

# IAIA Special Biodiversity Symposium Mainstreaming the Mitigation Hierarchy in Impact Assessment

WASHINGTON, D.C., USA | 14-15 NOVEMBER 2017

## FINAL PROGRAM

**IAIA**  
[www.iaia.org](http://www.iaia.org)

### INSTITUTIONAL PARTNERS



#### WITH ASSISTANCE FROM:

IAIA Biodiversity and Ecology Section  
IAIA Washington Area Branch (WAB)

*Final program printed courtesy of The World Bank*

### VENUE

Inter-American Development Bank (IDB) Headquarters  
1300 New York Avenue NW  
Symposium Entrance: 1330 New York Avenue NW  
Washington, DC 20577 USA  
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# DAILY AGENDA

## TUESDAY, 14 NOVEMBER

- 07:30-08:45 **Registration** (Foyer A3, 1330 NY Avenue entrance)
- 08:45-10:00 **Opening plenary** (Enrique V. Iglesias Auditorium)
- Welcome remarks*  
**Cristiane Ronza**, Head of Policy, Knowledge, and Country Systems, Environmental and Social Safeguards Unit, IDB (USA)  
**Frank Hawkins**, Director, IUCN US (USA)  
**Jill Baker**, Executive Director, IAIA (Canada)
- Vision for the Symposium*  
**Robin Mitchell**, Regional Director – Pacific Rim, The Biodiversity Consultancy Ltd. (New Zealand)  
**Jo Treweek**, Director, eCountability Ltd. (United Kingdom)
- Panel Discussion: Outcome objectives for a mainstreamed mitigation hierarchy*  
**Marielle Canter Weikel**, Senior Director, Responsible Mining and Energy, Center for Environmental Leadership in Business, Conservation International (USA)  
**Emmanuel Boulet**, Principle Environment Specialist, IDB (USA)  
**Scott Miller**, Group Executive, Environmental, Newmont Mining Corporation (USA)  
**Lori Conzo**, Senior Environmental Specialist, International Finance Corporation (USA)  
**Kelly Payne**, Director, Group Environment, Rio Tinto (USA)
- 10:00-10:30 **Coffee break** (Foyer outside Andrés Bello)
- 10:30-12:15 **Parallel sessions A**
- 12:15-13:15 **Lunch** (Foyer outside Andrés Bello)
- 13:15-15:00 **Parallel sessions B**
- 15:00-15:30 **Coffee break** (Foyer outside Andrés Bello)
- 15:30-17:15 **Parallel sessions C**
- 18:30-20:30 **Welcome reception** (Old Engine 12)  
*Sponsored in part by Cross-Sector Biodiversity Initiative*

### Help identify outstanding presentations!

Based on delegates' feedback, select presenters will be invited to record their presentations for online viewing.

Submit your suggestions during the symposium at  
<http://bit.ly/iaia-mh>.

## WEDNESDAY, 15 NOVEMBER

- 07:30-08:30 **Registration** (Foyer A3, 1330 NY Avenue entrance)
- 08:30-10:00 **Plenary session** (Enrique V. Iglesias Auditorium)  
*From the frontlines: a discussion with biodiversity safeguards specialists on lessons learned since 2012*  
**Peter Moore**, Senior Environmental Advisor, European Bank for Reconstruction and Development (EBRD) (United Kingdom)  
**Conrad Savy**, Environmental Specialist, International Finance Corporation (IFC) (Kenya)  
**Robert Langstroth**, Senior Biodiversity Specialist, IDB (USA)  
**Mark King**, Chief Officer, Environmental and Social Standards, World Bank (USA)
- 10:00-10:30 **Coffee break** (Foyer outside Andrés Bello)
- 10:30-12:00 **Parallel sessions D**
- 12:00-13:00 **Lunch** (Foyer outside Andrés Bello)
- 13:00-14:30 **Parallel sessions E**
- 14:30-15:00 **Coffee break** (Foyer outside Andrés Bello)
- 15:00-16:30 **Closing plenary** (Enrique V. Iglesias Auditorium)  
*Lessons learned, next steps, and challenges to address*  
**Morgan Robertson**, Associate Professor, University of Wisconsin (USA)  
**Fabien Quétier**, Lead Consultant, Biotope, on behalf of SNAPP Compensatory Conservation Working Group (France)  
**Artem Tarzyan**, Head of Bio-Resources Management Agency, Ministry of Nature Protection (Armenia)  
**Armen Stepanyan**, Director of Sustainability, Lydian Armenia (Armenia)
- Closing Remarks*  
**Robin Mitchell**, Regional Director – Pacific Rim, The Biodiversity Consultancy Ltd. (New Zealand)  
**Jo Treweek**, Director, eCountability Ltd. (United Kingdom)

## THURSDAY, 16 NOVEMBER

- 09:00-17:00 **Training courses** (pre-registration required)

## FRIDAY, 17 NOVEMBER

- 09:00-17:00 **Training courses** (pre-registration required)

# TECHNICAL PROGRAM OVERVIEW

	Enrique V. Iglesias Auditorium	Andrés Bello I & II	Andrés Bello III
<b>Day One: Tuesday, 14 November</b>			
08:45-10:00	<b>Opening plenary</b>		
10:30-12:15		<i>PARALLEL SESSIONS A</i> Defining the business case	Beyond project level: incorporating cumulative or indirect effects and applying the mitigation hierarchy at a strategic level
13:15-15:00		<i>PARALLEL SESSIONS B</i> Offset implementation: examples and lessons learned	The mitigation hierarchy and the role of policy
15:30-17:15		<i>PARALLEL SESSIONS C</i> Deep dive: data, methods, tools, and models to support implementation of the mitigation hierarchy within impact assessment	Mitigation hierarchy for greater conservation gains
<b>Day Two: Wednesday, 15 November</b>			
08:30-10:00	<b>Plenary session</b> From the frontlines: a discussion with biodiversity safeguards specialists on lessons learned since 2012		
10:30-12:00		<i>PARALLEL SESSIONS D</i> The offset step: implementing commensurate and lasting interventions	Ecosystem services: mind the gap
13:00-14:30		<i>PARALLEL SESSIONS E</i> Principles to practice showcase: cases and examples	Stakeholder engagement and participation
15:00-16:30	<b>Closing plenary</b>		

Washington, DC, skyline



# PARALLEL SESSIONS

TUESDAY, 14 NOVEMBER | 10:30-12:15 | PARALLEL SESSIONS A

## Defining the business case

Andrés Bello I & II

Chair: Nick Owens

The business case for utilizing the mitigation hierarchy varies given no quantitative guidelines exist for the decision-making process associated with implementing it. This session explores the role of cost-benefit and multi-criteria analyses used to inform project decisions on how much emphasis is placed on different stages of the mitigation hierarchy.

### The mitigation hierarchy in the new World Bank ESF

Agi Kiss

The mitigation hierarchy is a core element of the World Bank's new Environmental and Social Framework for investment lending (ESF), including the E&S Policy and the ten E&S Standards for borrowing countries. This presentation will discuss how the mitigation hierarchy is reflected in the Framework's requirements for environmental and social impact assessment and management as they apply in a variety of development sectors and circumstances, and how it relates to other key principles of the new ESF such as integration of environmental and social objectives and the classification and adaptive management of risks.

### CSBI: Biodiversity and the extractives sector

Nick Owens

With ever-increasing concerns regarding the global loss in biodiversity, there is a growing need and expectation for industry to improve biodiversity impact management. By working in collaboration across oil & gas, mining and financial sectors, the Cross-Sector Biodiversity Initiative (CSBI) has developed clear, practical tools and guidance (e.g. A Cross-Sector Guide for Implementing the Mitigation Hierarchy). This collaboration between the sectors has developed into a unique forum which is driving best practices in biodiversity management across industry. In this session, the CSBI will share progress over the last four years in mainstreaming the mitigation hierarchy into the way the sectors approach, manage and mitigate their impacts on biodiversity. The presentation will explore the ways in which the CSBI supports the business case for biodiversity management in companies through the sharing of experiences, examples and case studies by representatives from the extractives sector.

### Mining case study in application of CSBI tools

Scott Miller

CSBI's tools assist extractive industries in planning biodiversity mitigation during all project stages. These tools advise an iterative process that must involve project team, biodiversity experts and key stakeholders. A successful completion of their method is found in Newmont's conservation of a mule deer corridor at a new gold mine in Nevada. This case, however, demonstrates the value of a complete baseline, due to characterizing a mule deer migration corridor passing through the project boundary during review of the original design of operations. Progress then cycled back to data collection in order to confirm the corridors path through the mine. A redesign moved a majority of the operations to the northeast corner expanding the mule deer corridor from 500 to 2,200 feet. This case study resulted in success of avoiding wildlife migration impacts, through adherence to CSBI's tool kit, and stresses the importance of a thorough initial biodiversity valuation and baseline program.

### Lessons learned in the application of Net Positive

Rachel Asante-Owusu and Kelly Payne

This upcoming publication is a joint report by Rio Tinto and IUCN on Net Positive Impact lessons learned with case studies and interviews, including from the company as well as from the broader conservation community. The publication will document Rio Tinto's journey in biodiversity management over the past decade, as well as IUCN and other stakeholders' roles in that effort.

## Beyond project level: incorporating cumulative or indirect effects and applying the mitigation hierarchy at a strategic level

Andrés Bello III

Chair: Jared Hardner

Regional planning, Strategic Environmental Assessment (SEA), and an understanding of cumulative effects form a necessary framework for implementing the Mitigation Hierarchy. This session will explore the importance of SEA and cumulative effects assessment using case studies. It will also explore the enabling conditions and barriers for its broader use.

### The importance of Strategic Environmental Assessment for applying the mitigation hierarchy

Jared Hardner, John Reid, Bruce McKenney, and Lori Anna Conzo

Regional planning, Strategic Environmental Assessment, and an understanding of cumulative effects form a necessary framework for implementing the Mitigation Hierarchy. Nevertheless, it is rare that this framework exists in most places where development is occurring, often for reasons such as lack of institutional capacity and the complex political challenges it involves. Its absence affects the implementation of the mitigation hierarchy in all of its stages: avoidance, minimization, restoration, and offsetting. We explain how each suffers without the information it provides. We argue that practitioners should be transparent about this in impact assessment and mitigation planning, and negotiate the appropriate level of precaution where information is lacking. Finally, we make a call for prioritizing those places most in need of Strategic Environmental Assessment and provide examples where some degree of planning has promoted better environmental performance at the project level.



## Embracing complexity: Companion modelling for SEA

*Fabien Quétiér*

A key conclusion from practical applications of the mitigation hierarchy is that strategic and multi-sectorial landscape-level approaches are needed, rather than dealing with each separate project sequentially. Using mining development in intact forest landscapes of central Africa as an example, we developed a model of regional landscape change that enables stakeholders and decision makers to explore the future. Designed as a game, it places players in the roles of CEO of logging or mining companies, interacting with markets, the government and NGOs, planning their activities and developing strategies to cope with external constraints and opportunities (demographics, market signals, governance and transparency, technological changes, etc.). As the game unfolds, the players discover the complexity of the system, and devise new rules and strategies to balance development and conservation. We show and discuss how this approach can strengthen SEA processes.

## Mainstreaming biodiversity into Russian energy sector

*Alexey Vladimirov*

Since 2012 UNDP/GEF-Russian MNRE Project "Mainstreaming Biodiversity Conservation into Russia's Energy Sector Policies and Operations" has been working with oil and gas, coal, and hydropower companies in Russia on implementation of biodiversity mitigation hierarchy in the corporate practices. The project has the special mandate to engage directly with the industry and establish partnerships with the private sector. In 2015 the project facilitated the preparation and adoption of corporate biodiversity conservation programs by all major oil and gas companies in the Russian Arctic achieved through the open dialogue with the authorities, NGOs, and expert community and recognized by the IUCN Global Policy Unit. Above the National Standards the development of biodiversity action plans, strategic environmental assessment framework, and business and biodiversity collaboration initiatives have been proved to be the efficient tools for the implementation of mitigation hierarchy through and beyond the EIA process.

**TUESDAY, 14 NOVEMBER | 13:15-15:00 | PARALLEL SESSIONS B**

## Offset implementation: examples and lessons learned

**Andrés Bello I & II**

*Chair: Roberto Mezzalama*

The session will present and discuss experiences from offset design and implementation in a range of different sectors, geographical regions and ecosystems, including terrestrial and freshwater habitats. Offset implementation issues will be discussed from various perspectives, including small companies, financial institutions, NGOs, and large project developers, with a focus on the role of offsets within the mitigation hierarchy and the impact assessment process in general.

### A PS6 compliant offset for a small mine project

*Reed Huppmann*

A Canadian junior mining company developing a \$250 million greenfield gold mine project in Guyana, South America, in tropical forest, was required by IFC and several Equator Banks to develop a PS6 compliant biodiversity offset. At the time, this represented the first successful "small" project biodiversity offset. The approved concept involved providing much needed annual funding to the 60,000 ha Kaieteur National Park, which had an annual budget of less than US\$50,000/year. Park management was largely limited to escorting tourists visiting by aircraft to the 225 meter Kaieteur Falls, Guyana's primary ecotourism attraction. The park was reportedly subject to illegal diamond mining and had experienced an incursion by a gold mining operation at its southern border. The concept was in part informed by the Amaila Falls Hydro Project's inability to acquire land for a more conventional offset concept in prior years.

### Perspective on biodiversity offsets in rivers

*Leah Beche*

IFC PS6 standards (2012) were applied to the Nachtigal Hydropower Project on the Sanaga River, Cameroon (watershed area = 129000 km<sup>2</sup>). The 420 MW project includes a 15-m dam on the main river that will create a small (4.2 km<sup>2</sup>) reservoir. A lack of information on the distribution and ecology of aquatic species at the watershed scale created challenges in identifying critical habitat and determining offset strategy (9 fish and 3 plant species were in CH and require net-gain offsets). Biodiversity offsets included restoration of degraded tributaries to compensate the loss of 227 ha of aquatic habitat. Indicators were developed based on habitat and water quality because of the difficulties inherent in quantifying aquatic species populations. We evaluated the influence of the future PS6 orientations on the process and outcomes applied to this project to provide perspective on conducting CH assessments, planning biodiversity offsets and adapting PS6 concepts to river ecosystems.

### Implementing an ambitious aggregated offset

*Sally Johnson*

Guinea, the stronghold for the critically endangered Western chimpanzee, supports the largest bauxite reserves in the world and yet remains one of the poorest. Mining is an important part of Guinea's development strategy, but will have long term cumulative effects on this species. In 2016, IFC invested in Compagnie des Bauxites de Guinée (CBG) which is the Government of Guinea's most important revenue generator. As a result of predicted significant residual impacts on chimpanzees, IFC supported the formation of an innovative partnership between CBG, GAC, the Wild Chimpanzee Foundation and the Government of Guinea to serve as an aggregated offset. This comprises the formation of a new national park at Moyon Bafing which is globally significant for the conservation of Western Chimpanzees and home to over 4000 individuals. This paper explores some of the challenges and opportunities in setting up the national park from the perspectives of IFC, the company and the NGO.

# PARALLEL SESSIONS

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## Options and mechanisms for financing offset

*Ray Victorine*

Offset financing is a topic of growing relevance and importance for governments, companies and civil society. Ensuring and achieving the permanence of offsets requires sufficient upfront capital or ongoing, certain, financial commitments. Without adequate and long-term finance, biodiversity offsets would in most cases fail to fulfill their basic requirements of delivering no net loss over the long-term. However, offset financing needs, options, risks, and challenges still receive little attention during the offset design stage. In this presentation specific emphasis is placed on identifying demand and supply-side drivers and barriers to entry for financiers. Evaluating these drivers, we focus almost exclusively on the potential opportunities to increase the flow of finance for biodiversity offsets and how the conservation outcomes from offsets can be safeguarded by a variety of sustainable financing products.

## The mitigation hierarchy and the role of policy

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**Andrés Bello III**

*Chair: Rachel Asante-Owusu*

Government policies on the mitigation hierarchy have increased in the past decade and share an overall aim to ensure compensation for unavoidable negative impacts on biodiversity. These policies vary greatly in their detailed objectives and implementation arrangements. Understanding how these policies have developed and their contextual intricacies can help achieve good governance.

### Implementation of mitigation hierarchy in KBAs

*Leonardo Viana*

The identification of Key Biodiversity Areas (KBA), which are 'sites contributing significantly to the global persistence of biodiversity,' in terrestrial, freshwater, and marine ecosystems, is an important step in a more effective management of biodiversity, and in risk and impact assessment processes. As of today the total number of KBAs is 15,861. The KBA Partners have developed a set of Guidelines addressing the direct, indirect or cumulative impacts of any business operation on Key Biodiversity Areas. These build on the four steps of the mitigation hierarchy - avoidance, minimization, restoration and offset - and identify the additional measures aimed at ensuring the persistence of global biodiversity in line with the purpose of the Global Standard for the Identification of Key Biodiversity Areas.

### A shift to landscape-scale approaches in offsets?

*Marie Grimm*

In the United States, compensatory mitigation efforts reflect a shift from a project-by-project to a landscape-scale approach. The approach applies the mitigation hierarchy – avoidance, minimization, compensation – for impacts on natural resources on a larger scale and off-site. Parallel to, and connected with, this shift is a development towards a preference of market-based instruments over permittee-responsible compensation. As a result, compensation banks, mitigation banks and in-lieu fees are used more and more to offset impacts on biodiversity. This paper outlines the general idea of the landscape-scale approach as well as of market-based compensation instruments favored under this approach. It continues with the risks and opportunities of these approaches, associated market-based instruments, and seeks evidence for both in literature. A comparison to similar instruments in Germany follows, including prospects for future developments. It concludes with identifying open questions.

### Policy implementation in British Columbia

*Leslie Bol*

In 2014, the British Columbia (BC) Ministry of Environment released two guidance documents that use the mitigation hierarchy as the preferred mitigation approach for impact assessments (IAs). These were the Environmental Mitigation Policy (EMP) and Environmental Mitigation Procedures (Procedures). The EMP and associated Procedures should be used to inform provincial IA applications at the pre-application, application, and post-certification phases of projects. The extent of EMP and Procedure incorporation since 2014 is assessed from publicly available documents from the BC Environmental Assessment Office for IAs for major projects. Critical habitat is the focus of the assessment, with consideration of the frequency of mitigation at each mitigation hierarchy level and how the mitigation levels are being prioritized. This assessment considers the type and phase of the project and identifies gaps and departures from the EMP.

### Strengthening national biodiversity offset policy

*Rachel Asante-Owusu and Leon Bennun*

Government environmental policies increasingly refer to biodiversity offsets as a desired or required tool. Application of the mitigation hierarchy, including biodiversity offsets, is increasingly seen as good practice for balancing development and conservation goals. The objective of this report, supported by the Intergovernmental Forum on Mining (IGF), is to build upon an online policy inventory to inform users on the interaction between a country's stage of offset policy development, biodiversity richness, and economic growth. This will identify where policies need to be strengthened to balance fast growth and biodiversity threats. IUCN and The Biodiversity Consultancy have been collaborating on producing an online inventory on national biodiversity offset policies, in a beta database: <https://testportals.iucn.org/offsetpolicy/>. This presentation will include the first detailed analysis and findings of the online inventory, including outputs from the Annual General Meeting of IGF.

TUESDAY, 14 NOVEMBER | 15:30-17:15 | PARALLEL SESSIONS C

## Deep dive: data, methods, tools, and models to support implementation of the mitigation hierarchy within impact assessment

Andrés Bello I & II

Chair: *Morgan Hauptfleisch and Francisco Dallmeier*

This session illustrates how data, tools, models, and techniques are used to support implementation of the mitigation hierarchy (MH) within IA. This includes a MH framework to understand and interpret biodiversity and ecosystem services data to inform effective decision-making.

### The Local Ecological Footprinting Tool (LEFT)

*Peter Long*

The Local Ecological Footprinting Tool (LEFT) [www.left.ox.ac.uk](http://www.left.ox.ac.uk) is a web-based decision support tool developed to help evaluate the pattern of relative ecological value across a landscape anywhere globally to inform planning of land use in order to minimize environmental impacts. A user defines an area of interest anywhere globally using a web-based map and the tool then automatically processes a series of high-quality datasets using standard published algorithms to produce maps at 30m resolution of land cover class, numbers of globally threatened terrestrial vertebrate and plant species, beta-diversity of terrestrial vertebrates and plants, habitat fragmentation, wetland habitat connectivity, numbers of migratory species and vegetation resilience. The tool then generates a custom pdf report and a zip file of GIS data for the area requested within a few minutes. This tool has been designed to be highly intuitive to use and requires no specialized software or user expertise.

### Future development scenarios for decision making

*Ana Maria Sanchez Cuervo*

The Smithsonian's Working Landscape Simulator is a framework to systematically assess future development impacts in a territory under critical development scenarios. The tool mixes ecosystem services assessment and scenario planning to provide a quantified, holistic, and participatory evaluation of development impact. The framework was applied in the Madre de Dios region of Peru. We evaluated the impacts of four alternative development scenarios on 15 indicators of success of interest to local stakeholders and covering relevant human wellbeing, economical, and environmental dimensions. The results provided essential guidance to decision makers for the development of Madre de Dios. The Working Landscape Simulator is an innovative approach to territorial management applicable across scales and generating critical insights about medium and long term direct and indirect impacts of development. Its application to strategic planning across industries is essential to sustainable development.

### Using an innovative method to improve mitigation

*Emma Tatum-Hume*

Field surveys can provide valuable information to inform the application of the mitigation hierarchy. However the data collected is not always useful, especially when site-specific project context is not considered. Survey planning (e.g., methods, effort, and design) is a crucial step to ensure that results are relevant. This case study presents the first use of a non-invasive genetic chimpanzee survey as a tool to inform the design of mitigation measures for a mining project in West Africa. The results suggest that this method is more appropriate than traditional nest surveys to survey chimpanzees in a mosaic landscape. It provided a more detailed understanding of project impacts (e.g., at the community and individual level), allowing the mitigation measures to be specific and effective. This case study demonstrates the need for adapting survey planning to the site-specific ecological conditions, in order to provide meaningful data for fit-for-purpose informed mitigation.

### Wildlife insights: An applied monitoring solution

*Leonardo Viana*

We have a crucial role to play in supporting responsible development. Wildlife Insights is a monitoring solution that promotes better accountability, more efficient monitoring, and evaluation of project impacts on biodiversity and ecosystem health. This platform offers standardized protocols; aggregates and advances analysis of wildlife data including key biodiversity indicators, and supports a community of practice to inform conservation management and policy. Large scale analyses of wildlife data, collected through sensors on the ground (e.g., camera traps), can directly assist mitigation of threats and monitor the health of wildlife populations at local to global scales. Wildlife Insights offers an end-to-end solution for better informed management decisions that result in a reduction of biodiversity impacts, improved odds of attaining and maintaining License to Operate, improved reputation, compliance, and security of long-term capital investments.

### IBAT: strengths and weaknesses

*Frank Hawkins, with panelists George Ledec (World Bank), Agi Kiss (World Bank), Robert Langstroth (IDB), and Jill Crowther (MIGA)*

A panel discussion on strengths and weaknesses of the Integrated Biodiversity Assessment Tool (IBAT) for biodiversity and ecosystem services mitigation planning, featuring core users from the finance and IA community. The panel will begin with a brief presentation on IBAT's database, business model, benefits of IBAT, how it is typically used (brief demonstration), and IBAT's application specifically in context of the mitigation hierarchy. This will be followed by a discussion to address: 1. How does your organisation use IBAT? 2. Why is IBAT important for your organisation? 3. What would you like to see coming out of the business model for IBAT?

# PARALLEL SESSIONS

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## Mitigation hierarchy for greater conservation gains

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**Andrés Bello III**

*Chairs: Asha Rajvanshi and Vinod Mathur*

The mitigation hierarchy (MH) is a widely advocated process to effectively avoid and manage impacts on habitats, biodiversity, and ecosystem services. This session will share examples of MH applied to a range of projects and present the outcomes that reflect avoidance of risks, gains for biodiversity and effective sustainable planning.

### Implementing the mitigation hierarchy at Gamsberg

*Rachel Asante-Owusu*

IUCN is collaborating with Black Mountain Mining (BMM), a subsidiary of Vedanta Plc to implement a biodiversity no net loss management system for Gamsberg and surrounds in Namaqualand. This is a fragile and sensitive ecosystem in South West Africa, which extends from the Western Cape Province in South Africa, north-west into Namibia. The project commenced in May 2013 and has incorporated the use of IUCN's Biodiversity Net Gain Protocol, a verification tool to assess the implementation of the mitigation hierarchy. The presentation will highlight lessons learned, challenges, and opportunities in the implementation of the mitigation hierarchy at Gamsberg. We will also highlight alignment of this operation to the IUCN biodiversity offsets policy.

### From plan to action: BES impact mitigation in Peru

*Anna Lyons*

Mitigating impacts to biodiversity and ecosystem services (BES) requires understanding the socio-ecological landscape in the operating area, setting appropriate management actions and then communicating these to staff and contractors in the field to implement. At the construction phase plans for avoidance, in particular, need careful execution. The presentation covers the approach taken by Fauna & Flora International together with a leading gas company at the construction phase of a pipeline in the Peruvian Amazon rainforest. This includes a process for bringing an ecological approach to management planning and monitoring, an Excel-based tool enabling 1) identification of specific BES-related actions for construction and environmental contractors in the field and 2) support to compliance auditing, and a field guide overviews sensitive biodiversity features and associated protocols for environmental teams.

### Application of MH in upstream oil and gas Uganda

*Isa Kabenge*

Uganda's oil and gas sector is at the beginning of the phase for Midstream and Production development. After review of various projects' environmental risk assessment studies, this case study presents mitigation strategies and evaluation of how mitigation hierarchy approach was integrated. Results indicate that, to various levels of thoroughness, application of the mitigation hierarchy was integrated into the ESMP. Avoidance was effective where developed constraints maps fed into final designs adopted for projects' footprints. Standard controls in projects' designs were used in synergistic ways with project specific mitigation measures, shaped by stakeholder input and by professional judgement to minimize the activities' impacts. Non-conventional offset was implemented to improve management of a critical habitat. From experience of completed phase, opportunities for better applications of the mitigation hierarchy for sustainable oil and gas development in Uganda are suggested.

### MH study case in Los Bronces District Mine Chile

*Alejandro Tamayo*

AngloAmerican Los Bronces business unit is located in a central Chilean region within a "Chilean winter rainfall-Valdivian forest" biodiversity hotspot. The company has a Biodiversity Policy, which takes Mitigation Hierarchy as a main goal and is applied in all its business units around the world. This case will present an ongoing experience to make a sustainability plan for protected areas located near Los Bronces facilities that include natural conditions such as: spatial distribution of endemic fauna flora and vegetation species, white glaciers, natural hazards process and neighbors relationship. The main objectives plan are: add value to ecosystem identified from scientific investigation; implement a stakeholder engagement strategy (neighbors, authorities, NGOs and academic institutions); making technical documentation according local environmental law and Business and Biodiversity Offset Program; and get a validated process to mapping all objectives on the territory.

### Managing risks of offshore developments

*Fernando Rodriguez*

The need for energy continues to increase with much of the resource provided by offshore developments, especially oil and gas and wind farms developed in marine environments, both contributing to the energy mix needed now and in the foreseeable future. Offshore developments generally carry out an Impact Assessment (e.g. EIA, ESIA, ESHA) including a mitigation hierarchy, predicting measures that would avoid, reduce, and if necessary and possible offset significant adverse effects on ecosystems and people. This presentation reviews options available for biodiversity mitigation hierarchy in offshore marine environments.



WEDNESDAY, 15 NOVEMBER | 08:30-10:00 | PLENARY SESSION

## From the frontlines: a discussion with biodiversity safeguards specialists on lessons learned since 2012

Enrique V. Iglesias Auditorium

Chair: Conrad Savy

Moderator: Robin Mitchell

This panel of development finance institution specialists will explore lessons learned and challenges faced in the implementation of biodiversity-related standards since the last symposium in 2012. The focus will be on offering practical feedback to practitioners seeking to apply various standards in their work. Questions from practitioners are strongly encouraged to ensure a useful and interactive session. Panelists include Peter Moore (EBRD), Conrad Savy (IFC), Robert Langstroth (IDB), and Mark King (World Bank).

WEDNESDAY, 15 NOVEMBER | 10:30-12:00 | PARALLEL SESSIONS D

## The offset step: implementing commensurate and lasting interventions

Andrés Bello I & II

Chair: Robert Langstroth

Presentations will give examples of success or failure in all areas of offset design or implementation, including: integrating feasible and viable design within the IA process (technical, ecological, financial, social, and political aspects); financial, legal, and governance arrangements for singular or aggregated offsets; offsets costing; offsets and livelihoods/traditional values (synergies and conflicts; dealing with leakage).

### Habitat banks in Latin America: innovative offsets

Mariana Sarmiento

Colombia has established compensation/offsetting requirements for development projects that need an environmental license. The country has adopted a national methodology for calculating biodiversity compensation requirements which enables the creation of large-scale biodiversity offset options including habitat-banking. After conducting research it was found that: compensation initiatives are being done in an isolated manner; the duration of the compensation is not proportional to the duration of the impacts and therefore a net loss of biodiversity is not guaranteed; there is lack of monitoring of the offset process. The objective of the implementation of a Habitat Bank system in Colombia is to create and implement a private environmental compensation mechanism associated with sustainable land use, recovery of degraded areas and promotion of climate-smart agriculture. The presentation will cover the process and achievements of the first Habitat Bank as well as lessons learned.

### Wind power offsets: assessing gains for vultures

Leon Bennun

A planned windpower development in East Africa is in Critical Habitat triggered by two vulture species, Rüppell's Gyps rueppelli and White-backed G. africanus. Residual impacts on both species are expected after avoidance and minimisation measures have been implemented. Both species are in rapid decline, the main cause being incidental mortality from poisoned carcasses intended to kill predators. We developed a mathematical approach to assess potential gains from anti-poisoning interventions, and applied this to test the technical feasibility of a suite of possible offset approaches, including livestock compensation schemes to prevent poisoning, integrated anti-poisoning programmes, feeding stations and captive breeding. To assess gains, data are needed on vulture population sizes, rates of mortality from poisoning, and foraging range area. Many information gaps and uncertainties remain but the assessment framework provides a basis to refine gain estimates as more data are collected.

### The King Shaka International Airport offset

Lyle Ground

'Offsetting' in the South African environmental impact assessment context is becoming a common outcome included in environmental authorisations. Developers, in most cases, do not have the necessary specialist knowledge to ensure successful implementation. Consequently, a number of large scale offsets are still in the 'planning' phase with little prospect of success. The eThekweni Municipality has been a key stakeholder in the development of the King Shaka International Airport (KSIA) since the start of construction in 2009 and has been an integral contributor to the offset process, which began in 2010. The implementation stage was finally reached in 2017, with delays attributed to a number of different factors. This presentation will (i) explore, with practical links to KSIA, the factors that contribute to delayed or failed offsets, (ii) what contributed to the KSIA project progress, and (iii) the challenges and opportunities with the next stage of the project.

### Biodiversity offset strategy for a gas pipeline

Roberto Mezzalama

The TANAP gas pipeline spans over 1800 km across Turkey, crossing a wide variety of landscapes and habitats from the Caucasus to the Mediterranean. Biodiversity values impacted include threatened and endemic species, threatened habitats, key biodiversity and key evolutionary areas. Given the size of the project and number of biodiversity values at stake, the definition of the biodiversity offset strategy according to IFC PS6 and EBRD PR6 required the application of an ecosystem approach. The definition of residual impacts over natural habitats, priority biodiversity features and critical habitat has been done by implementing an algorithm that integrates the five IFC and four EBRD criteria into a GIS-based tool. The offset strategy proposed builds on the same tool to identify and screen potential offset candidate areas. The presentation discusses the methodological and technical challenges related to the various phase of the offset strategy for a linear infrastructure.

# PARALLEL SESSIONS

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## Ecosystem services: mind the gap

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**Andrés Bello III**

*Chair: Pippa Howard*

The mitigation hierarchy can frame mitigation strategies for Ecosystem Services (ES), but their multi-dimensional nature creates challenges. We consider how to implement efforts to balance ecological health and integrity with social wellbeing and livelihoods, targeting specific benefits on which ecosystem service users depend and developing integrated mitigation strategies.

### Mitigating impacts on ecosystem services

*Pippa Howard, Jo Treweek, Helen Temple, Maria Da Cunha, Ana Maria Esteves, and Susan Joyce*

In theory the mitigation hierarchy can be used to frame mitigation strategies for Ecosystem Services, just as it can for biodiversity, but the multi-dimensional nature of ecosystem services creates certain challenges. Should mitigation target the specific benefits on which ecosystem service users depend, or the ecosystems that provide the services from which these benefits are derived? This presentation will introduce the “Ecosystem Services: Mind the Gap” session. It will consider the challenges of integrating ecological and social aspects of mitigation for impacts on ecosystem services. Is the mitigation hierarchy a hindrance or a help? How can the necessary degree of participation and engagement be achieved and what safeguards are needed to avoid perverse outcomes for ecosystems or the people who depend on them for their wellbeing and livelihoods? We will identify key discussion points and planned outcomes to kick off the session.

### Assessing community dependencies on ES, Mozambique

*Twyla Holland*

Service provision by coastal ecosystems is well documented, as is the critical reliance of under-developed coastal communities on those services. Development of extractives projects in such areas has the potential to severely impact the supply of services to communities through both direct and indirect project impacts and thus a clear understanding of the relationship between communities and the environment, and the potential impacts of development is required to ensure that projects develop sustainably. I will present the approach taken by Fauna & Flora International and a leading oil & gas company to conducting an integrated assessment of ES in northern Mozambique that combined the principles of sustainable, successful community investment with the principles of biodiversity and natural resource conservation. The presentation will highlight the importance of collaboration between environmental and social teams and of conducting ES baseline studies at an early stage of project design.

### Practical strategies to bridge the gap: ES review

*Emma Tatum-Hume*

Despite calls for an integrated approach to impact assessment and mitigation, ESAs and Management Plans continue to be developed and implemented in silos, leading to poor outcomes for people and the environment. ‘Ecosystem Service review’ is a practical tool that can be used to close gaps in understanding between social and environmental teams, identify gaps and synergies in mitigation measures and plan an integrated management approach. We present lessons learned from carrying out an Ecosystem Service Review for a mining project in Guinea which will have substantial impacts on globally significant biodiversity (e.g., Critically Endangered Western Chimpanzees *Pan troglodytes verus*) and on local populations who depend on the natural environment for their livelihoods, wellbeing and culture. Results were positive; however, better outcomes would have been achieved if the process had been applied at the beginning of the project cycle as a planning tool.

**WEDNESDAY, 15 NOVEMBER | 13:00-14:30 | PARALLEL SESSIONS E**

## Principles to practice showcase: cases and examples

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**Andrés Bello I & II**

*Chair: Peter Moore*

The application of the mitigation hierarchy is the cornerstone of biodiversity conservation and management. Through a series of case studies from the extractive and renewables sectors, this session will explore good international practices in the application of the mitigation hierarchy.

### A new approach to assess hydropower alternatives

*Andrew Cauldwell*

The Government, Republic of Congo, proposed to develop the 500MW+ Sounda Gorge hydropower facility, and contracted IFC in an advisory capacity. Initial scoping results suggest that compliance to IFC's Performance Standards may be challenging. ERM coordinated a team to assess alternative hydropower options in the Kouilou-Niari River Basin. Mott MacDonald identified new sites from terrain and hydrology data, with power output and financial data calculated. Opportunities were reduced to 8 viable sites by excluding unattractive sites on E&S, power and financial data. The Nature Conservancy and The University of Manchester applied the Hydropower by Design framework to assess trade-offs between critical habitat, indigenous people, power and financial metrics to identify dam combinations that provide optimised performance alternatives. A state-of-the-art analysis considers system-scale design and impacts of interventions presented to stakeholders using interactive online software for decision-making.

## Quantifying the mitigation hierarchy

*Catherine Sahley*

We quantified avoidance, minimization, restoration and impact reduction for the 25 m wide right of way of a 408 km natural gas buried pipeline that crosses 14 Ecological Landscape Units (ELUs) in the tropical Andes of Peru. Applying the mitigation hierarchy as part of a biodiversity action plan reduced impacts in all habitats studied. Avoidance and right of way minimization contributed to significant impact reduction in high priority habitats, although restoration contributed most to impact reduction overall. We documented how biodiversity monitoring over large-scale spatial scales, in combination with site-specific monitoring, generated data for management to determine restoration priorities and impact mitigation. A biodiversity action plan that incorporated the mitigation hierarchy and a science-based biodiversity monitoring and assessment program contributed to biodiversity management of the project and played an important role in minimizing and managing impacts.

## Trading services and impacts for optimum solutions

*Pippa Howard*

To identify optimal solutions for biodiversity and ecosystem services in site planning requires the application of the mitigation hierarchy. However, even with a good understanding of ideal areas for biodiversity other factors need to be considered. These include designing the site layout to limit wider issues and consider local community's ecosystem service priorities that are usually provisioning and cultural rather than regulating. This leads to placing greater emphasis on the next stage of the mitigation hierarchy. This presentation will showcase the realities of applying the mitigation hierarchy and the tradeoffs considered at Sakatti where the siting of tailings has meant that the preferred siting from a biodiversity point of view could cause wider environmental pressures (increased traffic, noise and dust emissions) and is not the preferred option from a stakeholder point of view. Therefore more emphasis on minimizing the impact through engineering design has been developed.

## Mitigation using turbine shutdown on demand

*Ricardo Tomé*

Wind farms located in migratory flyways are particularly susceptible to cause mortality from collisions, requiring innovative mitigation tools. Radar Assisted Shutdown on Demand (RASOD) emerged as the appropriate minimization measure to be implemented in the BSJ (Portugal) and the GEZ (Egypt) wind farms. Both were installed in important migratory corridors for soaring birds, where thousands (BSJ) or hundreds of thousands (GEZ) of birds occur yearly. The temporary shutdown of turbines has proved extremely successful resulting in very low mortality in both sites. Total equivalent shutdown periods were minimal (3-4h in GEZ; 14-105h in BSJ) and represented less than 0.03-1.11% of the equivalent hours in a year. RASOD performance improved over time as result of cumulative experience and adaptive management. Results of RASOD operation concerning very low bird mortality and negligible production losses render it as an essential measure to be involved in mitigation hierarchy in similar cases.

## Mitigation hierarchy in action: case of a pipeline

*Nikki O'Donnell*

A post-ESIA critical habitat assessment and additional ecology surveys were undertaken for a transnational gas pipeline in southern Europe, leading to enhanced understanding of some biodiversity values as well as identification of new biodiversity values. This presentation examines the application of the mitigation hierarchy to three species encountered: brown bear, an endemic freshwater fish and an endangered plant. All three were found to trigger critical habitat under IFC PS6, EBRD PR6 and the EIB Standard on Biodiversity and Ecosystems. Brown bear was already reasonably well studied regionally, and surveys for the plant species provided definitive data on its distribution and habitat preferences. The fish, however, was relatively new to science and subject to high levels of data uncertainty. As this work was progressed after the mobilization of the construction contractor, it was a race against time to overcome a number of challenges and achieve positive biodiversity outcomes.

## Stakeholder engagement and participation

**Andrés Bello III**

*Chair: Fabien Quétier*

Appropriate stakeholder engagement is a common gap in biodiversity management, despite the capacity and information that projects need from stakeholders. Through examples, this session explores challenges and solutions on how to best consult stakeholders, the type of information that can be obtained and how it can be used.

## ICP: legacy, indigenous people, livelihood

*Shivcharn Dhillon*

Informed consultation and participation (ICP) has been considered as central to approaches for all infrastructure projects which involve land-take, forest-productive land use changes, natural resource loss or change in accessibility/ownership, and cultural reconstructions. ICP processes ideally can work smoothly in areas where projects are new, but more complex when there is a legacy of other projects in the same location or region, changes in proponent (sponsor) practices, are found in conflict areas and migration paths, and subject to changes in the modes of governance. This paper will present ICP (FPIC) practice from a number of hydropower projects where legacy issues are important drivers, forest dependence is high, water/river serves as key livelihood base, ecosystem services are altered and food security and poverty directly influence well-being. How is the ICP approach to be developed, implemented and reported? Examples will be drawn mainly from projects in S.E. Asia and Africa.



# PARALLEL SESSIONS

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## **Tools for broadening the scale of MH application**

*Healey Hamilton*

Many stakeholders in the mitigation community are striving to implement the mitigation hierarchy across broader scales of space and time. Leaders are developing landscape scale cumulative impacts assessments, and No Net Loss (NNL) or Net Positive Impact (NPI) conservation goals in those landscapes. These forward thinking approaches require methods for developing the underlying data to support landscape scale conservation planning, and visualization tools for communicating progress toward landscape scale mitigation objectives. Refining distribution data for at-risk species is an essential step for moving beyond project based presence-absence surveys. Here we show that species distribution modeling has matured as a method to support landscape scale NNL and NPI species conservation goals. We also demonstrate how interactive dashboard visualization tools can communicate progress and challenges in achieving ambitious NNL or NPI mitigation targets across larger spatial and temporal scales.

## **Integrating stakeholders in mangrove conservation**

*Don Kent*

Our goal is to pilot an integrated conservation and management approach to foster sustainable use of mangrove ecosystems. With the support of the Inter-American Development Bank, the approach is being piloted in the Alvarado Lagoon System (ALS), Veracruz, Mexico. The ALS is inhabited by more than 50,000 people, including indigenous communities, dependent on mangroves for subsistence, income, and culture. We are testing our approach in the collectively managed La Mojarra Ejido. Stakeholders assisted us with an ecological assessment to determine current extent, condition and uses of the Ejido mangroves. Socioeconomic and socioecological assessments are underway to define how members consider tradeoffs in conserving or restoring mangroves versus choosing other land uses. We summarize our experience with the Ejido, and outline a management model to guide Inter-American Development Bank projects throughout Mexico, Latin American and the Caribbean.

## **Composite offset as a strategic assessment tool**

*Greg Mullins*

Achieving ecological integrity in developing economies always presents a challenge between achieving ecosystem protection goals and promoting social and economic growth. In the South African context, consideration of the environment in development decision making is largely done at project level EIA stage, usually too late in the planning process. This paper explores a partnership entered into between the regulated community and the regulator where the mitigation hierarchy was proactively utilised in an attempt to find a way of balancing the social, economic and environmental imperatives at strategic spatial planning stage and thus avoiding conflict in land use planning and environmental decision making. The pilot approach involved the cumulative assessment of a series of planned developments, including the identification and assessment of the predicted impacts, their mitigation and ultimately the development of three composite offset receiving areas to fully mitigate the impacts.

## **Understanding no-go areas for better avoidance**

*Divya Narain*

The IUCN's recent reiteration of its stance that all protected areas should be off-limits to industrial activity has renewed the global debate on no-go areas. The conservation community and the industry have been in disagreement over which areas should be no-go for industrial-scale development and extractive activities. This lack of stakeholder consensus is matched only by the complexity of no-go policies governing protected areas. Extractive and infrastructure companies increasingly employ the mitigation hierarchy to manage their biodiversity impacts. Clearly-defined and agreed-upon no-go areas aid siting decisions during the avoidance step. Greater clarity and consensus on no-go areas is thus crucial for effective application of the mitigation hierarchy. This paper examines the current stakeholder positions on no-go areas and examines ways of forging consensus. It also parses no-go policies surrounding protected areas in order to evolve an appreciation of their complexity.





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## POST-SYMPOSIUM TRAINING COURSES

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Post-symposium training courses will run from 09:00-17:00 on Thursday, 16 November, and Friday, 17 November. All courses will be held at IDB Headquarters (1300 NY Avenue); participants were contacted in advance with specific room assignments. Advance registration and payment were required for participation in training courses; on-site registrations will not be accepted. For full course details, visit <http://conferences.iaia.org/wdc2017/training.php>.

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## SHARE WITH PHOTOS

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Participants are encouraged to share symposium photos with Headquarters staff for posting on IAIA's Facebook page and other uses. Please identify the location, the individuals pictured, and the photographer, and send your photo(s) to [info@iaia.org](mailto:info@iaia.org).

If you are posting symposium photos on your Instagram, Facebook, or Twitter account, please tag **#iaiasymposium** so the photos can be collected and shared throughout IAIA as well.

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## LIVE TWITTER FEED

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Are you keen to share your thoughts on a presentation or reflect on the day's events? Symposium participants are encouraged to tweet throughout the event on the hashtag **#iaiasymposium**. A summary of the tweets will be posted in the symposium proceedings.

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## ACCOMMODATIONS AND TRANSPORTATION

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The local hosts suggested several hotels near the symposium venue. For booking instructions, visit <http://conferences.iaia.org/wdc2017/plan-your-stay.php>.

Transportation suggestions for Washington, DC, airport arrivals and departures are available at <http://conferences.iaia.org/wdc2017/plan-your-stay.php>.

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## MEALS

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Symposium registration includes coffee breaks (coffee, tea, and juice only) and lunches on 14 and 15 November. Based on registration forms, IAIA has estimated a percentage of vegetarian meals. This does not guarantee accommodation of individual preference or special need.

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## LANGUAGE USED

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English is the primary language used at IAIA events. Unless otherwise noted, all sessions will be held in English.

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## INTERNET ACCESS AND BUSINESS SERVICES

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Free guest wifi is available throughout the venue.

PowerPoint projectors and laptop computers will be provided in each session room. If you request additional equipment on-site, its availability cannot be guaranteed and you will be responsible for any associated costs. Presenters are responsible for supplying their own session materials.

Because of rental costs that would necessarily be passed on to all delegates in the form of higher registration fees, IAIA does not provide copying, printing, computers, or other business services.

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## VIDEO/AUDIO POLICY

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Individuals officially identified by IAIA may photograph, videotape, and/or audiotape symposium events. By attending the symposium, you agree to allow your image to be used by IAIA.

To foster sharing of information and open discussions, IAIA encourages presenters and panelists to speak freely and respectfully share their knowledge and experiences. During technical sessions, individuals are not permitted to record with personal audio or visual equipment or other recording devices such as cell phones, cameras, or recorders, without permission from the speaker.

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## INSURANCE AND LIABILITY

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IAIA, the organizing committee, and the venue will not be responsible for medical expenses, accidents, losses or other unexpected damage to property belonging to conference participants, either during or as a result of the conference and during all events. Participants are strongly advised to arrange their own insurance for health and accident, lost luggage, and trip cancellation.

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## ACCESSIBILITY

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Attendees with a disability and/or special accessibility needs were asked to contact IAIA HQ by 27 October to make arrangements. If you have a disability and/or have special accessibility needs and require assistance, please advise IAIA staff at the registration desk. However, we cannot guarantee accommodation of requests made on-site.



## **SAFEGUARDS AND SUSTAINABILITY**

### **OUR COMMITMENT**

We recognize that long-term economic growth and the reduction of poverty and inequality in Latin America and the Caribbean depend on development that is both socially inclusive and environmentally sustainable. To that end, we have made a commitment to maximizing positive environmental and social outcomes of our work while minimizing risks and negative impacts on people and natural capital.

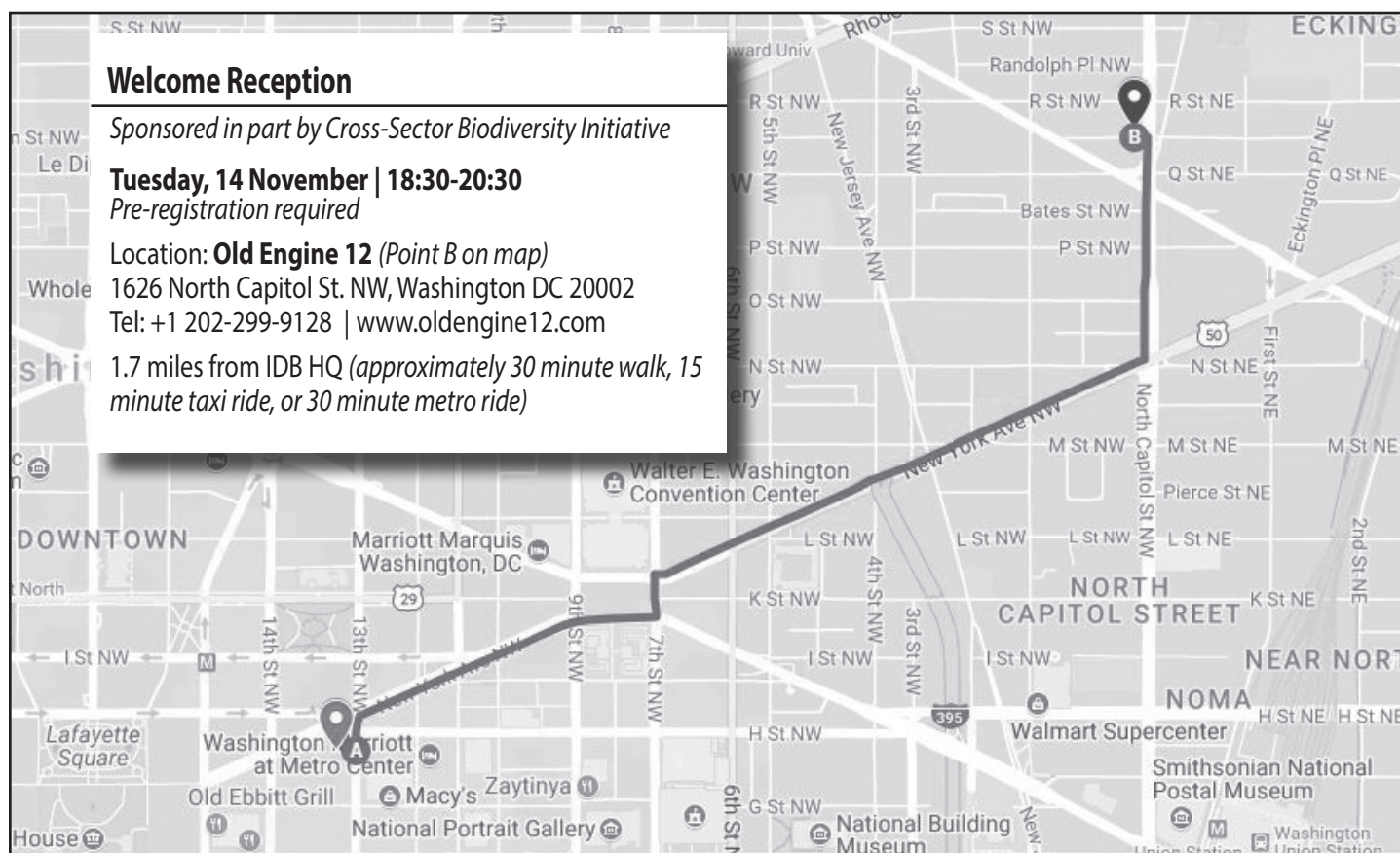
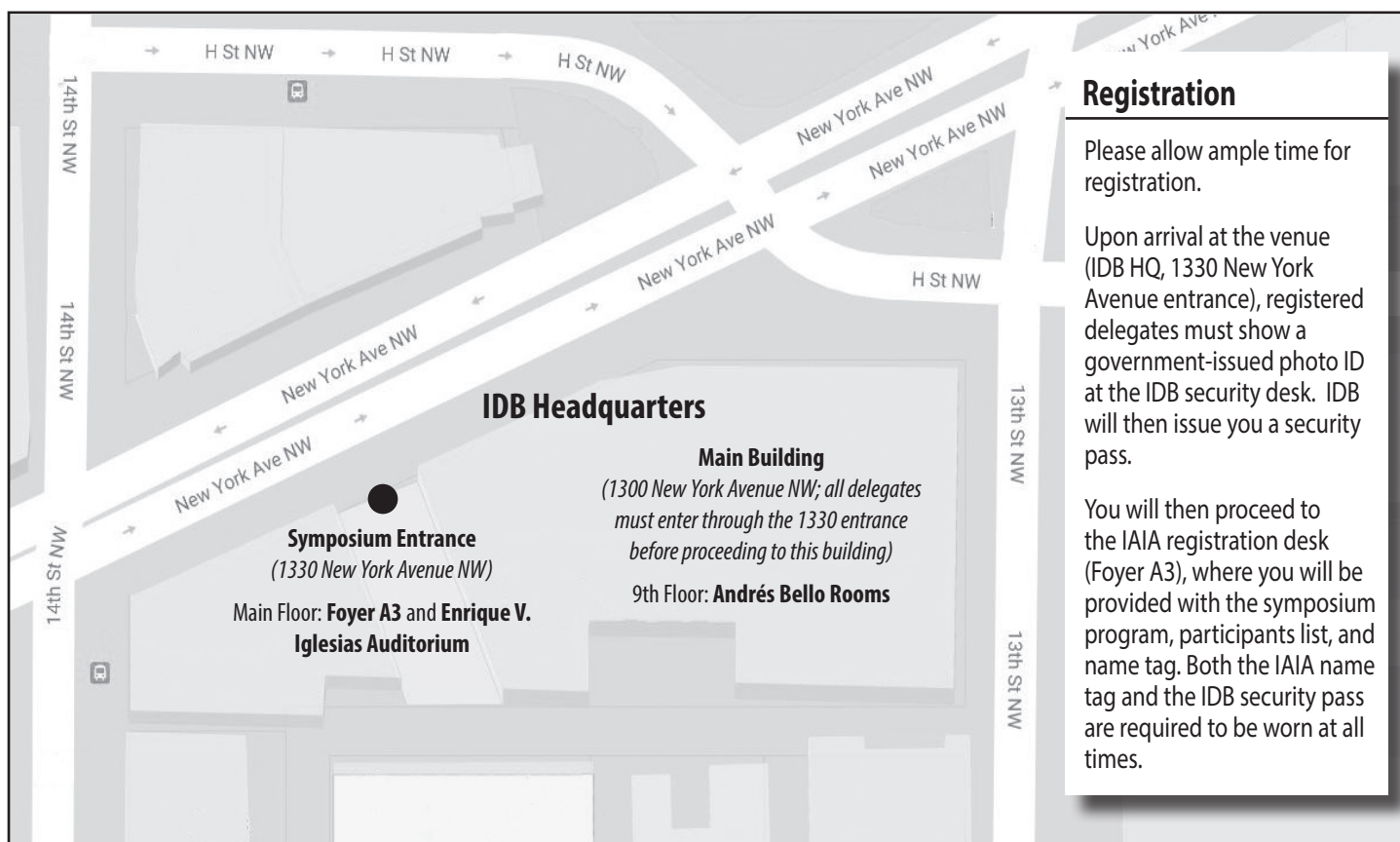
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### **OUR SAFEGUARDS**

We apply a comprehensive set of environmental and social safeguard policies to the projects we finance to help protect against environmental and social harm, improve development value for our stakeholders, and enable our countries and clients to meet best international practices. These policies are essential to our mission to reduce poverty and inequality in Latin America and the Caribbean.







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**Morgan Hauptfleisch**, Namibia University

**Pippa Howard**, Fauna and Flora International

**Robert Langstroth**, IDB

**Peter Moore**, EBRD

**Conrad Savy**, IFC

### ABOUT IAIA

IAIA is the International Association for Impact Assessment, organized in 1980 to bring together researchers, practitioners, and users of various types of impact assessment from all parts of the world. IAIA involves people from many disciplines and professions. Our members include corporate planners and managers, public interest advocates, government planners and administrators, private consultants and policy analysts, university and college teachers and their students. IAIA has members from over 120 nations. For 37 years IAIA has been holding annual conferences and events all over the world to promote best practices in impact assessment.

Special thanks to the IAIA Biodiversity and Ecology Section and IAIA Washington Area Branch (WAB) for their assistance on this special symposium. IAIA Sections provide forums for members with mutual interests to share experiences and discuss ideas, and IAIA Branches are groups of IAIA members located within a geographic region who gather locally for meetings.

**Biodiversity and Ecology Section:** [www.iaia.org/section-discussion-forums.php](http://www.iaia.org/section-discussion-forums.php)

**Washington Area Branch:** [www.iaia.org/washington-area-branch.php](http://www.iaia.org/washington-area-branch.php)



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