

NACWA

A Clear Commitment to America's Waters

2014 Summer Conference & 44th Annual Meeting

Portland, Oregon, July 13-16, 2014



**Singapore
International
Water Week**



Courtesy of Marina Bay Sands

Global to Local: Perspectives from Singapore International Water Week

Raj Bhattarai, P.E. BCEE
Austin Water Utility

Diane Taniguchi-Dennis, P.E.
Clean Water Services



July 16, 2014



Acknowledgements



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- Jim McQuarrie, Metro Denver
- Logan Olds, Victor Valley
- Lou Storino, Metro Chicago



Water for All: Conserve, Value, Enjoy

PUB, Singapore's National Water Agency

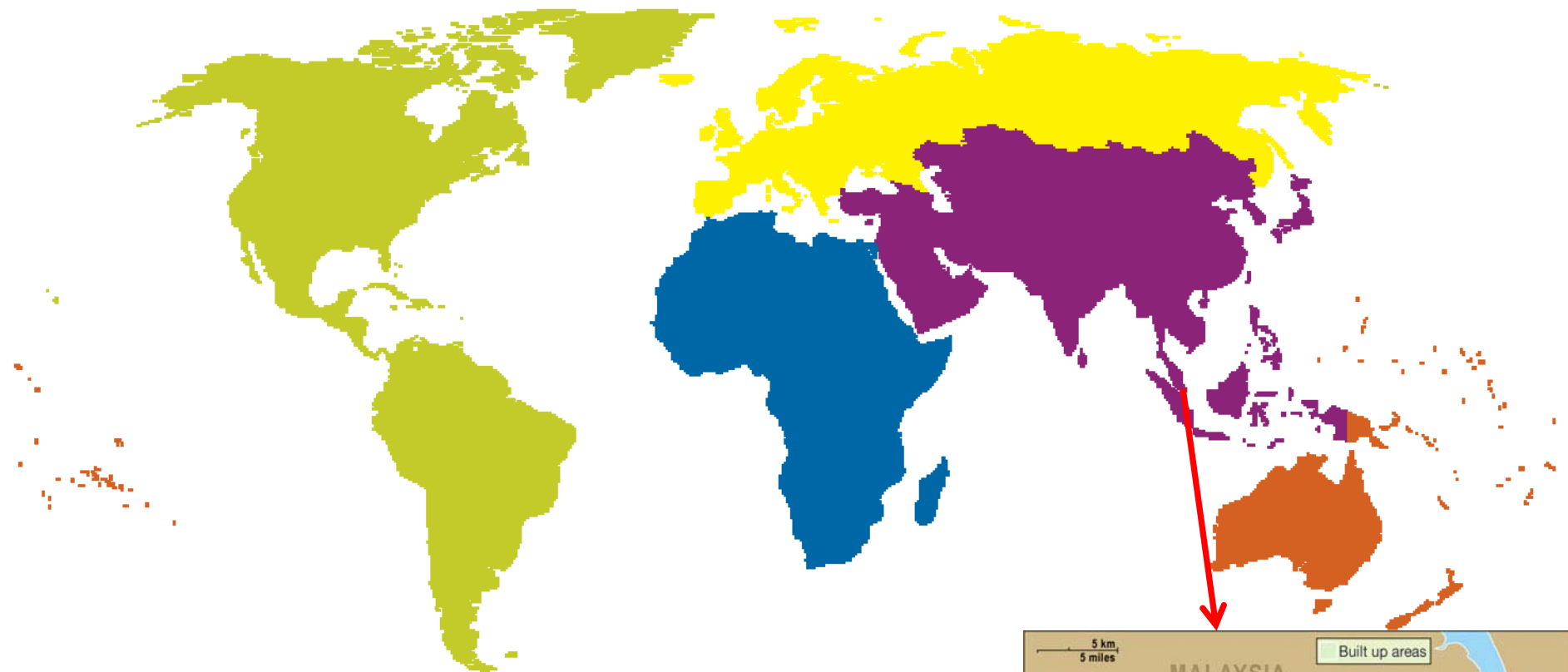
- George Madhavan
- Hana Schoon

Marina Bay Sands Convention Center and Hotel



Swimming Pool on the Roof of the Marina Bay Sands Hotel





Singapore

Area: 716.1 Km² (276 sq mi)

Population: 5.4 million

Avg Annual Rainfall: 2400 mm (94.5 in)

Avg Water Demand: 1.8 mil m³/day (475.5 MGD)



Adapted from PUB

Water Sustainability for Singapore

		Now	2030	2060
Demand	Domestic	45%	40%	30%
	Non-Domestic	55%	60%	70%
Supply	Stormwater	45%	30%	20%
	Imported Water			
	NEWater	30%	50%	Up to 55%
	Desalinated Water	25%	20%	Up to 25%

Adapted from PUB

Singapore Water Rates (2013)

Average Water Bill < \$35/month

Government subsidy for low
income families \$20 - 22/month




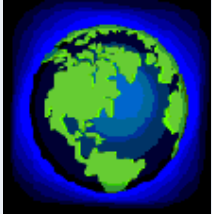


Water Tariff
Water Conservation Tax
Waterborne Fee
Sanitary Appliance Fee

Domestic use

up to 40 m³/month
(10,570 gal/month)
\$1.17/m³
(\$4.43/1,000 gal)

Adapted from PUB

SIWW Growth

	Inaugural 2008	2009	2010	2011	2012	2014
Attendees 	8,500	10,853	14,515	13,500	19,231	20,000 +
Countries And Regions Represented 	79	82	112	99	104	118
Participating Companies 	382	418	514	604	750	800
Value of Business Announcements (Singapore \$) 	367 mil	2.2 bil	2.8 bil	2.9 bil	13.6 bil	14.5 bil

Adapted from SIWW and PUB

SIWW held in conjunction with



SIWW includes:

- Water Leaders Summit
- Water Convention
- Water Expo
- TechXchange
- Hydro-gen
- Business Forum
- Industrial Water Solutions Forum
- Lee Kuan Yew Water Prize – Orange County Water District



**Singapore
International
Water Week**

Water Leaders Summit – Day 1

- In-Conversation
- Opening Plenary: *Shaping our Cities, Water and Environment for a Livable and Sustainable Future*



Water Leaders Summit – Day 2

- Water Leaders at the Breakfast
- Water Leaders Roundtable
- Water Leaders Dialogue A - *Breaking Boundaries: Developing a Better Water Utility*
- Water Leaders Dialogue B - *Future-Proofing our Cities*



Water Convention

- 40 technical sessions
- 170+ oral presentations
- 200+ posters
- 6 “Hot Issues” workshops
- And many more ...

on 5 themes:

1. Delivering Water from Source to Tap
2. Effective and Efficient Wastewater Management
3. Water for Livability and Resilience
4. Water Quality and Health
5. Water for Industries



Site Visit: Closing the Water Loop – A Sustainable Solution (NEWater)



NEWater Visitor Centre



NEWater Visitor Centre



Dinner Hosted by PUB



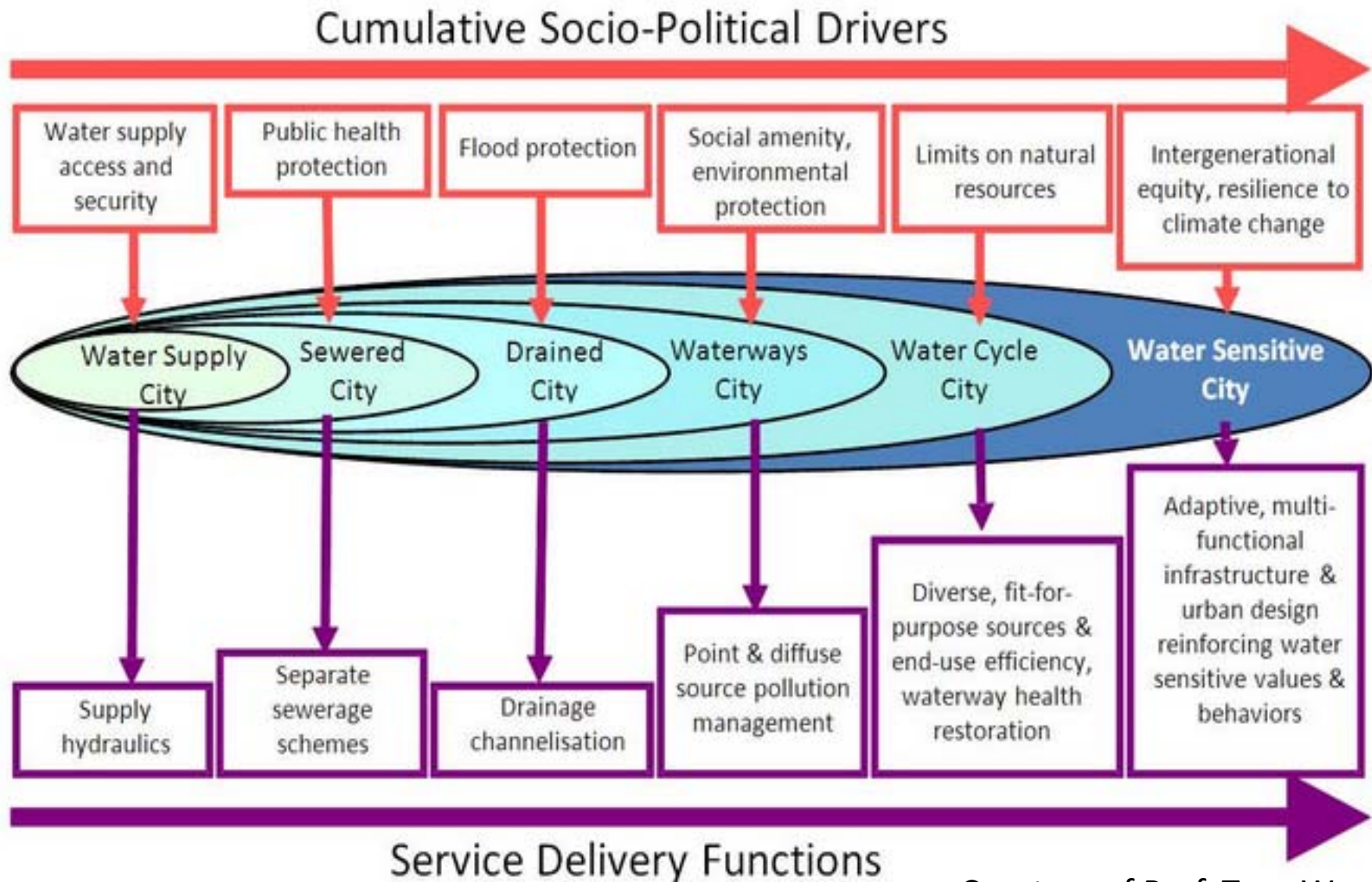
AMSA in Singapore!



Closing Dinner at SEA Aquarium



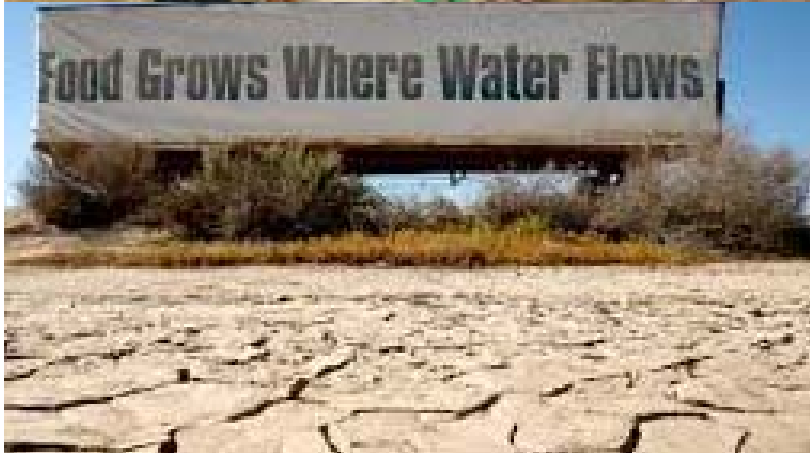
Prof. Tony Wong, Monash University



Courtesy of Prof. Tony Wong



Source: Reuters, Planet Earth, NASA





Mural on the Interfaith Center Building at Case Western Reserve University

Perspectives from the Windshield





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Water Leaders Summit

Water For All: Solutions For A Better Future



Echoes of our Past



Drives Where We are Today

And our Vision for the Future



Photo Credit: Marina Bay Sands Hotel Website

How We Choose to Live



Inspires Us

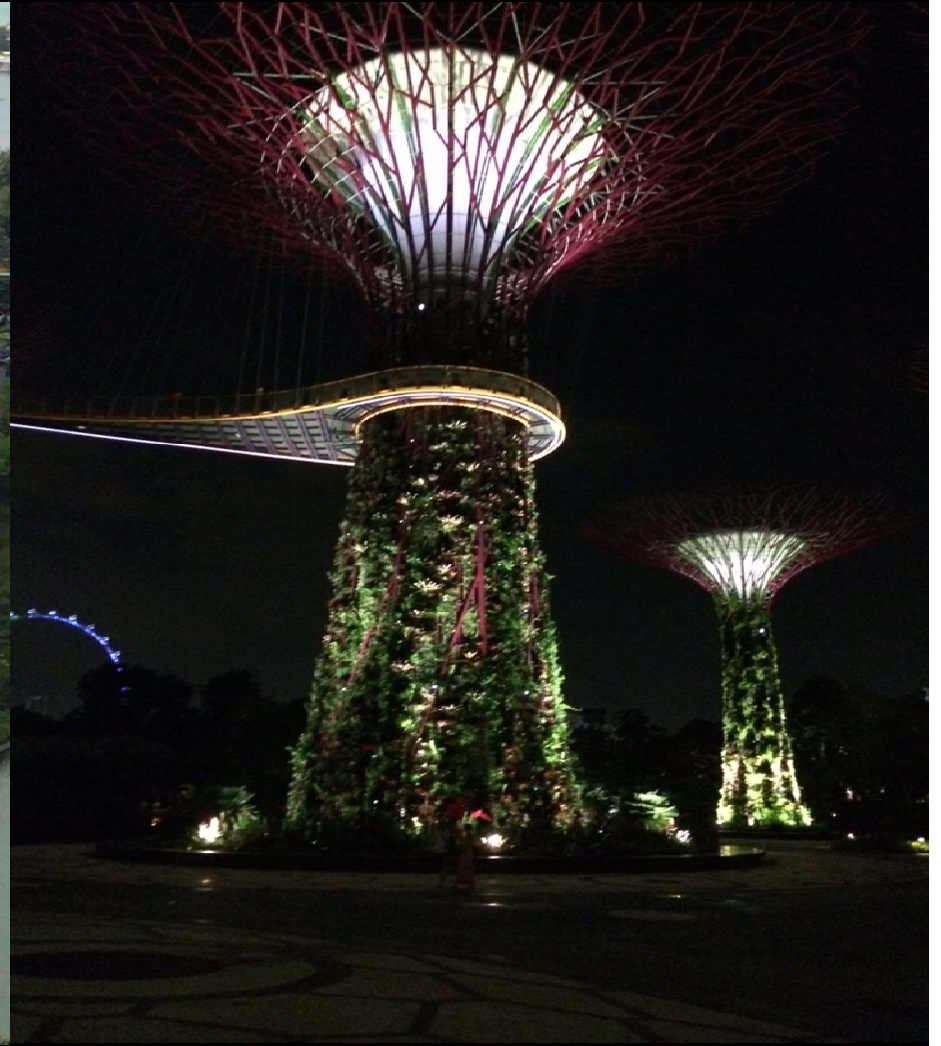


Clear Point Residences in Colombo, Sri Lanka



Bosco Verticale in Milan, Italy

Opens Possibilities for Tomorrow





Connect People to their Water





Rock Creek & Fernhill Tour

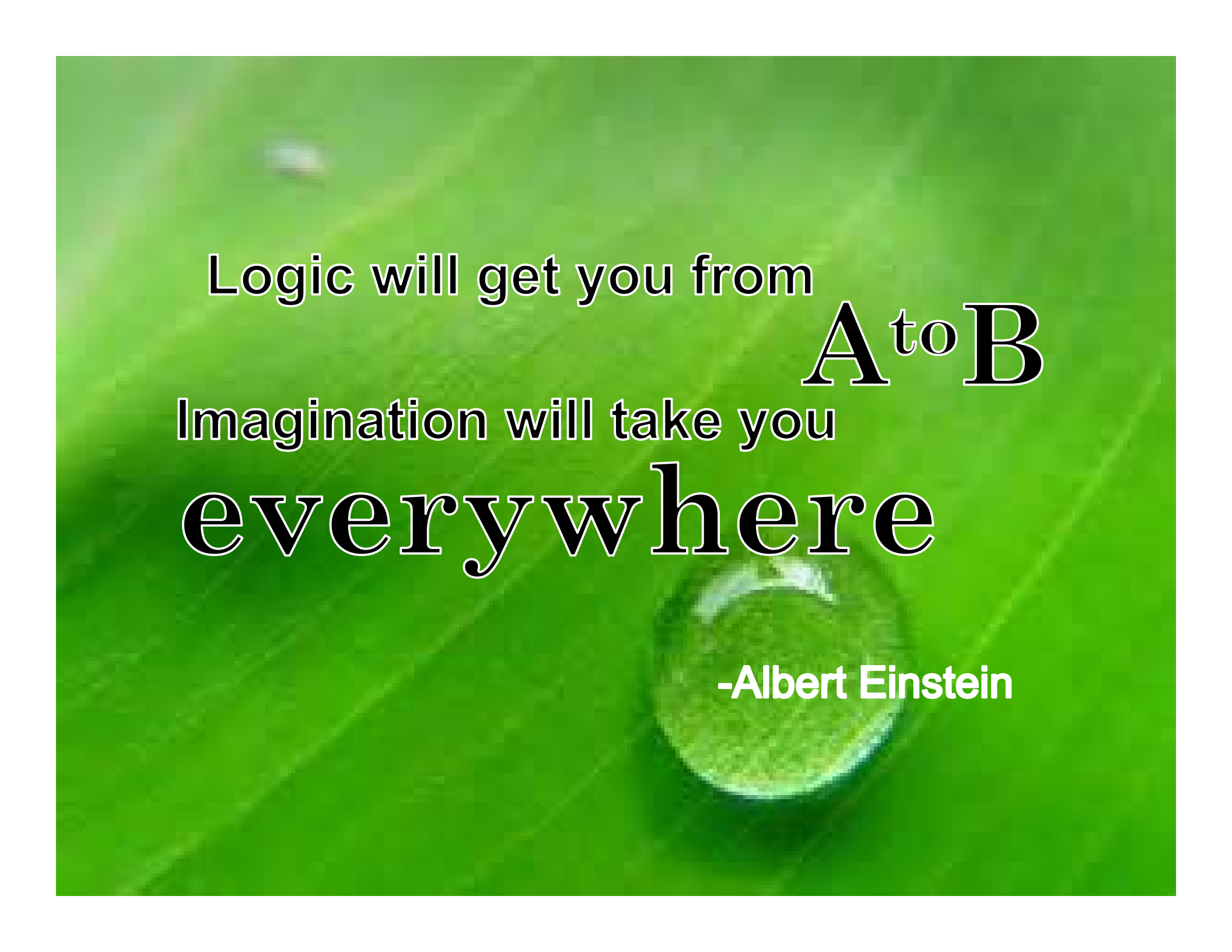


You are Cordially Invited



Watershed Tour





Logic will get you from
 $A^{to}B$
Imagination will take you
everywhere

-Albert Einstein



Questions?

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Stewardship
Sustainable

HARMONY

Future