

Improving the management of climate change impacts to support resilient regional landscapes



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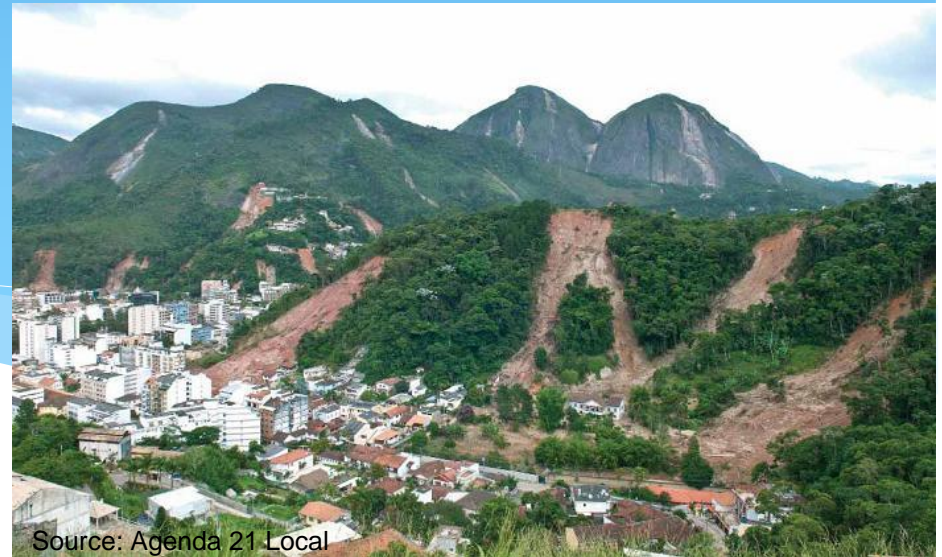
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Content

1. Climate change impacts on ecosystem services
2. Case study areas
3. Way ahead



Source: Alluvium 2012



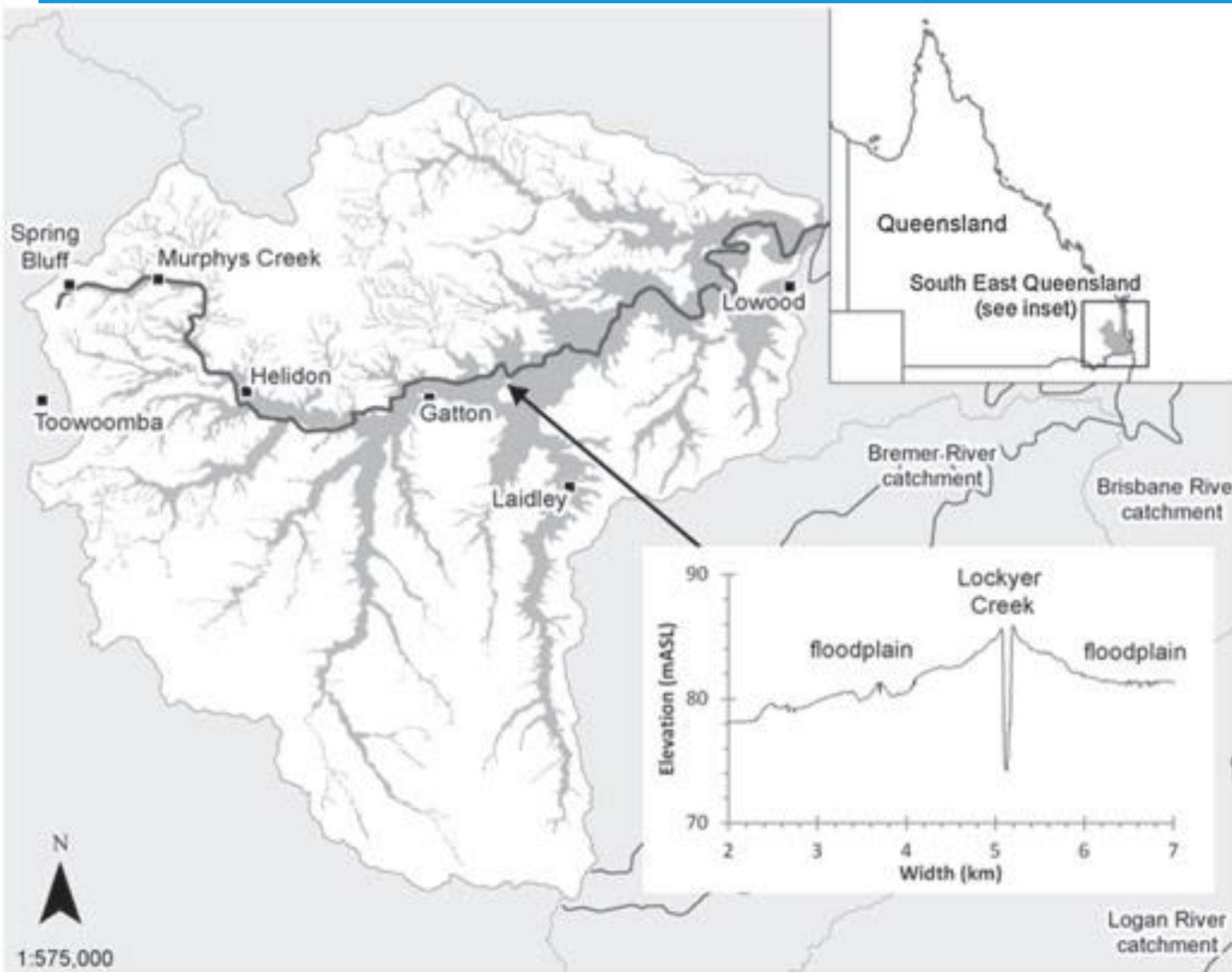
Source: Agenda 21 Local

Climate change impacts on ES

- Impact on regulating services: water regulation linked to flood events
 - More frequent and intense events to influence supply and demand for services
 - Uncertainty how climate change will impact flood regulation



Case study 1: Lockyer Valley, QLD, Australia



Area: 3,000km²

**Wide valley floor:
2-13km**

**Grazing and
intensive
agriculture
(horticultural)**

**Most waterways
cleared of
vegetation since
1940**

**Erosive power
30x higher than
pre-European
settlement**

Case study 1: Lockyer Valley, QLD, Australia

- **January 2011 Floods**
 - **Second highest on record for past 100 years - upper catchment received 150mm in 2 hours**
 - **Damages to road crossings, farmland and riparian vegetation**
 - **Post-floods reconstruction works further modified channels and riparian zones**
 - **potential for grater erosive forces**



Case study 1: Lockyer Valley, QLD, Australia



Map: Back Flagstone Road, Helidon
Imagery 50cm 2009

1:3,000 printed A3
GDA 1994 Zone 56
Data Sources: DERM, DEEDI, SEQHWP, DIP



Map: Back Flagstone Road, Helidon
Imagery 15cm 2011

1:3,000 printed A3
GDA 1994 Zone 56
Data Sources: DERM, DEEDI, SEQHWP, DIP



Case study 2: Região Serrana, RJ, Brazil

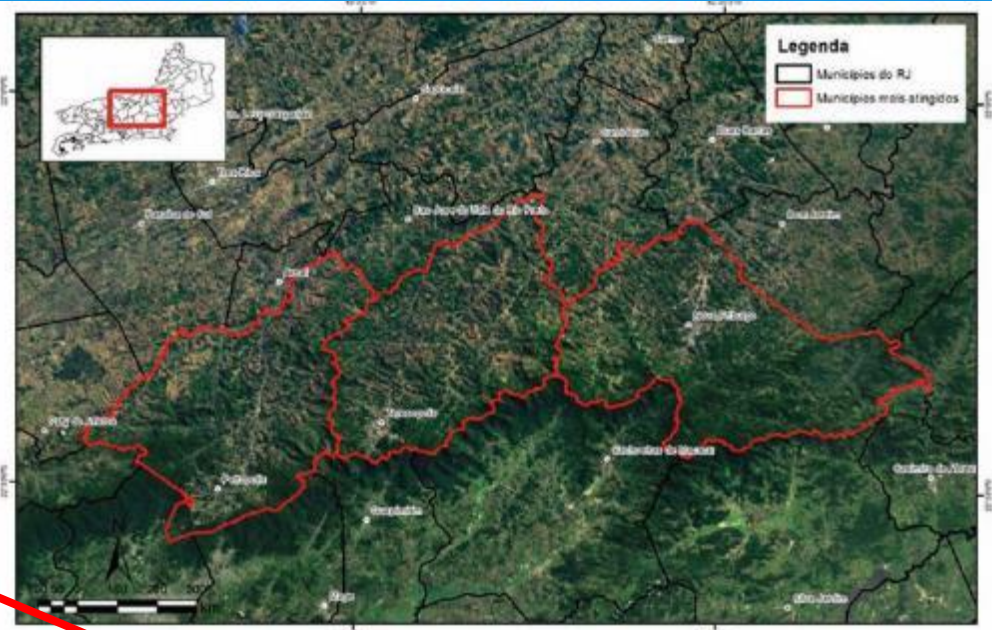


Figura 1 Mapa de localização da Região Serrana do Rio de Janeiro.



Case study 2: Região Serrana, RJ, Brazil

- January 2011 Floods

Risk factors

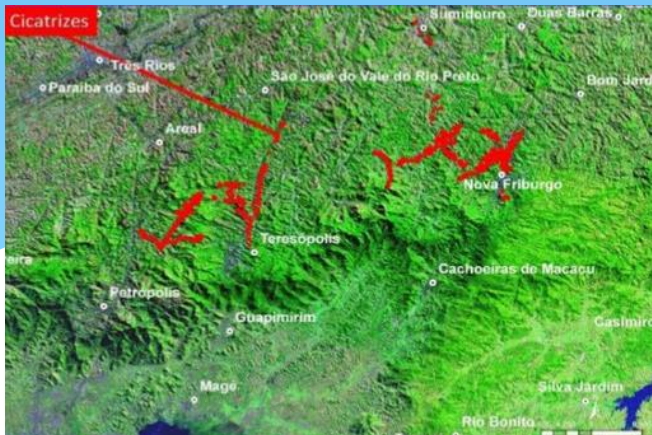
Geology
+
Geomorphology
+
surface hydrology/hydrogeology
+
climate.

Effective factors

Land use & land cover
+
Background rainfall
+
Erosion

Effective factors

Heavy and concentrated rains





Way ahead



Integrated and cooperative approach to environmental planning at both regional and sub-regional level to capture issues related to the landscape scale

- 1. State and local governments coordination forums to be interlinked to improve cross-government coordination**
- 2. Next generation of local and regional plans should be jointly prepared to share resources and promote greater cross learning and relevance**
- 3. Improve integration of scientific information in environmental planning processes**
- 4. Effective dissemination and implementation of the concept of duty of care by governments from all levels and landowners (including statutory and voluntary options)**
- 5. Plans and strategies should anticipate and adapt to change over time possibly by adopting an adaptive management approach**
- 6. Adaptive management approach requires on-going long term monitoring of how landscapes are responding to natural and anthropogenic-induced changes (e.g. state of the environment reporting system)**
- 7. Increased public engagement in both plan-making and plan-implementation processes**
- 8. Mapping of priority areas (e.g. riparian vegetation, stormwater, slopes whole catchment landscapes) that require immediate remediation**



Thank you!!!

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