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Green Road to Kunming

Planning Environmentally Sustainable Infrastructure

WORKSHOP SERIES 2022 28 April / 19 May / 23 June / 21 July

SESSION

2

Greening the Energy Sector

19 May 2022 (Thursday) / 12:30 p.m., Philippines (GMT+8)

Using sensitivity mapping to avoid conflict between birds and renewable energy in emerging markets

Tris Allinson, BirdLife International
Duncan Lang, Asian Development Bank



Scaling Up Renewables Ambitions – ADB Context

- ADB has committed to cumulative climate financing of \$100 billion by 2030. Of which \$66 billion will be from climate mitigation.
- ADB has committed to become fully aligned with the Paris Agreement by 2025 with sovereign operations aligned by July 2023.
- ADB continues to scale up green energy targets and as of today over 20% of our Green Bond comprises of renewables projects and over \$4 billion of our existing bond is within the renewables and energy efficiency sector.
- Wind, Solar and Transmission Projects will be significant component of our portfolio in coming years.



Challenges – ADB Context

- Governments determine development ‘blocks’ to the private sector. Winning bidders have little room for “avoidance” of high biodiversity value within their block, except possibly micro siting / mitigation.
- Power Purchase Agreements often require commercial operation in 2-3 years – meaning very limited time to do robust assessment let alone build the project to meet these timeframes.
- Feed In Tariffs incentivise completion of projects quickly – negatively weighting against completion of proper due diligence.
- National requirements for renewables / transmission are negligible reducing lender leverage



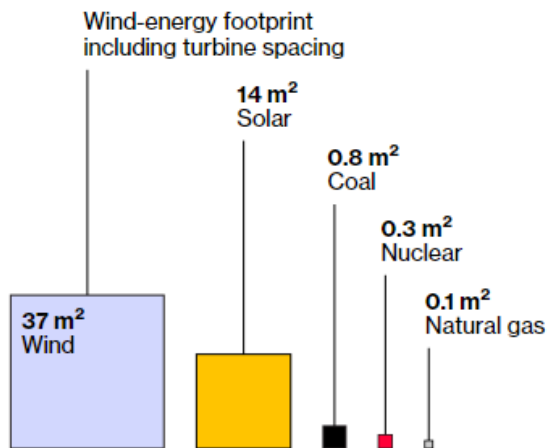
Opportunities

- Landscape Scale Approach at a Sector Level during Country programming – use of SEA.
- Engagement with governments to take further upstream consideration of biodiversity interests in renewables planning.
- Development of Tools to support renewable development and speed up access to lender finance - AVISTEP



Renewables are space-intensive

- Requiring many millions of square kilometres of land and sea globally
- A more than doubling of power lines.



Land area needed to power a flat-screen TV, by energy source

Note: Assumes 100-watt television operating year-round

Source: van Zalk, John, Behrens, Paul, 2018, The Spatial Extent of Renewable and Non-Renewable Power Generation



Poorly sited renewable energy infrastructure undermines green credentials

- If renewable energy developments are sited purely to maximise wind and solar resources, then this could jeopardise over 11 million ha of natural lands globally, including over 3 million ha of Key Biodiversity Areas (KBAs), and the ranges of over 1,500 globally threatened species.
- This loss of natural habitat could release over 400 million tons of stored carbon, undermining climate change targets.

SOURCE: Kiesecker, J., Baruch-Mordo, S., Kennedy, C. M., Oakleaf, J. R., Baccini, A. and Griscom, B. W. (2019) Hitting the Target but Missing the Mark: Unintended Environmental Consequences of the Paris Climate Agreement. *Front. Environ. Sci.* 7:151. doi: 10.3389/fenvs.2019.00151





Too often in emerging markets with weak nature legislation renewable development is targeted at areas where it is believed to be easiest. Namely, landscapes perceived as being “empty”.



Caatinga, north-eastern Brazil



Thar Desert, India



Intertidal mudflat, south-east Asia



Lear's Macaw *Anodorhynchus leari*



Great Indian Bustard *Ardeotis nigriceps*



Spoon-billed Sandpiper *Calidris pygmaea*



The “Canudos 1” wind energy facility under construction in Bahia, Brazil threatens the only home of the Endangered Lear's Macaw.



The Great Indian Bustard is on course to go extinct due to badly planned renewable energy

- The single greatest threat is collision with power lines associated with wind and solar development.
- Their rapid flight, weight (they are the heaviest flying bird in the world), and the fact that they have a restricted visual field make this species uniquely susceptible to power line collision.
- The Wildlife Institute of India (WII) estimate that there are on average 18 fatal collision events each year. With a population of less than a hundred, extinction is inevitable and imminent.



There is ample scope to avoid sensitive locations

- ✎ Wind and solar are widespread resources.
- ✎ Wind farms and solar facilities can be readily integrated into landscapes of low ecological value, such as agricultural and industrial sites.

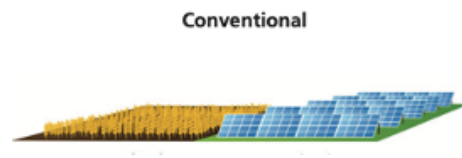


There is ample scope to avoid sensitive locations

- ✧ Wind and solar are widespread resources.
- ✧ Wind farms and solar facilities can be readily integrated into landscapes of low ecological value, such as agricultural and industrial sites.
- ✧ Even in India, which has ambitious targets for renewables and numerous competing land use demands, analysis shows that there is 12 times the land needed to achieve the country's solar and wind goals simply by using degraded lands with low social and ecological value.

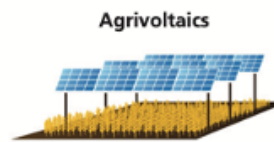


Achieving RE targets globally will increasingly require integrating technologies within urban and agricultural landscapes (e.g. Agrivoltaics) and promoting small-scale, decentralised facilities which benefit local communities.



100 % wheat + 100 % solar power
on 2 hectares

100 % land use efficiency

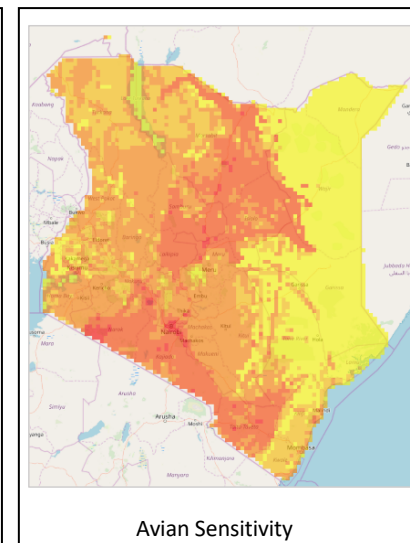
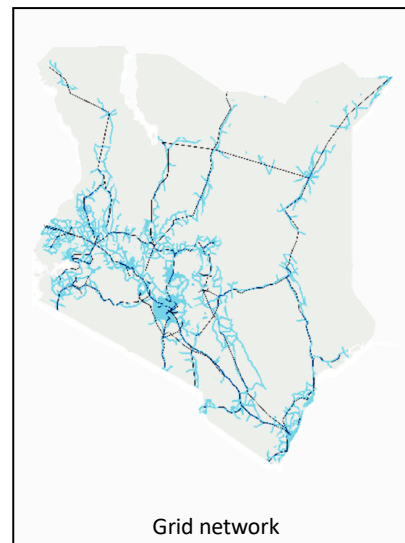
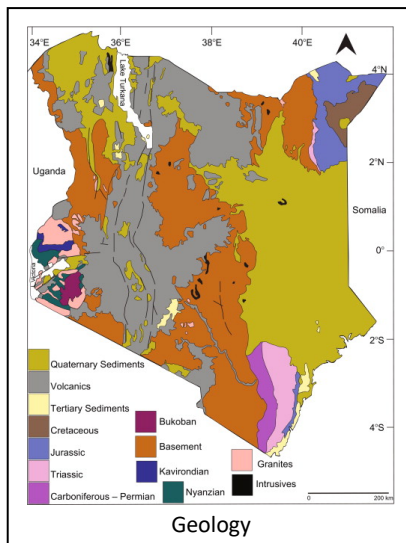
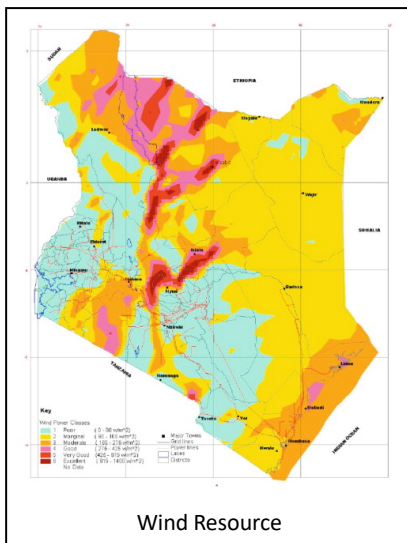


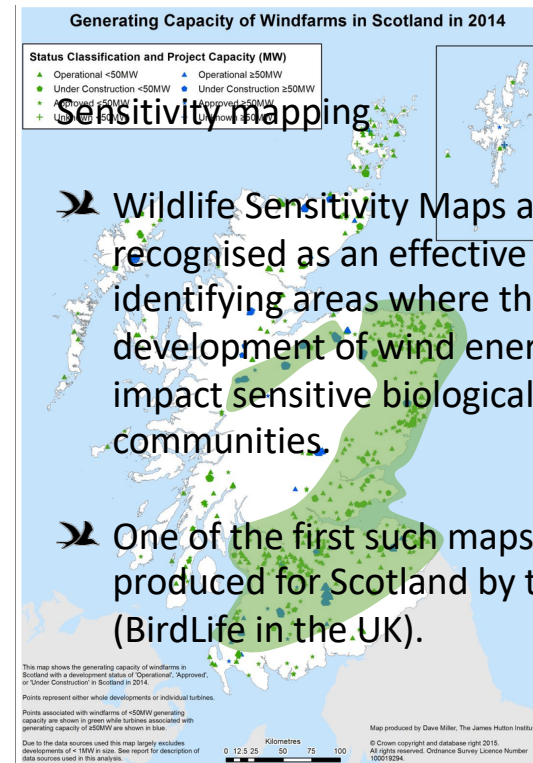
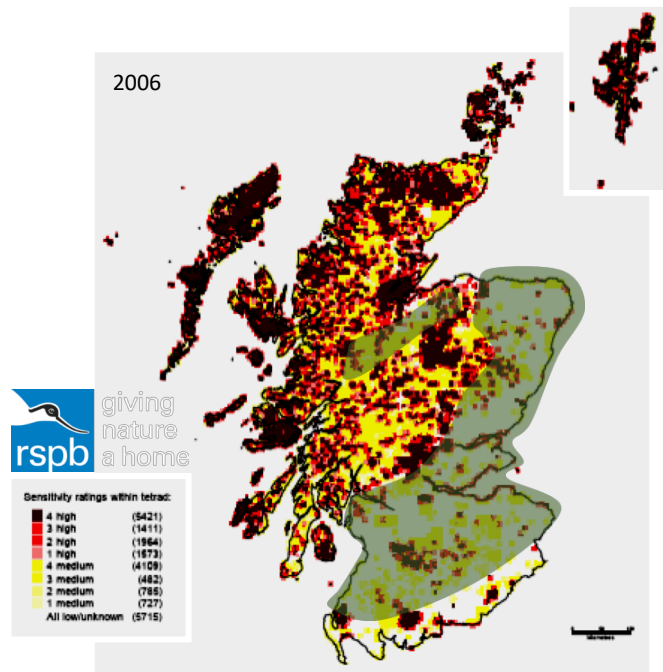
80 % wheat + 80 % solar power
on 1 hectare

160 % land use efficiency



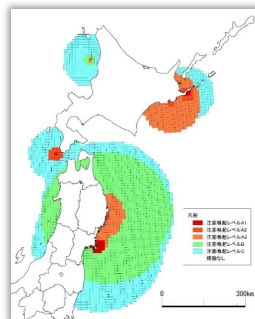
Need to ensure that spatial data on birds and biodiversity is considered alongside other routinely used sources of spatial information.



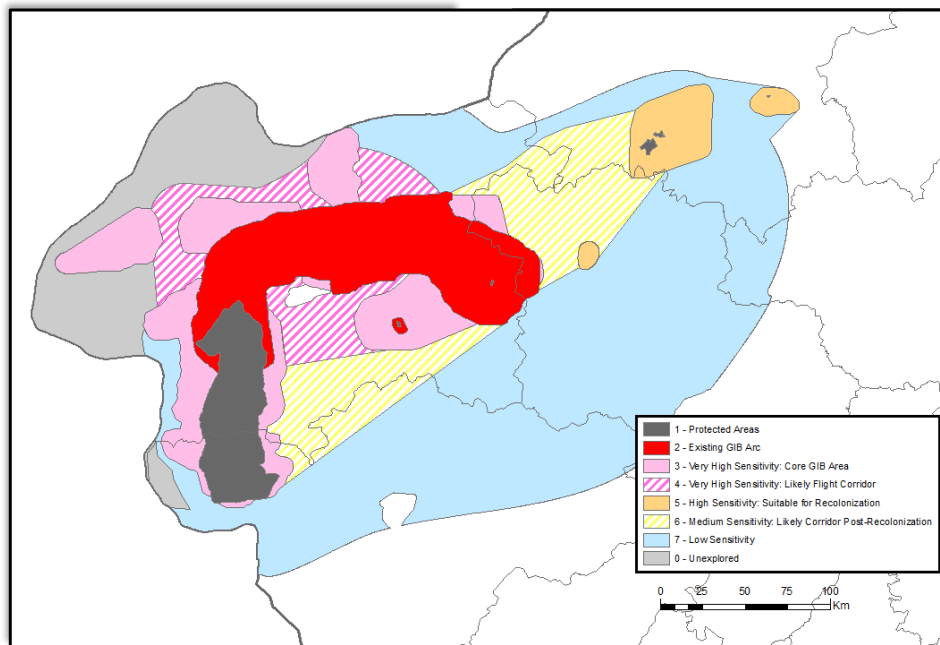


BirdLife is a world authority on developing maps of avian sensitivity

- BirdLife's *Soaring Bird Sensitivity Mapping Tool* tinyurl.com/MSBmap covers the Mediterranean, the Middle East and Northeast Africa.
- BirdLife works with governments, International Financial Institutions, consultancies and developers to promote sensitivity mapping.



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IFC

International
Finance Corporation
WORLD BANK GROUP

AVISTEP

THE AVIAN SENSITIVITY TOOL FOR ENERGY PLANNING

AVISTEP will provide an assessment of avian sensitivity in relation to:

- Wind energy (on- and offshore)
- Photovoltaic (PV) solar
- Overhead power lines (transmission and distribution)



ASIAN DEVELOPMENT BANK



AVISTEP Launch

June 2022 Asia Clean Energy Forum

Our longer-term ambition is to expand AVISTEP around the world, establishing it as a preeminent tool for renewable energy planning globally.

A high priority is to expand the tool across the Central Asian Flyway to countries such as Uzbekistan, Mongolia and Sri Lanka. But also East Africa and Latin America.



ASIAN DEVELOPMENT BANK

An aerial photograph showing a two-lane asphalt road with yellow center lines and white edge lines, winding through a dense, lush green forest. The road is positioned on the right side of the frame, leading the eye from the bottom right towards the top left.

THANK YOU!

ADB