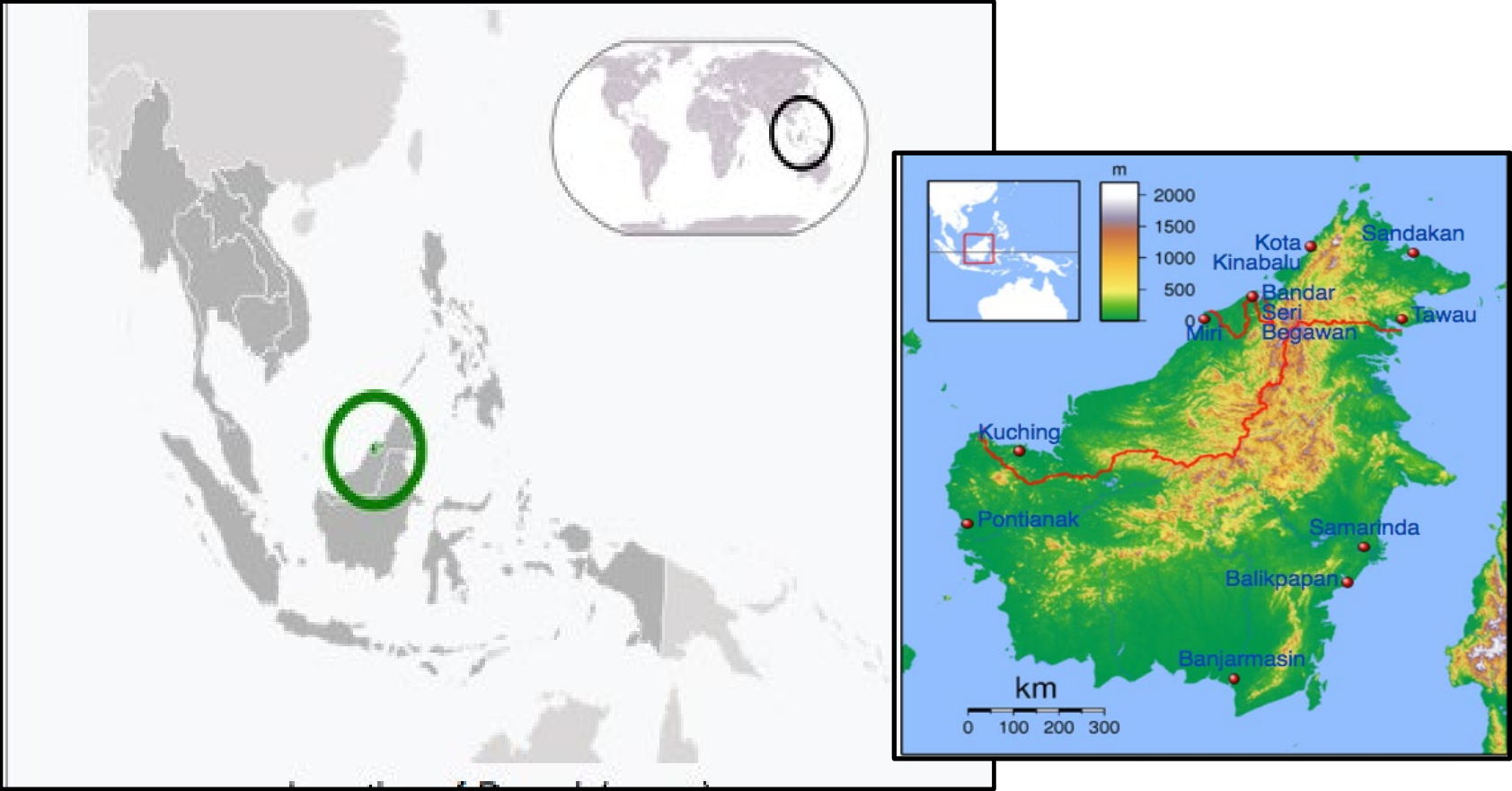


Brunei case study

Module 6a

Location of Brunei



Brunei background



- Brunei has vast reserves of petroleum and gas, which has fueled the nation's economy for the past 85 years and more.
- Exploration started in 1899 with operations commencing in 1913 .
- Production was interrupted due to WW2 – but production recovered to 15,000 barrels/day after the war.
- Today's average is 120,000 barrels/day.

Brunei background (continued)



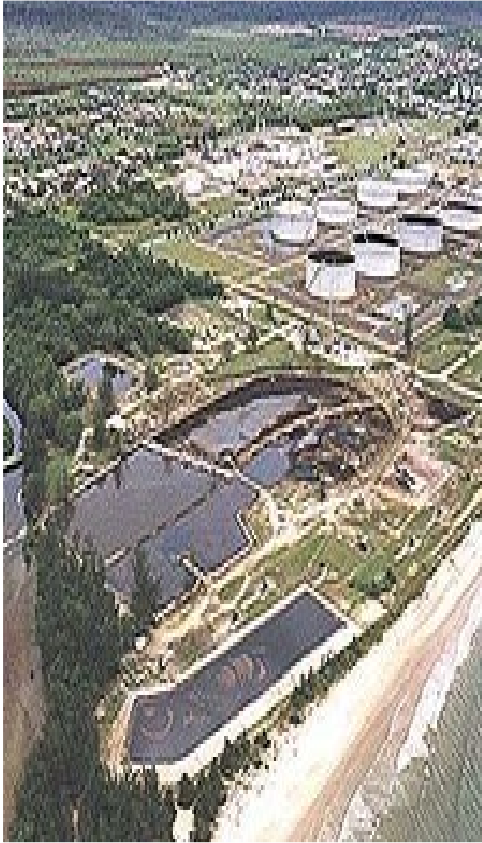
- Population of 420,000;
- Brunei has the second-highest Human Development Index in Southeast Asia behind Singapore;
- Is ranked 5th in the world by IMF according to the gross domestic product per capita;
- IMF estimated in 2011 Brunei was one of two with a public debt at 0% of the national GDP.

Brunei Shell Petroleum (BSP)



- BSP was officially accredited with the Environmental Management System ISO 14001 certification in November 2005.
- ISO 14001 is a standard that reflects how well a company manages their environmental risks and impacts.
- Issuance of the certificate means that BSP must strive to performed its business within the stringent environmental requirements.
- A key demonstrator of BSP's commitment to the Environment and Sustainable Development is the Sungai Bera Holding Basin Remediation Project.

Sungai Bera Holding Basin



- The SBHB covered 6 hectares and was used to “store” OBMs, cuttings, tank bottom sludges – within three unlined basins.
- Estimated to be some 100,000 m³ of oily sludge within basins.
- Plus 50,000 m³ of contaminated soil (underlying & surrounding the basins).
- The major treatment systems were mobilised from Australia – so technology can be imported.

Sungai Bera Holding Basin



- Project commenced in Q3 2000 and took almost 3 years to complete.
- First phase to recover and treat the floating product.
- Well-point dewatering was required to facilitate sludge & soil excavation due to the shallow water-table.
- Waste-water from dewatering runoff from the sludge/soil storage areas was collected and treated through the Wastewater Treatment Plant.

Sungai Bera Holding Basin



- Oily sludges and contaminated soils were treated through Low Temperature Thermal Desorption (LTTD) Plant.
- Oily sludge and contaminated soil blended to create a consistent feed, with a hydrocarbon content of approximately 15% and moisture content of less than 25%.

Sungai Bera Holding Basin



- Some 160,000 cubic meters of contaminated material treated;
- 70,000 barrels of recovered oil treated and delivered back to BSP;
- Some 5,000 drums, containing hazardous material were cleaned, crushed and disposed of.
- Project cost USD 20 million.



Thank you



UNEP-Norway Partnership

United Nations Avenue, Gigiri
PO Box 30552 – 00100 GPO Nairobi, Kenya

www.unep.org