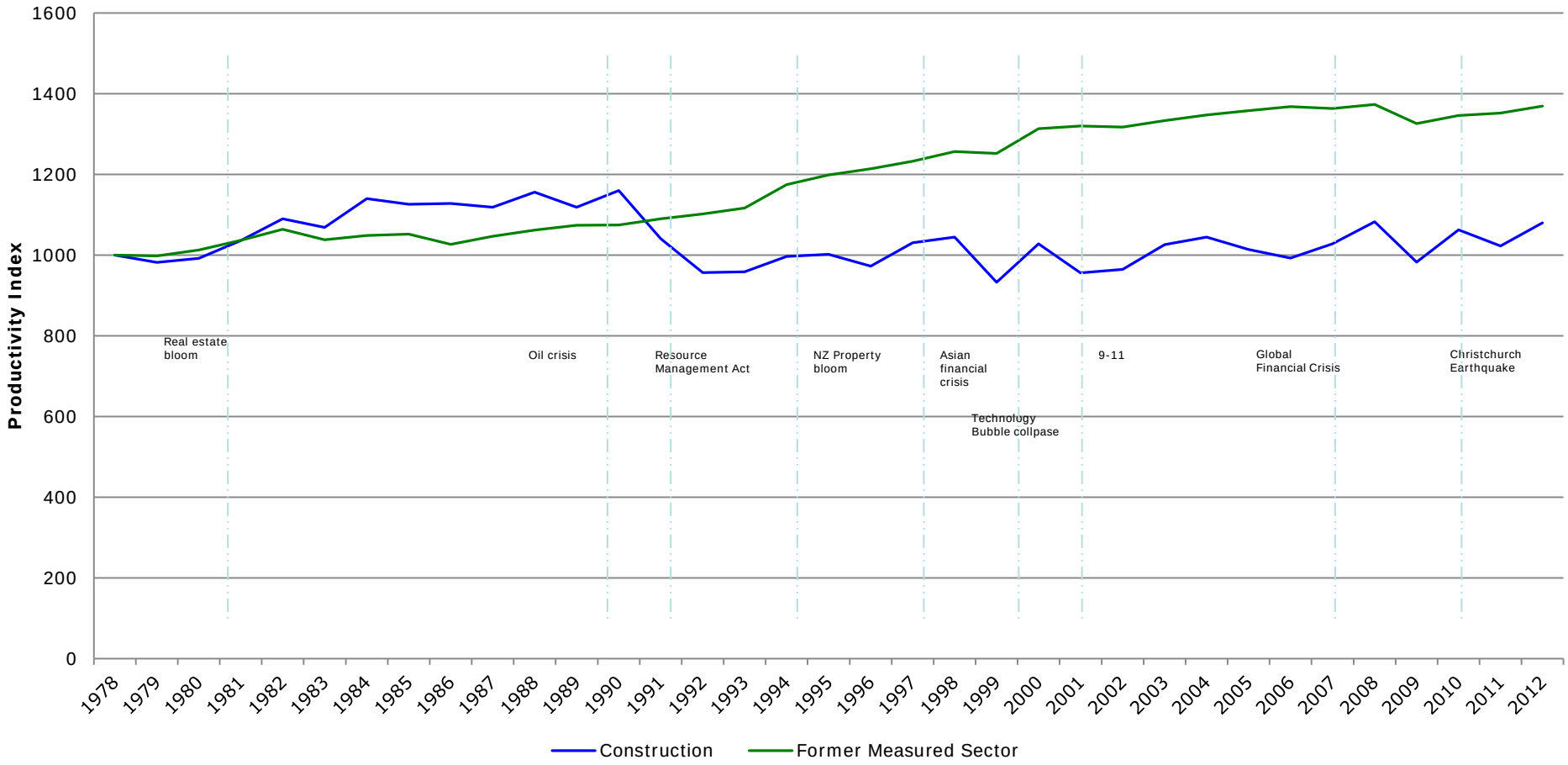
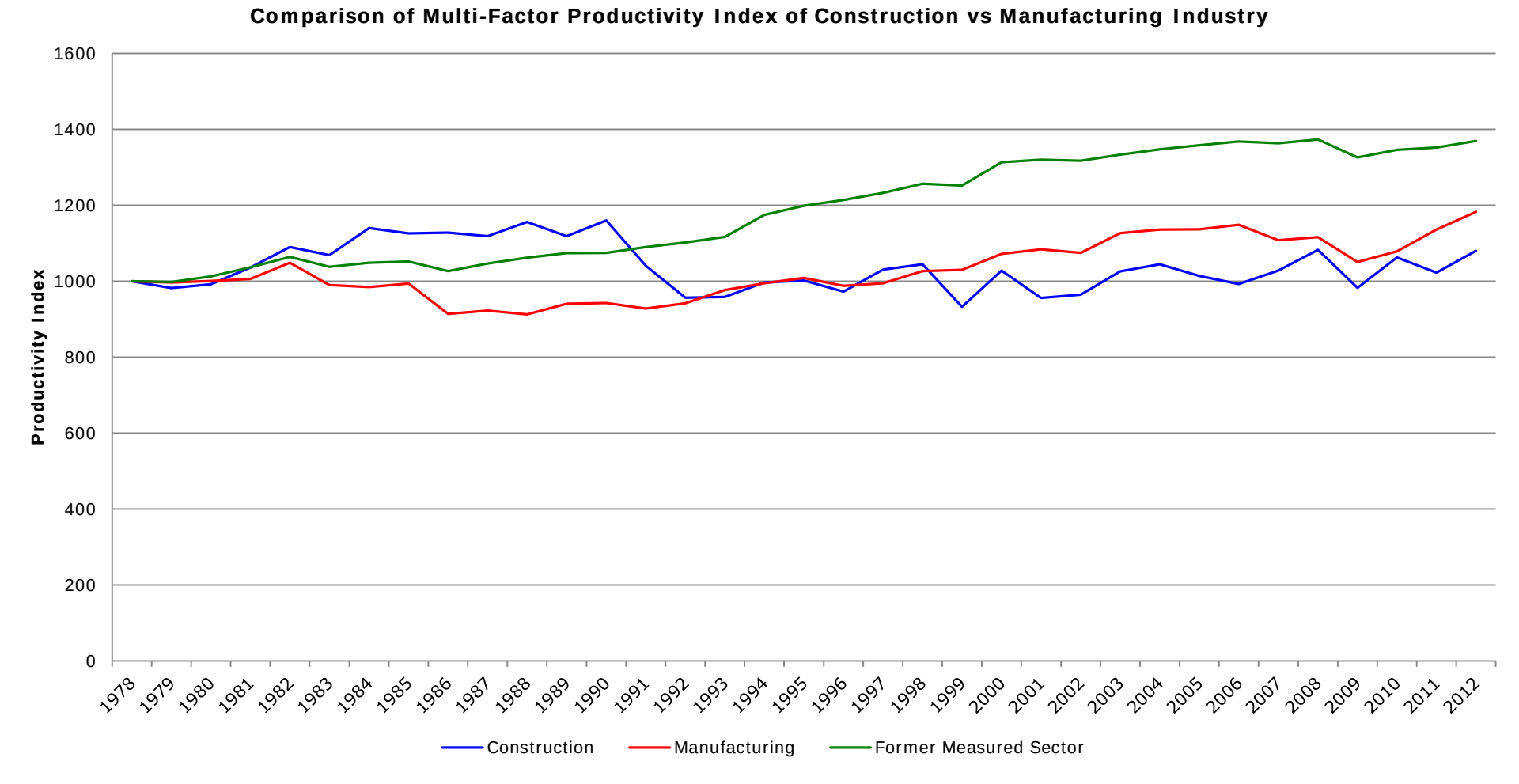
Comparison of Multi-Factor Productivity Index of Construction vs Manufacturing Industry




Comparison of Multi-Factor Productivity Index of Construction vs Manufacturing Industry
Productivity Index
1600
1400
1200
1000
800
600
400
200
0
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
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2008
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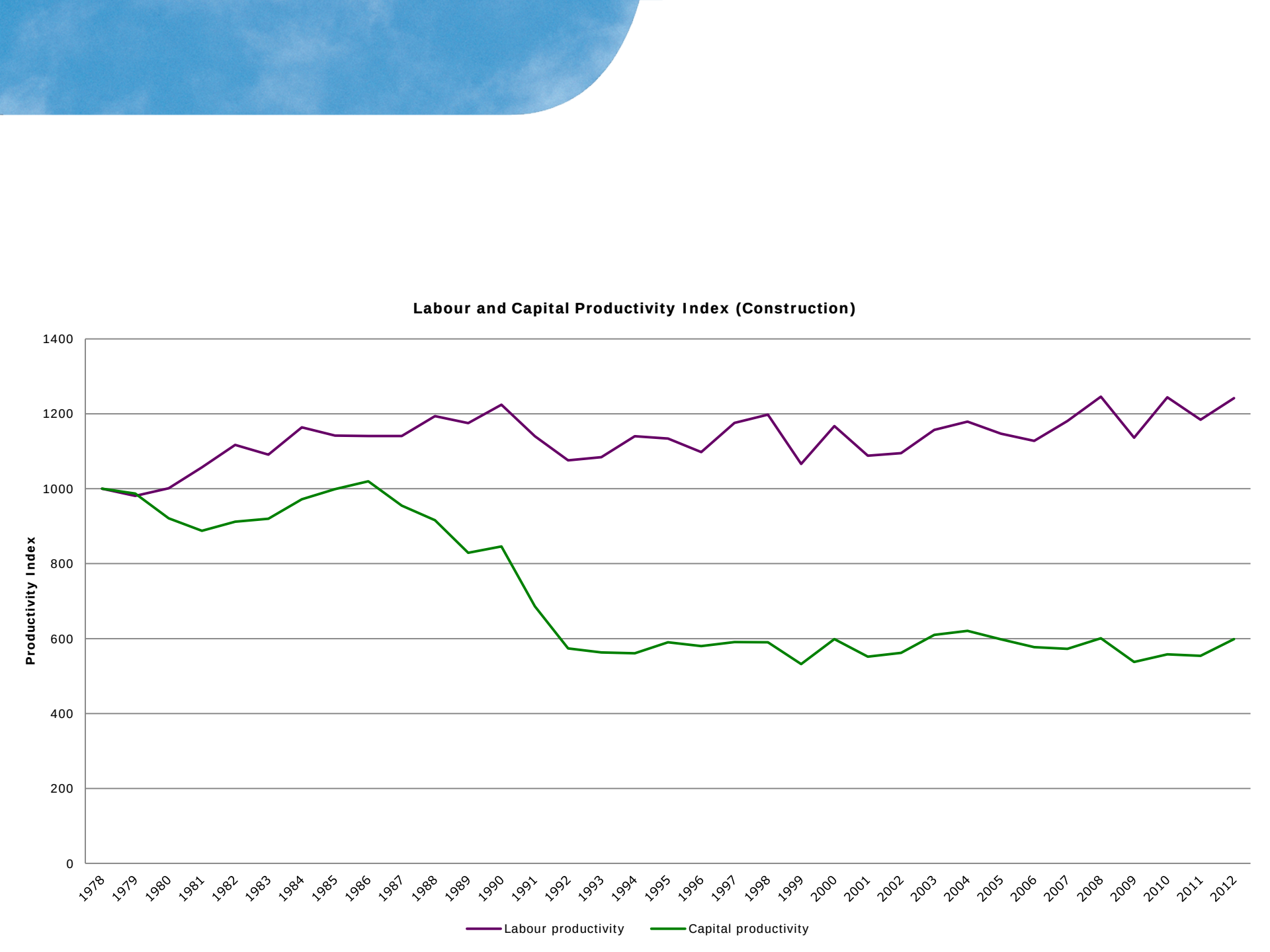
2010
2011
2012
Construction
Manufacturing
Former Measured Sector


Labour and Capital Productivity Index (Construction)
Productivity Index
1400
1200
1000
800
600
400
200
0
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
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1994
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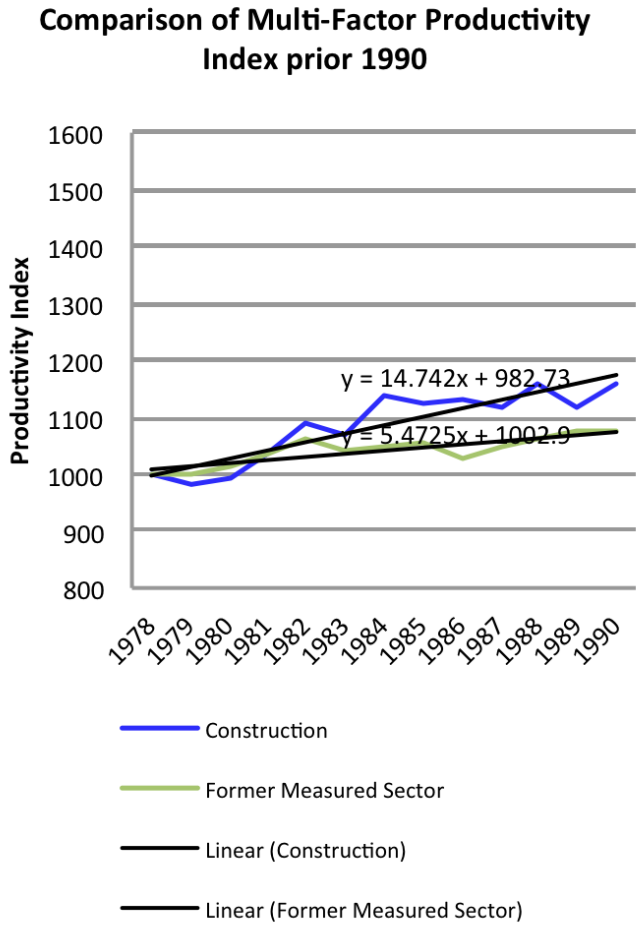
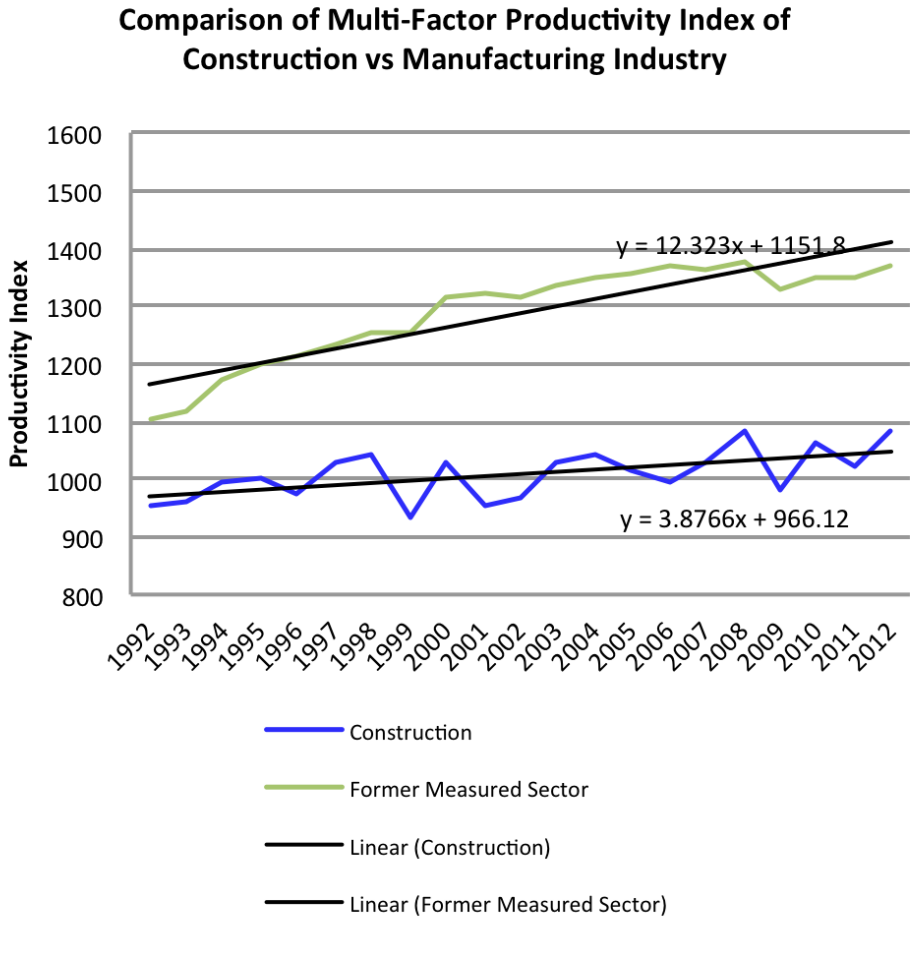
2012
Labour productivity
Capital productivity

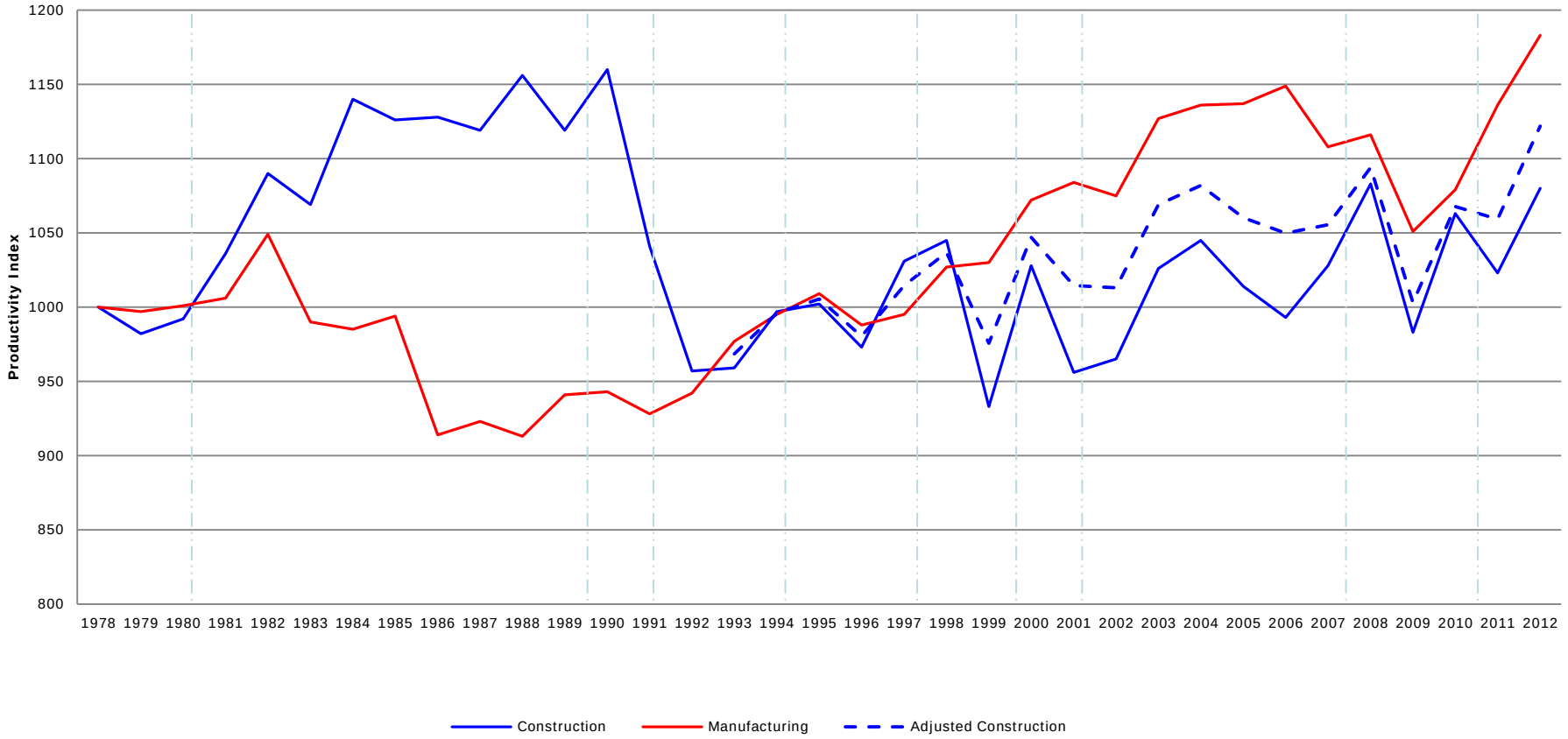

Comparison of Multi-Factor Productivity Index prior 1990
Productivity Index
1600
1500
1400
1300
1200
1100
1000
900
800
y = 14.742x + 982.73
y = 5.4725x + 1002.9
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
Construction
Former Measured Sector
Linear (Construction)
Linear (Former Measured Sector)


Comparison of Multi-Factor Productivity Index of Construction vs Manufacturing Industry
Productivity Index
1600
1500
1400
1300
1200
1100
1000
900
800
y = 12.323x + 1151.8
y = 3.8766x + 966.12
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Construction
Former Measured Sector
Linear (Construction)
Linear (Former Measured Sector)

Classification of Construction and Off Site Production

- Structural steelwork fabrication
- Steel pipe and tube manufacturing
- Precast concrete production
- Ready mix concrete manufacturing
- Ceramic product manufacturing
- Prefabricated wood production
- Engineering design and consulting services

Comparison of Multi-Factor Productivity Index of Construction vs Manufacturing Industry, with Adjusted Construction for Off-site Manufacturing



Conclusions

- Productivity of the construction sector is better than previously indicated
- Productivity stats in in 80s and early 90s are questionable
- Productivity of end-to-end value chain including off-site manufacturing (and others) should be researched and reported

Auckland and New Zealand

The largest city in New Zealand, Auckland is famous for its beautiful location, relaxed and easy going lifestyle, and great facilities. It is also vibrant, exciting, and multicultural - with sizeable communities of people from many different countries, and is frequently listed as one of the most liveable cities in the world.

Sitting astride an isthmus, it has harbours which open to both the Tasman Sea and the Pacific Ocean, many beaches in and around the city, and easy access to the islands and stunning landscapes of the surrounding area. It is celebrated for water sports (its nickname is the "City of Sails") and outdoor activities in general.

New Zealand's relatively small size means that it is easy to get out and explore the huge variety of geographies and scenery that make it one of the most interesting countries to visit. Adventure activities of all types (e.g. hiking, skiing, fishing, boating) are a speciality and are very accessible.

The University of Auckland

The University of Auckland is New Zealand's leading and largest university. It is ranked in the top 100 of the QS World University Rankings and is the highest ranked New Zealand University in the Times Higher Education and Shanghai Jiao Tong Academic Ranking of World Universities. The University of Auckland is also an international centre of learning and academic excellence placed in the top 1% of the world's best universities. It is New Zealand's pre-eminent research-led institution and has key linkages with many of the world's top research intensive universities.

The University of Auckland has the most comprehensive range of courses in the country. The University's mission is to be a research-led, international university, recognised for excellence in teaching, learning, research, creative work and administration.

Flexible Learning Options
1 year full time
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3 core papers plus 5 electives from choice of 10
Fees circa $9k (domestic students)

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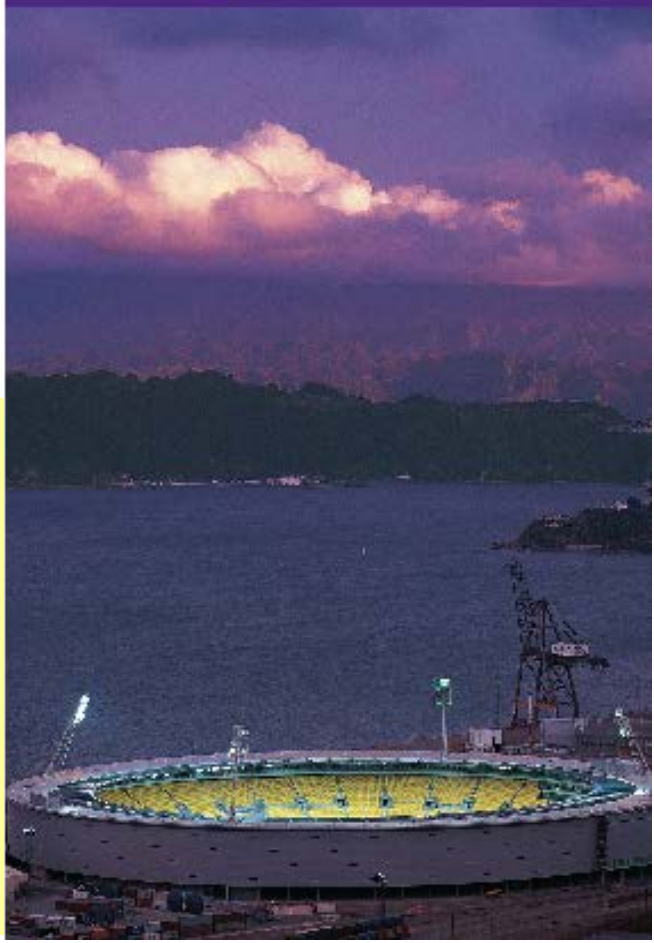
FACULTY OF ENGINEERING

Master of Engineering Studies

Construction Management



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FACULTY OF ENGINEERING

Master of Disaster Management

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