WEBINAR

State of Biodiversity Mitigation 2017
Markets and Compensation for Global Infrastructure Development

December 11, 2017

PANELISTS

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STATE OF BIODIVERSITY MITIGATION 2017
Markets and Compensation for Global Infrastructure Development

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Ecosystem Marketplace
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ABOUT FOREST TRENDS’ ECOSYSTEM MARKETPLACE

WWW.ECOSYSTEMMARKETPLACE.COM
BIODIVERSITY & INFRASTRUCTURE
Biodiversity hotspot

Sources: Esri, USGS, OAA, IUCN and UNEP-WCMC, WRI Global Forest Watch, WWF, CIESIN, DeLorme, US NPS
BIODIVERSITY & INFRASTRUCTURE

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BIODIVERSITY & INFRASTRUCTURE

- Biodiversity hotspot
- Protected area
- Major dams (planned + existing)
- Oil & gas pipelines (planned + existing)

Sources: Esri, USGS, OAA, IUCN and UNEP-WCMC, WRI Global Forest Watch, WWF, CIESIN, DeLorme, US NPS
BIODIVERSITY & INFRASTRUCTURE

Biodiversity hotspot
Protected area
Major dams (planned + existing)
Oil & gas pipelines (planned + existing)
Roads & Railways

Sources: Esri, USGS, OAA, IUCN and UNEP-WCMC, WRI Global Forest Watch, WWF, CIESIN, DeLorme, US NPS
THE LIMITS OF TRADITIONAL CONSERVATION TOOLS

- Biodiversity hotspot
- Protected area
- Major dams (planned + existing)
- Oil & gas pipelines (planned + existing)
- Roads & Railways
- Power lines
- Ports

Sources: Esri, USGS, OAA, IUCN and UNEP-WCMC, WRI Global Forest Watch, WWF, CIESIN, DeLorme, US NPS
BIODIVERSITY & INFRASTRUCTURE

Sources: Esri, USGS, OAA, IUCN and UNEP-WCMC, WRI Global Forest Watch, WWF, CIESIN, DeLorme, US NPS
BIODIVERSITY STRATEGIES

The Mitigation Hierarchy Concept

Net Gain of Biodiversity

Net Loss of Biodiversity

Steps in the mitigation hierarchy:
- Predicted Impact
- Avoidance
- Minimization
- Restoration/Rehabilitation
- Offset

1 2 3 4 5

No Net Loss
Net Gain

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Biodiversity Strategies

Compensatory Mitigation Mechanisms Tracked in this Report

Offsets and Compensation (Compensatory mitigation)

Permittee-Responsible Offsets

Third Party

Mitigation Banking

Financial Compensation
THE BBOP PRINCIPLES: INTERNATIONAL BEST PRACTICE FOR OFFSETS

1. Adherence to the mitigation hierarchy
2. Limits to what can be offset
3. Landscape context
4. No net loss
5. Additional conservation outcomes
6. Stakeholder participation
7. Equity
8. Long-term outcomes
9. Transparency
10. Science and traditional knowledge

http://bbop.forest-trends.org/pages/guidelines
REPORT METHODOLOGY

• Data was collected through three methods:
  1. A survey disseminated online during April and May 2017 to program administrators, project developers, and other market actors;
  2. Personal communications via semi-structured phone and email interviews;
  3. Desk research investigating program reports, donor reports and databases, academic journal articles, project registries, and other primary and secondary sources.

• Transparency was a constant challenge
• We report actual transactions except for the US where price/volume data was robust enough nationally to estimate overall annual value (see report methodology)
• We protect confidentiality of our survey respondents by only reporting average/aggregate numbers where we have 3+ data points
33 COUNTRIES HAVE POLICIES ON THE BOOKS

Compliance Offsets and Compensation: Countries with Active Programs, 2016

Countries with active compliance biodiversity offsets and compensation programs

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$4.8 BILLION IN TRANSACTIONS IN 2016

Compliance Offsets and Compensation: Value Transacted by Region, 2016

- $3,865M
- $15.1M
- $937M
- $4.3M
- $0.4M
- $31.8M
## COMPLIANCE BUYERS: INFRASTRUCTURE SECTORS DRIVE GLOBAL DEMAND

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Transportation and Shipping (Public Sector)</td>
<td>11,310 ha</td>
<td>0.2 ha</td>
<td>65 ha</td>
</tr>
<tr>
<td>Property/Real Estate Development (Commercial and Residential)</td>
<td>5,997 ha</td>
<td>0.4 ha</td>
<td>7 ha</td>
</tr>
<tr>
<td>Energy Distribution and Generation</td>
<td>2,071 ha</td>
<td>0.2 ha</td>
<td>6,298 ha</td>
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<tr>
<td>Energy Development and Extraction</td>
<td>723 ha</td>
<td>0.2 ha</td>
<td>98,111 ha</td>
</tr>
<tr>
<td>Mining and Materials</td>
<td>632 ha</td>
<td>9.9 ha</td>
<td>489 ha</td>
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</table>

Compliance Offsets and Compensation: Top Five Buyers by Land Area Transacted, 2016
MITIGATION SUPPORTS BOTH PUBLIC LANDS CONSERVATION AND PRIVATE ENTREPRENEURSHIP

Compliance Offsets and Compensation: Share of Cumulative Land Area by Land Ownership within Region, 2016

Notes: Excludes Oyu Tolgoi project in Mongolia. Totals may not add up to 100% due to rounding.
US WETLAND BANKING SECTOR MAIN SOURCE OF TRANSACTIONS – ESTIMATED $3.8B/YEAR

Major Mitigation Banking Markets:
US Aquatic Resources
Compensatory Mitigation
COMPENSATION FUNDS TAKE IN $1.2B/YEAR, BUT ARE SLOW TO SPEND IT

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Active Programs</th>
<th>Fund Revenues Received in 2016</th>
<th>Fund Balance as of End of 2016</th>
<th>Cumulative Project Area Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa &amp; Middle East</td>
<td>5</td>
<td>$4.1M</td>
<td>$4.1M</td>
<td>9k ha</td>
</tr>
<tr>
<td>Asia</td>
<td>2</td>
<td>$935.3M</td>
<td>$6,635.0M</td>
<td>708k ha</td>
</tr>
<tr>
<td>Europe</td>
<td>11</td>
<td>$8.7M</td>
<td>$155.3M</td>
<td>n/a</td>
</tr>
<tr>
<td>Latin America &amp; Caribbean</td>
<td>6</td>
<td>$0.4M</td>
<td>$49.8M</td>
<td>762k ha</td>
</tr>
<tr>
<td>North America</td>
<td>70</td>
<td>$251.2M</td>
<td>$163.0M</td>
<td>48k ha</td>
</tr>
<tr>
<td>Oceania</td>
<td>9</td>
<td>$16.3M</td>
<td>$58.8M</td>
<td>3k ha</td>
</tr>
<tr>
<td>Total</td>
<td>103</td>
<td>$1.2B</td>
<td>$7.1B</td>
<td>1.5M ha</td>
</tr>
</tbody>
</table>
MITIGATION CREDIT PRICES

Transacted Volume and Price per Credit for Top Wetland Credit Classifications in the United States, 2016

See the full report for average credit prices for:
- US Conservation Banking
- New South Wales Biobanking
- Queensland Environmental Offsets
- Victoria Native Vegetation Offsets
- Kingborough (Tasmania) Environmental Offsets
- Melbourne (Victoria) Strategic Assessment Habitat Compensation

Notes: Not shown in this figure are credit classifications for which Ecosystem Marketplace had fewer than three price points for 2016 transactions.
WHAT’S BEHIND A CREDIT PRICE?

Average Reported Share of Overall Project Costs by Credit Development Stage, Mitigation Bank and In-Lieu Fee Credits in the United States
Projected Internal Rate of Return for Mitigation Banking and Other Habitat Conservation Commitments

Source: Hamrick 2016.

Notes: Based on response by 35 organizations reporting on $504M in investments in habitat conservation.
MITIGATION BANK IRR OUTPERFORMS OTHER HABITAT CONSERVATION INVESTMENTS

<table>
<thead>
<tr>
<th></th>
<th>Below expectations (underperformed)</th>
<th>Met expectations (performed as expected)</th>
<th>Exceeded expectations (outperformed)</th>
<th>Too early to tell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitigation Banking Investments</td>
<td>13%</td>
<td>67%</td>
<td>20%</td>
<td>-</td>
</tr>
<tr>
<td>Habitat Conservation Investments Overall</td>
<td>17%</td>
<td>64%</td>
<td>5%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Performance of Mitigation Banking Investments and Overall Habitat Conservation Investments Relative to Expectations: Share of Total Capital Committed, 2009-2015

Notes: This table was developed based on the source dataset (unpublished) for Hamrick 2016. These results are as reported by investors in the Ecosystem Marketplace survey. We did not collect or verify actual returns.
PERMITTEE-RESPONSIBLE OFFSETS: THE “DARK MATTER” OF THE MITIGATION UNIVERSE

Compliance Offsets and Compensation: Cumulative Land Area by Mitigation Type and Region, 1990-2016

Notes: Data on permittee RESPONSIBLE offsets land area for wetland and stream compensatory mitigation in the United States could not be obtained for the years prior to 2012. Thus “cumulative” figures only reflect the 2012-2016 period for this subset of the data. Data includes the Oyu Tolgoi project, a massive permittee responsible offset located in Mongolia.

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Global Outlook

- New policies emerging in countries all over the world, but unclear whether they are successful in achieving No Net Loss/Net Gain objectives or resulting in compensatory mitigation.
- Efforts to improve tracking and transparency are promising but uneven.
- No Net Loss requirements from lending institutions (International Finance Corporation Performance Standard 6; Equator Principles) driving small but significant share of new demand, especially for infrastructure projects in developing countries.
MORE IN THE FULL REPORT

• Biodiversity mitigation: the basics
• Policy design around the world
• Project design: management approaches and habitats
• Regional sections: key developments in policy, market, and project development
• Barriers to scaling up private investment in mitigation
• Case studies
THANK YOU!

DOWNLOAD THE REPORT and EXECUTIVE SUMMARY

http://forest-trends.org/releases/p/sobm2017

GET IN TOUCH

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