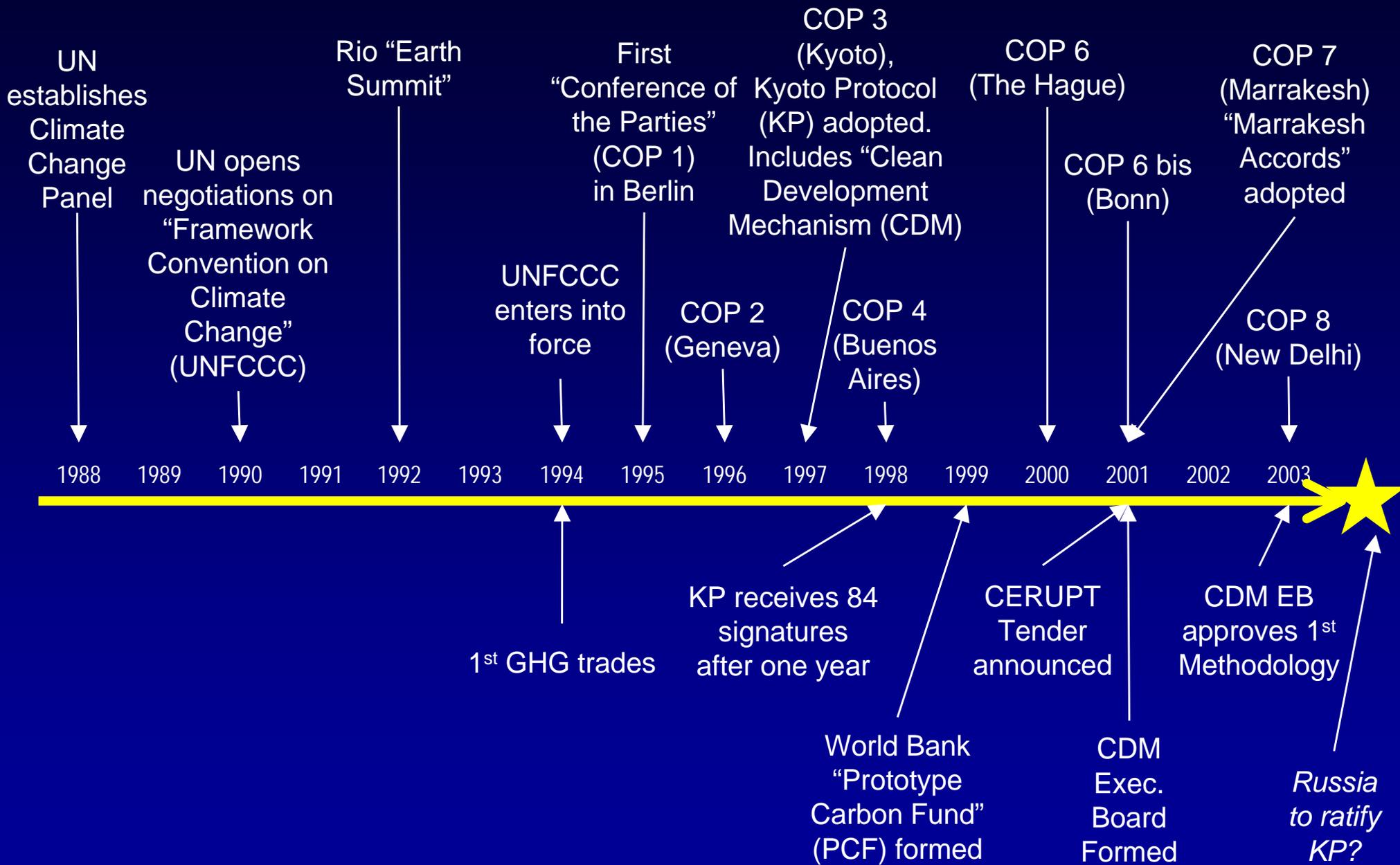


# Early Emissions Trading Activities at Unocal

Anthony DiNicola

28 October 2003

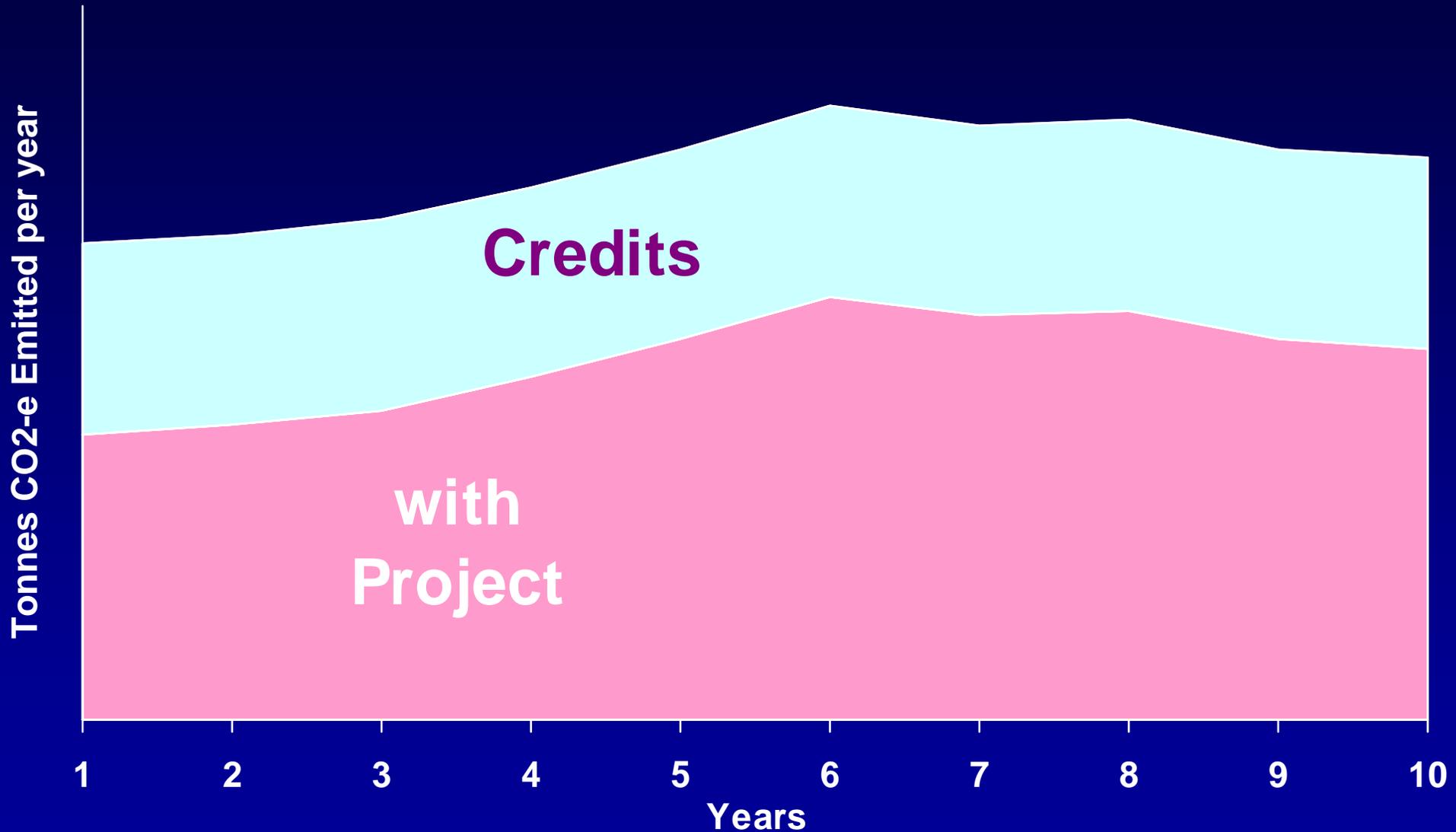
# International efforts to mitigate greenhouse gas (GHG) emissions began in 1988



# **Operational efficiency can create an additional source of revenue -- carbon credits**

- Developing countries can sell carbon credits to developed countries (CDM)
  - Voluntary programs exist globally
- Carbon Credits are a new global commodity
- Requires “investment” to acquire and has ongoing expenses to properly manage/develop
- Results in future revenue that provides economic justification for some low-ROI projects (and GHG mitigation), like efficiency activities

# Credits are determined by comparing GHG emissions with and without the project



# Selling greenhouse gas (GHG) credits enhances our existing business.

- Saleable GHG credit provides incentive for increased efficiency -- but must be “additional”
- Promotes increased use of Unocal resources
  - Gas, geothermal competitiveness
- GHG mitigation is increasingly important to investors, the financial community and other stakeholders
  - Host country Governments
- CDM business case is compelling
- Enables access to financing (risk reduction)

# Our approach...

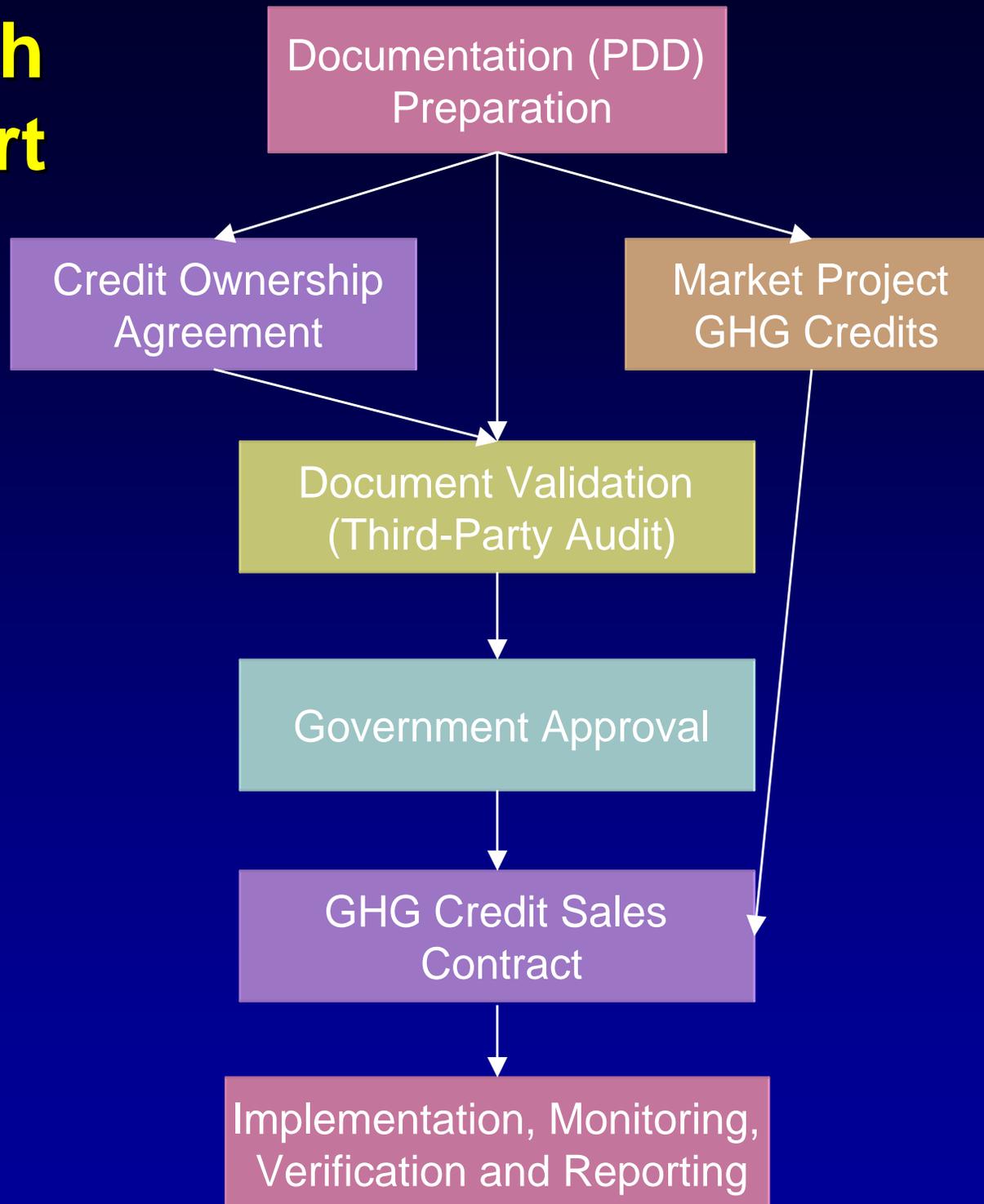
- CDM Projects spurring institutional action and corporate policy development
  - Start with development of realistic projects with clearly-identifiable benefits (financial and environmental)
  - Work with governments on a “Learning by doing” basis. Do not wait for central government policy framework.

## Our approach...

- Secure early success (sales) to demonstrate value and enable process development
- Replicate success in other Unocal business units

*To date, Unocal has active programs in Indonesia, Thailand and the Philippines*

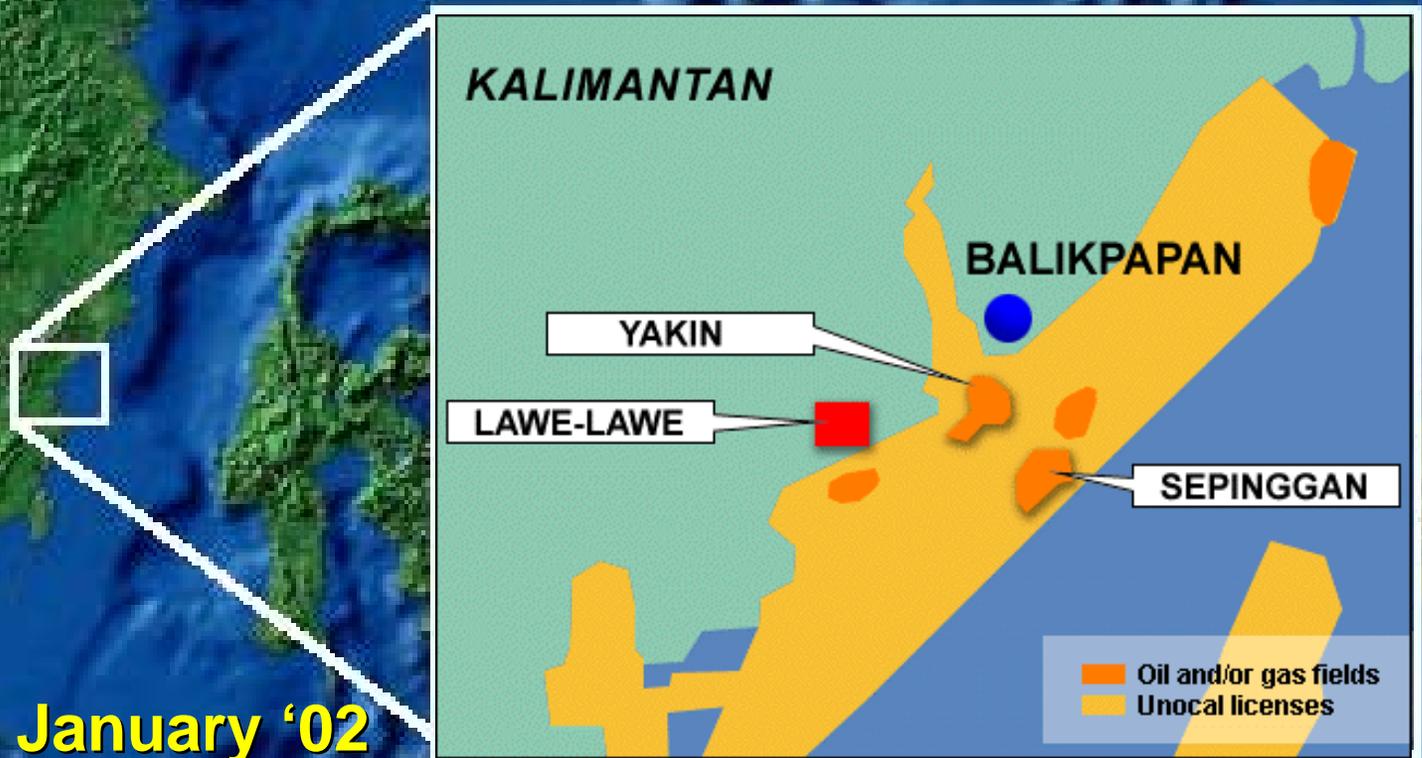
# Approach flow chart



# Indonesia: Commercial results

- Developed “Portfolio” of possible projects
- Developing Natural Gas Flare/Vent Reduction Project for CDM (2.5 MM CERs)
- Small Sale of existing reductions from Salak Geothermal project
  - Transaction costs far exceeded value
  - Gained valuable transaction experience
- Participated in Dutch CERUPT 2001 Tender
  - 2 geothermal projects selected as finalists
  - CERUPT awarded Wayang Windu Unit 2

# Yakin flare/vent CDM project



- Commenced in January '02
- Conserves ~5% of field's gas production. Conserved gas is sold.
- Produces ~2.5 MM tonnes of real, additional reductions over 8 years.
- Sale of Certified Emission Reductions will increase revenue shared between Unocal and Indonesian government.
- Each mmcf of vented gas produces about 500 CER (credits).

# Indonesia: Institutional results

- Participate in discussions with government environment and energy ministries on CDM policy and national strategy
- Develop projects as test cases for government CDM approval procedures (learning by doing)
- Coordinate closely with Ministry of Environment and Ministry of Energy

# Recent recommendations to GOI

- Put investor-friendly policies in place to encourage CDM projects.
- Embrace principle that CER “title” (and right to sell) remains with project proponent (the entity at financial risk).
- Consider tax-exemption for CER “revenue” to increase competitiveness of renewable energy.
- Leave decisions on CER pricing to project proponents

# Activities in Thailand and Philippines

- Focusing on gas and geothermal power opportunities
  - Unocal supplies gas in Thailand
- Collaborate with host country project partners
- Work closely with relevant government agencies

# Conclusion

- Carbon credits are an emerging global commodity
- Many multinationals are becoming active in this market
- Institutions (national, international) are being created to enable the creation and trading of carbon credits
- Carbon credits provide incentive for increased efficiency (i.e. flare/vent reduction)
- For companies, realizing carbon credit value requires investment and management