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# Birds and Wind Farms within the Rift Valley/Red Sea Flyway

Wind energy can make a valuable contribution to reducing greenhouse gas emissions and developing a green economy. BirdLife welcomes the development of wind energy within the region and supports the shift to renewables.

However, wind farms are likely to pose a significant risk to birds if they are inappropriately located. Any adverse impacts are likely to be associated with collision, disturbance/displacement, and barrier effects.

Donors, development banks and financiers can ensure that bird and biodiversity impacts are minimised by:

- Using a precautionary avoidance approach in relation to the location of wind turbines close to Important Bird Areas and key biodiversity areas
- Classifying wind power projects as category A (high sensitivity). Data is currently limited within the flyway, and therefore developments require full **Environmental Impact Assessments** (**EIA**)
- Providing an enabling environment for the mainstreaming of bird and biodiversity concerns across government departments and different sectors
- Creating an enabling environment to allow governments to complete strategic planning of developments, utilising the **Strategic Environmental Assessment** (**SEA**) approach
- Providing funding to projects which have undertaken appropriate impact assessments such as EIA, and ensuring that these assessments are of a high standard
- Using ornithological assessments that are appropriate and reviewed by a trained expert, to ensure adequate assessment of funded projects
- Recognising the importance of ecological and bird data being freely and publicly available from a centralised source, and advocating for this information to be made available
- Requiring mitigation of any impacts of a development. This must be enshrined in project contracts, and enforcement mechanisms must be in place to ensure compliance
- Supporting capacity building in governments, local consulting firms and civil society, to enable them to engage in all stages of the mitigation hierarchy for wind energy developments
- Providing additional funds for the generation of new and additional data and sensitivity mapping
- Encouraging regional sharing of good practice examples and information, to reduce impacts and improve knowledge.

BirdLife International supports the transition to more renewable sources of energy. However this transition must avoid harm to ecosystems and biodiversity. Wind farms can make a valuable contribution to tackling climate change, by providing energy with substantially lower emissions than fossil fuels, and at a significant viable scale.

However, poorly designed and sited wind farms have been shown to have detrimental effects on birds. BirdLife recognises that a balanced approach to wind energy development is needed, which recognises national, regional and international priorities and in which competing interests are considered. Defining this approach is an intricate process that requires the inputs of a range of stakeholders, to ensure that balanced decisions and the most sustainable solutions are achieved. Developments banks can play an important role in informing the decisions taken, and ensuring that bird and biodiversity concerns are mainstreamed into national decisions and across sectors.

The potential for generation of renewable energy across the Middle East and North Africa, especially within the Rift Valley/ Red Sea area, is very high, with significant developments planned across the flyway. For example, the Red Sea coast could potentially produce 20GW of electricity annually from wind energy. BirdLife welcomes the commitment to renewable energy, and understands the key role such developments have in delivering low carbon futures and a secure energy supply for all citizens, and the contribution this can make to improving livelihoods. Donors and development banks have a key role to play in facilitating this process, but must ensure that the benefits derived are not to the detriment of lasting sustainable development. This can be achieved by the integration of bird and biodiversity concerns into the decision-making processes.

BirdLife is committed to working with donors and development banks and all other stakeholders to deliver renewable energy projects in ways which minimise the impact on the environment. BirdLife is seeking to engage with donors, development banks and financiers to ensure biodiversity and bird issues are mainstreamed and impacts minimised.

Whilst the majority of wind farms will have little negative environmental impact on birds, inappropriately placed or poorly designed farms could lead to serious environmental impacts, including significant bird mortality and risks for rare or protected species. These negative impacts could potentially lead to scrutiny of projects and negative coverage of the renewable energy sector. It is in the public interest to ensure bird safety, and it should be a priority of donor organisations, development banks and financiers to minimise the environmental externalities of the projects they finance.

The region is extremely important globally for bird species, and has a number of charismatic species and significant populations of migratory birds. The Rift Valley/Red Sea flyway is the second most important flyway in the world for migratory soaring birds. Over 1.5 million migratory soaring birds of 37 species use the flyway annually, including raptors, storks, pelicans and cranes, of which five are globally threatened. Each country in the region has unique contributions to make to ensure the continued resilience of the bird species present within their own borders, and to flyway-scale conservation.

Special attention needs to be given to the development of wind farms and the associated power lines along migration flyways. Development banks and financiers need to consider that wind turbines are being planned along the length and breadth of the flyway, and thus the cumulative impacts upon birds through poorly designed and sited farms could be very significant. It is thus critical that bird considerations are taken into account in the construction, operation and maintenance of wind farms within the region.

This guidance document is designed to inform development banks and financiers and donor organisations of the potential impacts of wind farms on birds, and recommends specific practices that can reduce these impacts. Having references and commitments embedded in contracts, which ensure that birds and biodiversity issues are mainstreamed, will reduce investment risk, guarantee lasting sustainable development, and protect birds and biodiversity, now and for future generations. The World Bank Group has produced a study, 'Greening the Wind: Environmental and Social Considerations for Wind Power Development'[1]. Although targeted at Latin America, this describes the key environmental and social impacts that are associated with large-scale and grid-connected wind power developments, and provides many recommendations that are also reflected in this guidance.

Many commercial banks and multilateral banks have endorsed the Equator Principles, which include a requirement to conduct environmental due diligence of projects, in order to identify material risks to any investment. The same should apply to private investors, as any wind farm project which affects a protected or sensitive area, or a threatened species (national or global), should be considered a risk not just financial, but also reputational.

## Potential Impacts

Wind energy developments can potentially have serious negative impacts on birds and other biodiversity such as bats, both from the turbines themselves, and from associated infrastructure, such as power lines. For example, the installation of 68 wind turbines on the Smöla archipelago in Norway is believed to have caused the local breeding population of White-tailed Eagles *Haliaeetus albicilla* within the wind farm to decline. From 2005-2009 there were 28 casualties, 16 being adult birds potentially holding a territory[2]. At the Altamont Pass development in California, USA, over 5000 turbines are responsible for the deaths of an estimated 1000 raptors annually[3].

Some bird species are more vulnerable to the negative impacts of wind turbines. Species likely to have a high vulnerability are soaring birds, raptors, seabirds, migratory species and birds with aerial flight displays. Many of the high-risk species are also long-lived, with low natural mortality and reproductive rates, meaning that they are particularly vulnerable at a population level, and the additional stress of mortality from wind turbines may be significant.

Significant effects of wind farms on birds are likely to include:

- **Collision**: with turbines and blades and guy-ropes leading to death or injury. At Altamont Pass in California it is estimated that over a 20-year period 25,000-100,00 birds were killed on a wind farm consisting of 7,300 turbines[4];
- **Displacement** from habitats used regularly by birds, or **Barriers** along preferred migratory routes. A slight change in flight direction, height or speed may result in fitness costs to the bird, or reduced numbers of birds using areas beyond a wind farm. Disturbance effects can mean that habitats adjacent to the development are not utilised by birds for feeding, roosting or nesting, meaning the impact of the development is greater than the area itself, and a buffer zone may also need to be included. Studies have shown that this displacement could occur at least 800m from turbines for certain species[5];
- **Habitat impacts**: fragmentation of landscape, or site-specific damage which can reduce the ability of an area to support birds and bird populations.

[1] Ledec G, Rapp K, Aiello R (2011) Greening the Wind: Environmental and Social Considerations for Wind Power Development The World Bank Group, Washington D.C. USA
[2] Dahl E. L., Bevanger K., Nygard T, Roskaft E, & Stokker B.G., (2012) Reduced breeding success in white-tailed eagles at Smola windfarm, western Norway, is caused by mortality and displacement Biological Conservation 145 79-85
[3] Smallwood, K. S. and Thelander, C. G. (2008) Bird mortality in Altamont Pass Wind Resource Area California. J. Wildl. Manage.72: 215–213.
[4] Thelander C.G., & Smallwood K.S. (2007) The altamont pass wind resource areas effect on birds: a case history pp 25-46 In : de Lucas M Janss G.F.E. & Ferrer (eds) Birds and Wind Farms Quercus, Madrid
[5] Hotker (2006) the impact of repowering of wind farms on Birds and bats Michael-Otto-Instiut imNABU Bergenhusen

The potential impacts and effects a development may have on birds are dependent on the specific location and the species associated with this site. The cumulative impacts of successive developments could be significant; the first wind farm along a flight path may result in a small but acceptable level of bird mortality or loss of condition (weight etc.), which has little impact on the overall population level. However if successive wind farms have an effect, these cumulative effects may exceed the capacity of the population to regenerate, in which case the bird population may go into decline. Assessment of the cumulative impacts of developments is necessary at a regional and national level.

On a migratory flyway, the potential impacts can lead to disruption of linkages between distant feeding, roosting, moulting and breeding areas. Each country within the flyway has a responsibility to flyway-scale conservation, as actions in each country can affect the flyway in any adjacent country.

## Strategic planning and assessment

The potential negative impacts associated with wind farm developments will be significantly reduced by the use of a positive planning framework, and development taking place within a strategic framework. Strategic planning should be used in conjunction with other mechanisms to reduce overall energy demand and improve efficiency. By ensuring stringent efficiency targets and funding efficiency projects to reduce consumption, development banks and financiers can reduce the need for large-scale infrastructural projects.

The use of a **Strategic Environmental Assessment** (**SEA**) allows stakeholders to identify long-term strategic areas for future development, and also provides an enabling environment for private sector developers to prioritise areas for development and reduce future costs.

Where there is a high probability of a significant impact, this area should be excluded from future development and finance. Protected areas and other sites important for biodiversity, such as Important Bird Areas, could be at higher risk of negative impacts from development, and a precautionary avoidance approach should be used.

Stakeholder consultation including with local communities, indigenous groups, planners, researchers, and specific interest groups such as conservation groups, should take place throughout the lifespan of a development. This is especially important in the earliest stages of development, so that expert and local knowledge may feed into the development process. Stakeholder consultation which takes place in an open and transparent manner is vital, allows analysis of existing situations, and can develop stakeholder buy-in and ownership of projects.

Donor organisations and development banks which cover a regional area should provide an enabling environment whereby an **SEA** is carried out both in-country and across the region. This could be done in partnership with other organisations and groups. An SEA will also contribute to identifying the cumulative effect that renewables infrastructure could potentially have across a landscape or a region. It should take into account planned as well as existing developments from other sectors, to ensure that that the cumulative developments occurring within a region do not produce unexpected barriers or hazards.

The SEA is a continual process and should take place over successive years, being informed by new technologies, and new information and impact assessments. The SEA can provide input into national development and sustainable development plans. Donor organisations and development banks should engage in capacity building within the region to increase the effectiveness of SEA, and also harmonise procedures and outputs across the region.

The assessment methods for the ornithological appraisal require expert review prior to commencement, to ensure that the appraisal is to a high standard and generates accurate results.

The SEA will be reinforced and enhanced when it is conducted in conjunction with sensitivity mapping. Sensitivity maps are tools which record the locations and movements of species that are vulnerable to the impacts of infrastructural development. These tools allow for the risks associated with the development of wind turbines to be identified at an early stage of planning, when they can be avoided or substantially reduced through selection of appropriate locations for development.

BirdLife International has developed and continues to refine a **sensitivity mapping** tool for the Rift Valley/Red Sea Flyway, which provides valuable information on the potential impact on birds of wind energy development along the flyway. The impact of the sensitivity mapping tool will be enhanced through the input of new and additional data as it arises. Data gathered during an SEA should be a freely available public resource, and can be used to deliver robust sensitivity maps, which can inform future developments. Provision of resources for the generation of data will enhance the reliability of the sensitivity mapping tool. Other decision support tools such as IBAT should be consulted to review the likely risk associated with any developments, and can aid the screening and categorisation processes.

When appropriate sites have been identified, it is essential that an **Environmental Impact Assessment** (**EIA**) is carried out for all developments. This must appropriately assess the ornithological value and biodiversity of the site. Donor organisations must ensure that ornithological concerns are inputted into **EIAs**. BirdLife Partners can aid in reviewing these assessments, ensuring the methods are appropriate. BirdLife International is in the process of developing guidelines in relation to appropriate EIA, and pre- and post-construction monitoring, which can help ensure the standardisation of data.

The EIA will aid in identifying the extent of risks to birds and other biodiversity at the site/project level. The EIA enables specific risks to be addressed and outlines **specific avoidance and mitigation actions**, which will reduce the impact on birds and biodiversity.

The mitigation hierarchy to be adhered to is **avoidance, minimisation (mitigation), rehabilitation/restoration, offset**.

The mitigation hierarchy is defined as[6]:

a. Avoidance: measures taken from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity.
b. Minimisation: measures taken to reduce the duration, intensity and/or extent of impacts (including direct, indirect and cumulative impacts, as appropriate) that cannot be completely avoided, as far as is practically feasible.
c. Rehabilitation/restoration: measures taken to rehabilitate degraded ecosystems, or restore cleared ecosystems, following exposure to impacts that cannot be completely avoided and/or minimised.
d. Offset: measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and/or rehabilitated or restored, in order to achieve no net loss, or a net gain, of biodiversity. Offsets can take the form of positive management interventions, such as restoration of degraded habitat, arrested degradation or averted risk, and protecting areas where there is imminent or projected loss of biodiversity.

[6] Business and Biodiversity Offsets Programme (BBOP) (2012) Standard on Biodiversity Offsets. www.forest-trends.org/documents/files/doc_3078.pdf

A robust **baseline survey** is an essential component of an EIA, and development banks and financiers should ensure this is required. Within key areas of the flyway, the use of radar to aid assessment of migration movements is strongly recommended. Funding should be conditional on the completion of an appropriate impact assessment. The process should include an independent review of the methodologies, ensuring that consultants are sufficiently qualified, and that surveys are completed by qualified personnel. It is vital that the EIA is of the required standard. A funder's due diligence should require an independent evaluation of the EIA's conclusions and required mitigation actions to ensure its legitimacy.

The EIA and the pre-construction baseline survey must include an accurate assessment of the bird species present and the ornithological significance of the area. The methodology should be reviewed by a trained ornithological expert to ensure it is appropriate. A minimum of one year's pre-construction survey is essential, but up to three years may be appropriate in highly sensitive areas such as migration bottlenecks.

These methods should include:

1. Migratory bird surveys techniques should reflect the specific circumstances of the region, namely large concentrations of soaring birds
2. Assessment of birds breeding within the site, and within an appropriate buffer zone
3. Vantage point surveys throughout the year, with intense monitoring during peak migration periods
4. Species-specific assessments for rare or endangered and breeding bird species
5. Wintering ornithological surveys may also be required.

The baseline surveys will provide the information on which ongoing monitoring actions are based. An appropriate EIA may show that, depending on the technology used, the site-specific habitat and species present, a wind farm development may be possible without significant negative impacts.

Ecological data generated by the EIA should be stored in a centralised information system which is publicly available. This enables strategic analysis, and also the generation of greater knowledge on the birds present in the region, and the impacts of developments on birds. It is essential that the Environmental Management Plan is open to stakeholder consultation, and that a non-technical summary paper in the local language is available to stakeholders, including local community groups. Whether development banks are providing funding at the programme or project level, they should ensure that the delivery of an appropriate EIA is a condition of funding.

## Power lines and associated infrastructure

The power line infrastructure which carries the power generated by wind farms to the end user can potentially have a significant impact on birds. This impact can be reduced by using appropriate mitigation measures, including the appropriate routing of the lines, using bird deflectors, and pole design which minimises electrocution risks. During the impact assessment processes, any development must take into consideration the infrastructure needed to connect the development to the national grid. Further details can be found in the BirdLife guidance produced for the region in relation to power lines. Routing and mitigation actions should be informed by an SEA and EIA. Development banks and financiers should consider the potential significant impacts of this infrastructure on birds, biodiversity and the environment in any decision regarding location of projects. Within a wind farm development, power line cables should be routed underground, and follow access roads where possible.

## Construction activities

The construction of a wind farm has the potential to have a significant impact on biodiversity, in particular on resident bird species with territories close to the construction site[7]. These impacts can be reduced by utilising environmentally-sensitive construction practices and techniques. Contracts and bidding documents should ensure that environmental disturbance is minimised and that construction practices meet the highest possible standard, even above national legislation if appropriate.

Good construction techniques include (1) minimising any clearing of natural vegetation; (2) implementing adequate measures to control soil erosion and runoff; (3) ensuring proper disposal of all solid and liquid wastes; (4) ensuring that locally obtained construction materials come from environmentally sustainable sources; (5) restoring cleared areas where feasible. Construction should be timed to avoid times of peak sensitivity, such as the breeding season or periods of peak migration. Good construction techniques should also include measures to prevent the introduction of invasive non-native species, and controls on hunting by construction personnel or contractors. Donors, development banks and financiers should ensure that good environmental practices are adhered to by setting out standards and requirements in contract and loan agreements.

Many donors, development banks and financiers have specific standards and guidance on construction practices to safeguard the environment. Monitoring must ensure compliance with these standards so that environmental impacts are minimised.

## Mitigation actions

Mitigation actions are site and location specific. Donor organisations, development banks and financiers should ensure that contracts and legal agreements guarantee that appropriate mitigation actions are carried out where impacts are likely.

Mitigation actions include:

- Lattice tower structures should not be used, as they provide perching areas;
- Micro-siting of turbines within a development. Identifying sensitive positions or plots within the wind farm prior to construction, as part of the EIA processes, and siting turbines outside these areas. For example, at Foote Creek Rim, Wyoming, USA, pre-construction surveys showed that about 85% of the raptors flying at likely strike height were within 50 metres of the canyon rim edge, and no turbines were established within this zone[8];
- Configuration of turbines should run parallel to features such as valleys and rivers. If a flight path exists, the configuration and placement of turbines should also run parallel to this;
- Decommissioning by removal or relocation of high impact individual turbines within a development;
- Shutdown-on-demand: strategic shutdown of turbines at specific locations or at specific times (i.e. peak migration movement) to minimise the impacts. Shutdown-on-demand in Spain reduced vulture mortality by 50%, with a loss of energy production of only 0.07%[9]. This must be combined with monitoring surveys, and ideally the use of radar;
- Larger turbines generate electricity at lower cost and higher efficiency. Fewer but larger turbines may have a reduced

[7] Pearce Higgins et al (2012) Greater impacts of wind farms on bird populations during construction than subsequent operation: results of a multi-site and multi-species analysis Journal of Applied Ecology 49 (2) 386-394

[8] Johnson G, Wallace P. Erickson, M. Strickland D, Shepherd M F, Shepherd D and Sharon A. (2002) Collision Mortality of Local and Migrant Birds at a Large-Scale Wind-Power Development on Buffalo Ridge, Minnesota Sarappo Wildlife Society Bulletin Vol. 30, No. 3 (Autumn, 2002), pp. 879-887

[9] de Lucas, M., Ferrer, M., Bechard, M.J. & Muñoz, A.R. (2012) Griffon vulture mortality at windfarms in southern Spain: Distribution of fatalities and active mitigation measures. Biological Conservation 147: 184-189

impact on birds. However this is site-specific and should be informed by local site characteristics and bird activity;

- Experiments with contrasting colour on blades to increase visibility and reduce striking probability are ongoing. This may lower mortality risks, but is unproven at this moment;
- If aircraft warning lighting is required to identify turbines at night, the use of blinking strobe lights, with flashes interspersed with darkness at 3 second intervals, is preferred. Continuous lights can lead to an increase in fatalities by attracting birds, with an associated increase in the risk of collisions with infrastructure. The number of lit turbines should be kept to a minimum. Lights should flash synchronously over the site. The Federal Aviation Authority regulations in the USA allows for proportions of turbines to be lighted e.g. one in five to be marked, but lighting should comply with national aviation legislation;
- The use of guy ropes should be minimised, including on meteorological towers. Where guy ropes are used, bird deflectors should be installed;
- Good maintenance practices, such as filling of holes in nacelles so that nesting and perching is not possible;
- Habitat management and maintenance practices at the site level to reduce the risk of attracting collision-prone birds, e.g. avoiding establishing ponds or waste sites;
- Increasing turbine cut in speed to reduce collision risk could benefit bat species.

## Post-Construction monitoring

Once a wind farm has been constructed, the ongoing effects on birds and biodiversity need to be monitored, so that potential long-term impacts can be identified and addressed. Post-construction monitoring should be comparable with pre-construction monitoring and should follow the same protocols. Providers of finance or the designated authorities through which funding is delivered must ensure that **continuous monitoring** takes place for at least three years post-construction. This should be embedded in any contracts issued, either to the designated national authority charged with delivering the project, or direct to the private operator, with the responsibility placed on the developer to deliver these surveys using trained individuals.

The data generated should be freely available and accessible to the public, as this can greatly aid in the scientific study of the impact of wind farms on birds, and inform future actions. Where sufficient information exists and no impact is seen in the first year, and following consultation with experts, further monitoring may not be necessary.

Continuous monitoring generates information on the operational effects of wind farms and power lines, and will inform the need to adapt mitigation actions and operational procedures within the development. This monitoring should be carried out in a standardised way, by recognised professionals following best practice guidelines. BirdLife International is in the processes of developing guidelines for the region in relation to post-construction monitoring best practice. Monitoring activities should include mortality surveys, designed to deliver robust, scientifically accurate information which can be made publicly available.

The Before-After Control Impact (BACI)[10] approach should be used where possible. BACI compares the data collected in pre-construction surveys at the project site and a control area with data obtained from post-construction monitoring, in order to assess environmental impacts caused by construction and operation, and inform ongoing operational activities.

Continuous monitoring allows adaptive management to take place, and can provide valuable information which can inform shutdown-on-demand mitigation actions, and significantly reduce the impact on birds. Poor quality surveys can result in a particular development being inappropriately assessed, potentially leading to an under-estimation of bird activity and vulnerability. It can also lead to extra costs when inefficient mitigation actions are implemented, such as shutdown-on-demand or removal of turbines which may not have been necessary.

## Financiers Role

BirdLife International is committed to ensuring a lasting sustainable future for all. We recognise the importance of renewable energy in ensuring development and energy access. Renewable energy has a vital contribution to make in reducing carbon emissions and the fight against climate change. Donors and development banks have a responsibility to ensure that the projects they fund are carried out in a sustainable way, ensuring that future generations have access to biodiversity. Action is needed immediately to ensure that financial capital is not locked into inappropriate developments. 'Greening the Wind'[11] highlights the willingness of development banks to engage in this issue, and demonstrates long-term commitment to ensuring that bird and biodiversity issues are integrated into the decision-making processes.

An SEA which integrates bird and biodiversity issues, includes appropriate ornithological surveys, and is informed by the use of a sensitivity mapping tool, will aid in identifying appropriate areas for development, and reduce the impact on birds. Donor organisations can create an enabling environment for the implementation of SEAs. The regional perspective provided by donor organisations will help identify potential cumulative effects. By combining resources, harmonising SEA procedures and EIA assessments on projects, and ensuring access to ecological information, donor organisations can ensure that the flyway is protected, and that any adverse impacts can be addressed.

Donor organisations should commit to the inclusion of bird and biodiversity concerns within the national EIA frameworks, including the need for bird surveys as part both of the assessment process and of post-construction monitoring. Contracts and bidding documents should make this a condition of funding, and adequate resources should be set aside for these activities. Funding consent should be conditional on the outcome of an appropriate EIA. Support for capacity building in national governments and local experts will help ensure that all developments are assessed and planned appropriately.

In areas which are favourable for wind development and have been designated as appropriate for development, it may be appropriate for banks with a regional presence to advise developers to band together to establish a regional radar network, which could make such a system more cost-effective.

Precautionary avoidance of harm to birds and biodiversity is essential when locating and designing wind energy developments. Depending on the technologies used, and the habitat and species present at the site, development may be possible in places that are important for biodiversity without significant negative impacts, but this must be informed by an appropriate EIA.

In most, cases wind turbines should be located outside Important Bird Areas (IBAs) or other sites important for biodiversity, and in every case should have no significant negative impacts on IBAs. This approach should be enshrined

[10] McDonald, T.L., Erickson, W.P. & McDonald, L.L. (2000) Analysis of Count Data From Before-After Control-Impact Studies. Journal of Agricultural, Biological and Environmental Statistics. 5: 262-279.
[11] Ledec G, Rapp K, Aiello R (2011) Greening the Wind: Environmental and Social Considerations for Wind Power Development The World Bank Group, Washington D.C. USA

within any funding or loan agreement. As data is lacking along the length of the flyway, projects should be categorised in such a way as to ensure a full EIA is carried out. As greater and more detailed information becomes available, categorisation of project will become easier, and certain areas may be excluded from the necessity to complete full EIAs.

Project legal agreements need to ensure that wind farms operate to standards which reduce risks to birds and biodiversity. These agreements should specify the role of post-construction monitoring and data-sharing, and the need for operational curtailment, e.g. shutdown-on-demand and adaptive management where necessary, and habitat management and maintenance operations. Mitigation measures are more likely to be implemented if they have been explicitly described and budgeted-for in project agreements, bidding documents and contracts. When explicitly stated and a condition of consent, these mitigation safeguards are a core design feature of a good development project.

Efforts to strengthen social and environmental institutions should be at the centre of any programme or sectoral funding. Capacity building within regional, national and local institutions should be a component of any activity. Developing client ownership of projects or programmes is a key goal, and should emphasise the importance of integrating environmental considerations, and support the mainstreaming of biodiversity issues across a wide range of sectors.

Projects must ensure that national stakeholders, including government and civil society partners, are given the mechanisms to increase learning opportunities and share best practices, both nationally and regionally. Developing local capacity in EIA and monitoring will enable future projects to be delivered in a robust and strategic way.

Donor organisations and development banks have a commitment, both to the country in which the project is taking place and to the global community, to deliver projects which minimise their impact on the environment and deliver lasting sustainable development. Ensuring that birds and biodiversity are mainstreamed both in the programmes and projects will contribute to achieving a range of internationally-agreed targets which countries have signed up to, including the Aichi biodiversity targets.

Donor organisations and development banks have made a commitment to help national governments reach their environmental goals and priorities as set out in the Paris Declaration on Aid Effectiveness. This should include their international commitments in relation to biodiversity loss, and also the mainstreaming of biodiversity issues across governments. The Accra Agenda for Action highlighted the need to support country environmental planning systems, to engage with civil society, and increase national capacity to carry out SEA. By mainstreaming bird and biodiversity concerns within energy development planning, and ensuring birds and biodiversity are assessed appropriately and mitigation actions are applied, donor/financing organisations will be supporting this process.

More details on the Migratory Soaring Bird Project can be found on the link below. Specific guidance in relation to wind energy, power lines and solar energy is to be published, and a sensitivity mapping tool is being developed and will be available over the coming months.