Tropical Sustainability:
Incorporating Environmental Liability in the Policy Toolkit

Carol Adaire Jones

Environmental Law Institute

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Outline of talk

- Policy and enforcement toolkit

- Liability for public natural resources
  - Key elements
  - Tropical country study findings

- US approach to full compensation for harm ("make the public whole")

- Appendices:
  - More on calculating a damage claim under US law
  - Deepwater Horizon oil spill: use of multiple policy tools

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Policy toolkit to promote environmental sustainability

Voluntary sustainability actions

- Payment for ecosystem service schemes
- Corporate sustainability pledges
- Product sustainability certification
- Preferential investments into "green" sectors
- Natural capital stock accounting to improve decision-making
- Environmental education

Legal enforcement of environmental regulations

Administrative*, civil and criminal sanctions:
- Fines
- Clean-up costs
- Injunctions to stop or correct violations
- Asset forfeiture
- Incarceration

Liability to compensate for environmental harm:
- Cost of ecosystem / resource restoration, or of replacing the injured resources
- Costs of assessing damage
- Interim losses pending restoration or replacement:
  - Private financial losses: property, profits, earning potential
  - Public financial losses: government revenues, increased costs
  - Private and public losses associated with non-market uses: cultural, supporting, regulating, provisioning services

*Not all countries have distinct administrative sanctions.

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U.S. environmental law policy toolkit

- Civil/administrative penalties
- Injunctive relief
  - Stop violation
  - Correct conditions that cause violation
- Cancel permit or license
- Criminal penalties
  - Jail for individuals
  - Fines for corporations

U.S. environmental law policy toolkit -2

- Ban on government contracts
- Liability: private tort
- Liability for public natural resources

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Features of public natural resource liability

- Distinction between private losses and public losses
- What scope of injuries to public resources are covered?
  - Protected resources; From inherently dangerous activities?
  - All harm to all resources
- What liability standards:
  - Negligence
  - Strict and several liability
- Who can bring a suit?
  - Public sector
  - Affected communities, civil society organizations, individuals

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Features of natural resource liability - 2

- "Polluter pays" – but how much?
  - To remove or clean up the contaminant
  - To "make the public whole": restore injured resources and compensate for losses in the interim
- Where do funds go?
  - Trust fund dedicated to resources
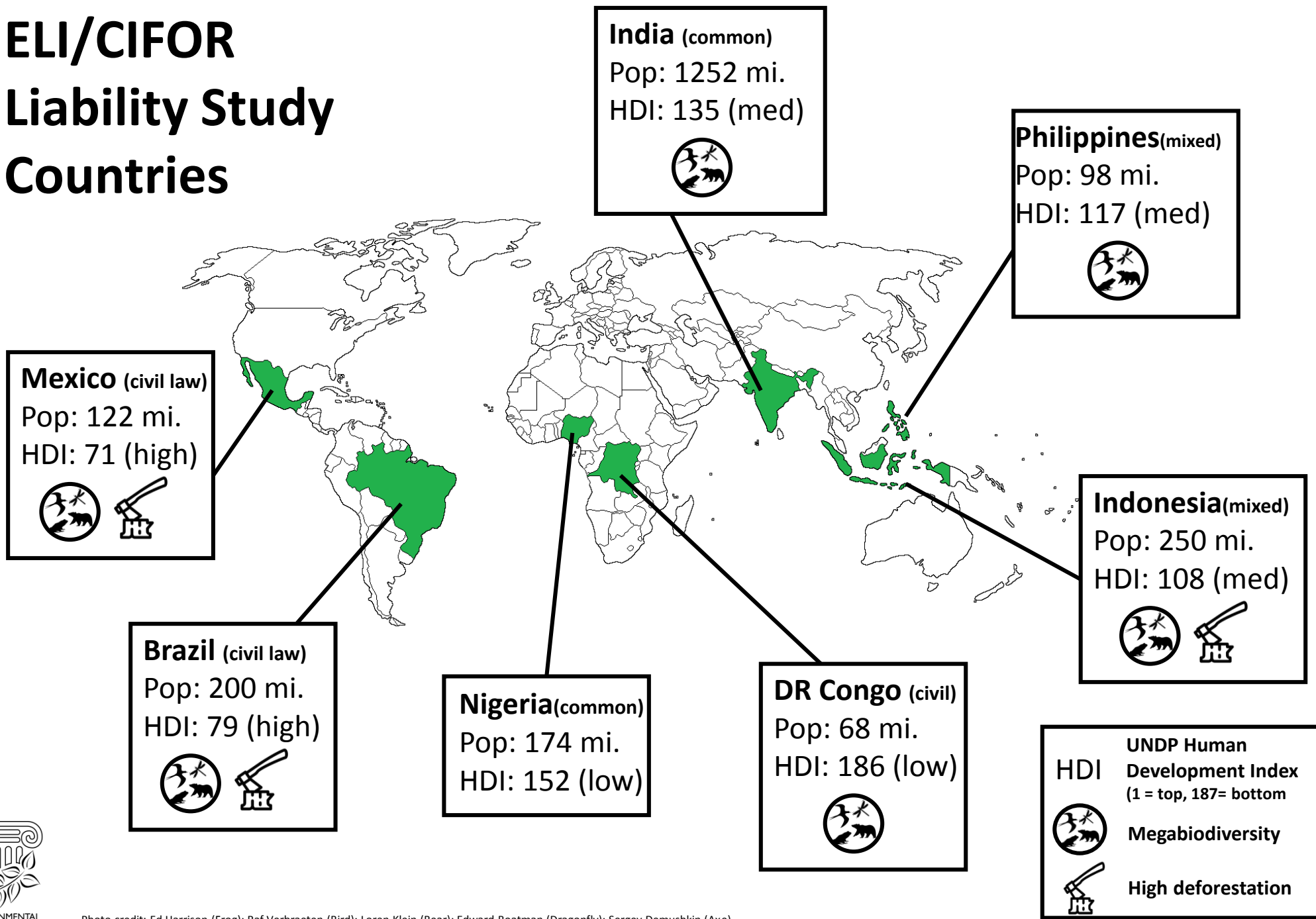 - Treasury

ELI/CIFOR Liability Study Countries

India (common)
Pop: 1252 mi.
HDI: 135 (med)

Philippines(mixed)
Pop: 98 mi.
HDI: 117 (med)

Mexico (civil law)
Pop: 122 mi.
HDI: 71 (high)

Brazil (civil law)
Pop: 200 mi.
HDI: 79 (high)

Nigeria(common)
Pop: 174 mi.
HDI: 152 (low)

DR Congo (civil)
Pop: 68 mi.
HDI: 186 (low)

Indonesia(mixed)
Pop: 250 mi.
HDI: 108 (med)

HDI — **UNDP Human Development Index** (1 = top, 187= bottom

Megabiodiversity

High deforestation

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Photo credit: Ed Harrison (Frog); Raf Verbraeten (Bird); Loren Klein (Bear); Edward Boatman (Dragonfly); Sergey Demushkin (Axe)

Findings

1. Environmental liability laws exist over a wide range of tropical contexts

- All countries have an environmental policy framework with civil/administrative and criminal enforcement

- All but Nigeria have environmental liability

- Adopters span full range of development, legal regimes

Early Adopters

- Brazil
- India
- Philippines

Later Adopters

- Indonesia
- DR Congo
- Mexico

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2. Two key elements are generally more inclusive than in US/EU

- Broader scope of harms covered
  - US/EU: individual statutes create liability for selected sources of harm or for protected resources
  - Tropical: over-arching statute establishes broad coverage (exceptions are Philippines, DRC)
- Broader standing provisions
  - US/EU: only government can file suits
  - Tropical: government *plus* civil society can file suits

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3. Measure of damages is often more narrow, less well-defined than in US/EU

- Generally absent: concept of making public whole
  - Consistent in focusing on cost of restoration (or mandates to perform restoration)
  - Some include interim losses pending recovery resource (Brazil, India), but some with restrictions (Mexico, Indonesia)

- Scope of ecosystem services covered:
  - Consistently advance beyond economic losses in private tort
  - Do not consistently capture all ecosystem services

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4. Litigated cases cover a broad range of environmental harms

- Deforestation and related environmental degradation:
  - Peat-forest destruction for palm oil plantation (Indonesia)
  - Deforestation or mangrove, wetland destruction from construction (Mexico, India, Philippines, Brazil)

- Pollution
  - Oil spills (Nigeria – private lands, India, Brazil),
  - Pollution from mining, industry (DRC, Mexico, Philippines, India)

- Illegal resource takings
  - Illegal logging (Brazil)

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Peat fires in Tripa. Sumatra.
Carlos Quiles

In August 2015, the **Indonesia Supreme Court** affirmed a $30M award for damages and fines against **PT Kallista Alam** for destruction of over 1000 ha. of protected peat forest in Tripa (Leuser Ecosystem, Sumatra).

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5. Remedies are limited relative to environmental harms

- Not many cases brought and successfully resolved
- Awards low relative to injuries

In some countries,

- Awards are allocated to restoration, but no procedures for restoration performance accountability *or*
- Awards go to Treasury, not a dedicated Restoration Fund

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6. Countries face various challenges

- Filing claims for serious environmental harm:
  - Civil war and insurgency movements
  - Corruption and lack of political will to sue powerful elites
  - Civil society lack of awareness and resources
- Successfully resolving claims:
  - Deficiencies in laws and implementing policies/procedures
  - Limited government (and civil society) resources and technical capacity, judicial backlog

  Of particular interest: difficulties with use of data and science to achieve full compensation for harm thru restoration

Take away points: Tropical liability study

- Laws exist in a wide range of countries
  - Countries with a long history have developed rules and procedures
  - Countries with recent statutes have not had time to develop

- Largest awards:
  - Indonesia peat fires
  - Nigeria oil contamination under community action provisions

- Holds promise as a policy tool
  - Liability for environmental damage is essential to fully implement the polluter pays principle

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Achieving full compensation with the US measure of damages

1. Cost of restoring injured resources to baseline

2. Compensation for interim losses from time of injury until resources recovery to baseline (*but-for* injury): *originally* monetary value of losses

3. Reasonable costs of assessment

Statutory Restriction: all recoveries must be spent on restoring or replacing resources and ecosystem services

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OPA regulations reframe damage claim as a Restoration Plan (1997)

- Measure of damages reframed as
  1. Cost of primary restoration projects *to restore injured resources to baseline*
  2. Cost of compensatory restoration projects of **appropriate quality and scale** *to compensate for interim losses until resources recover to baseline*

- Option remains to calculate interim lost **value** pending recovery as claim, and allocate money to restoration

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Metric is value of ecosystem services

Provisioning Services
(may be sold on market)

Products from ecosystems
- Food
- Water
- Raw materials
- Medicinal resources
- Ornamental resources
- Genetic resources

Regulating Services
(not sold on market)

- Climate regulation
- Natural hazards regulation
- Purification and detoxification of water, air and soil
- Water / water flow
- Erosion and soil fertility
- Pollination
- Pest and disease regulation

Cultural Services
(not sold on market)

- Recreation and tourism
- Aesthetic values
- Information for education and research
- Spiritual and religious experience
- Cultural identify and heritage

Habitat Services (not sold on market)

Maintenance of species lifecycles   Biodiversity maintenance and protection

Example: Lost ecosystem services in PT Kallista Alam case

- Valuation of case employed the simplified procedures for calculating damages established in regulations

- A more complete analysis of ecosystem services impaired by deforestation of Leuser ecosystem include:
  - Provisioning: timber, fishery, agriculture, water, hydro power
  - Regulating: carbon storage, flood and erosion prevention, fire prevention, pest control
  - Cultural: tourism
  - Habitat: biodiversity (one of last remaining habitats for endangered orangutan, Sumatran tiger,

Compensatory restoration projects: examples

- **Injured habitat**: rehabilitate degraded habitat, acquire and protect habitat threatened by development

- **Injured resources**: rehabilitate injured animals; enhance spawning, nesting or foraging habitat; manage predators;   reestablish breeding colonies, reduce fishing by-catch

- **Lost tourism/recreational use**: improve quality of resource, increase access to resource (boat ramps, boardwalks over wetlands), increase environmental awareness (educational centers)

Source:

Jones, C.A., J. Pendergrass, J. Broderick, and J. Phelps. 2015. Tropical Conservation and Liability for Environmental Harm. *Environmental Law Review*, Volume 45, Issue 11 (November). https://www.researchgate.net/publication/283265378_Tropical_Conservation_and_Liability_for_Environmental_Harm

CIFOR blog and an ELI Forum article

Contact:

Carol Adaire Jones
Environmental Law Institute
jones@eli.org
skype: carol.adaire.jones

Background slides

Calculating a resource damage claim under the

US Oil Pollution Act (OPA)

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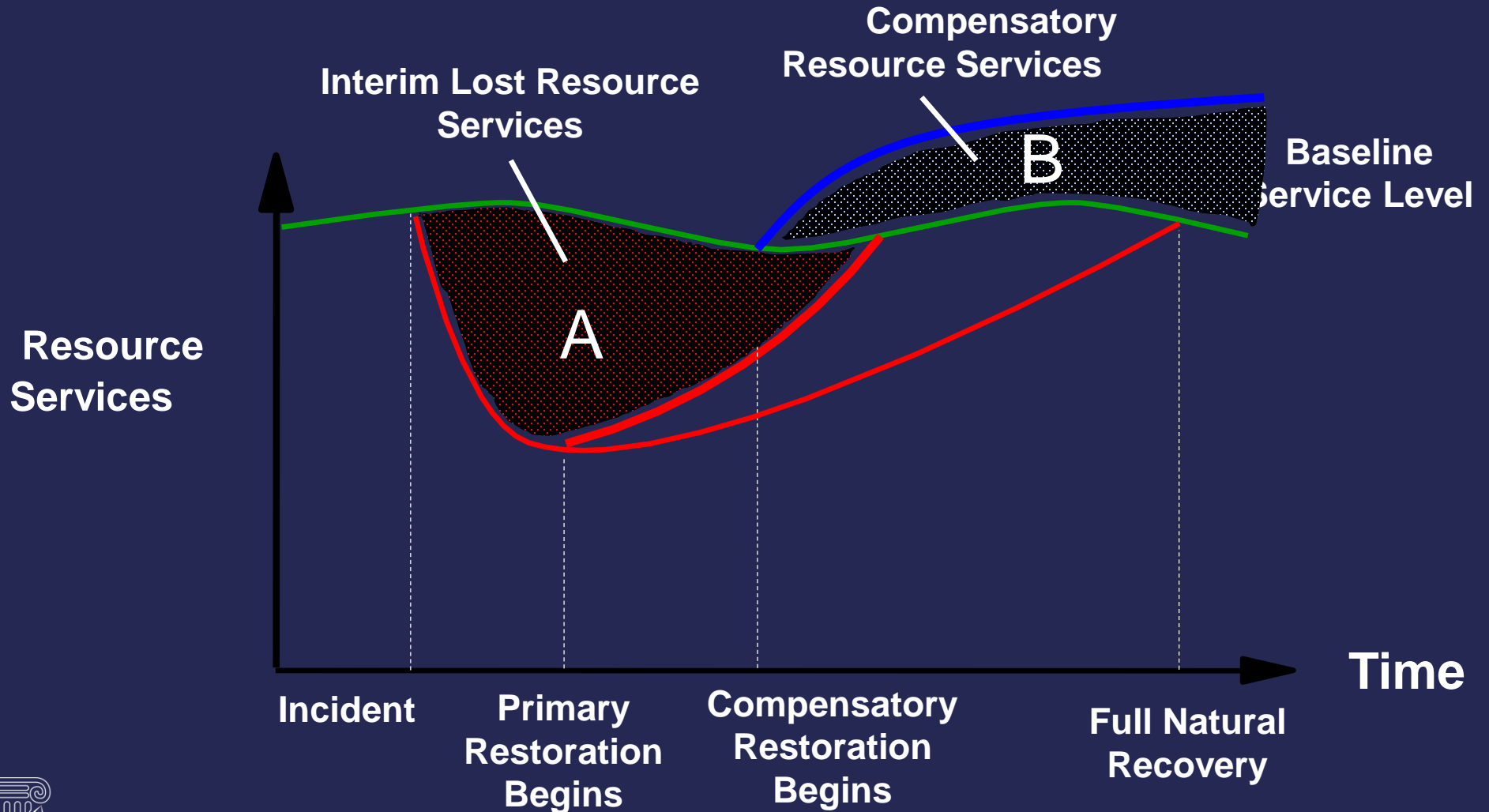LAW • INSTITUTE®

OPA Restoration Plan requirements

Newly settled kelp already growing tall several months after restoration (Montrose settlements in California)

Goal: Make public whole for resource injuries

- Evaluate injuries to inform restoration plans: identify ecosystem services that are lost or impaired
- Identify restoration alternatives (primary and compensatory) & select a preferred one; each will:
  - Address one or more specific injuries,
  - Provide same type and quality resources/services   to extent practicable, *OR* if impracticable,
  - Provide comparable type and quality resources/ services to those injured
- Develop monitoring plan, identify success criteria
- Seek public input on proposed Restoration Plan

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Scaling compensatory restoration so that PD Value(B) =PD Value(A)

Compensatory Resource Services

Interim Lost Resource Services

Baseline Service Level

B

A

Resource Services

Time

Incident

Primary Restoration Begins

Compensatory Restoration Begins

Full Natural Recovery

PD Value = Present discounted value

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Approaches to scale compensatory restoration (how much is enough?)

- Scaling: value created by compensatory restoration is comparable to lost value from injury

  PD Value (services lost until resource recovers) =

  PD Value (services gained from project lifetime)

  Where PD Value = present discounted value over time

- Two approaches:
  - Value to value
  - Service to service: simplified approach
- Alternative: value to cost

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Scaling: Value-to-value approach

- When :
  - *Compensatory* project resources & services do not provide same type and quality of services, but provide comparable services (lower ranked option)

- What:
  - PDV (service losses) = PDV (service gains)
  - Claim = cost of implementing restoration

- Methods:
  - Stated preference methods
  - Travel cost models
  - Benefits transfer (apply value estimates from other studies)
  - Avoidance or replacement costs (lower bound)

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Valuation methods for non-market goods

- Infer value based on choices: observed or stated

- Revealed preference methods: travel cost
  - Opportunity cost of travel functions like a price: willingness to travel long distances signals high value
  - Used to value lost recreation (household water supply)

- Stated preference methods:
  - Individuals offered scenarios of goods or services, and supply context, including payment method
  - Asked if they would be willing to pay specified price
  - Used to value goods not currently available or passive use value (used for private goods in consumer market research)

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Scaling: Service-to-service approach

- When :
  - *Compensatory* project resources & services are of same type and quality, and comparable value to *injured* resources

- What:
  - PD (service losses) = PD (service gains) ie, value cancels out of both sides of the equation
  - Claim = cost of implementing restoration

- Methods:
  - Habitat or resource equivalency analysis
  - Methods estimating loss/gains in human use of resources

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Deepwater Horizon

Deepwater Horizon Well Blowout (2010)

Description of incident

- 11 workers killed and 17 injured on platform

- Largest offshore oil spill in US history, oil continued to gush forth for 87 days

- More than 1300 miles (2092 km) of shoreline were oiled from Texas to Florida

- Impaired such a broad array of habitats and resources that trustees declared a Gulf of Mexico ecosystem level injury

A massive spill, a massive response, a massive natural resource damage assessment

Data Collection Efforts

- 20,000 trips to the field to collect data
- 100,000 environmental samples collected
- 13 million records publically available
- Data types include sediment, air, water, tissue samples, photos and videos, carcasses, telemetry, aerial imagery, GPS data.

Data archived at: https://dwhdiver.orr.noaa.gov

Shoreline Habitat Categories (Draft; 2014–
- Other
- Beach
- Mainland Herbaceous Marsh
- Back-barrier Herbaceous Marsh
- Delta Phragmites Marsh
- Mangrove

NRDA one of many legal claims against BP

- Response and clean up costs: $14 billion

- NRDA: $8.1 billion + up to $0.7 billion for unknown injuries (amount depends on timing)

- Civil penalties: $5.5 billion

- Criminal settlement: $4 billion

- Economic losses: state & local governments, individual people & businesses ($19.8 billion as of July 2015)

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