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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 more renewable sources of energy.

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.

Governments and national authorities should seek to ensure that adverse impacts are minimised by:

- Reviewing and where appropriate revising legal and regulatory mechanisms to ensure birds and biodiversity are safeguarded in wind energy developments
- Mainstreaming bird and biodiversity concerns across departments and sectors
- Carrying out strategic planning for wind farm developments, utilising the **Strategic Environmental Assessment (SEA)** approach, ensuring developments minimise their impact on birds and biodiversity
- Committing to a positive planning framework, and integrating bird and biodiversity concerns into any national development plans
- Adopting a precautionary avoidance approach in relation to siting of projects. Areas where there is a high risk of adverse impacts and high vulnerability, for instance Important Birds Areas and other sensitive sites, should be avoided
- Developing legislation which provides clear guidelines on **Environmental Impact Assessment (EIA)**, and that EIA assessments are carried out to a high standard and are appropriate
- Ensuring EIA is carried out for all developments, and that it includes appropriate ornithological assessments and post-construction monitoring
- Providing further protection of areas of high biodiversity value and important sites for nationally or globally important species
- Committing to the publication of the environmental and ecological data generated as part of EIA and SEA, ensuring that it is freely available for review and consultation, and stored in a centralised information system
- Ensuring the availability of a non-technical EIA statement alongside an Environmental Management Plan
- Guaranteeing stakeholder consultation as part of any SEA and EIA
- Ensuring mitigation of impacts is enshrined in project contracts, documentation and bidding documents, and in legislation and regulations, and that these actions are informed by site-specific EIA
- Putting in place enforcement mechanisms to ensure compliance
- Promoting the regional sharing of good practice examples and information, to reduce impacts and improve knowledge within the sector.

BirdLife International supports the transition to more renewable sources of energy. But 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 requiring the inputs of a range of stakeholders, to ensure that balanced decisions and the most sustainable solutions are achieved.

The potential for generation of renewable energy across the Middle East and North Africa, especially within Rift Valley/ Red Sea area, is very high, with significant developments planned or in operation. For example the Red Sea coast could potentially produce 20GW of electricity annually from wind. BirdLife welcomes and respects governments' commitments to renewable energy across the region, and understands the key role such developments have in delivering low carbon futures and a secure energy supply for their citizens, and the contribution this can make to improving their livelihoods.

BirdLife is committed to working with governments in delivering renewable energy which minimises impacts on the environment. Whilst the majority of wind farms have little negative environmental impact, inappropriately sited or poorly designed projects can lead to serious environmental impacts, including significant bird mortality and increased risks for rare or protected species. These impacts could potentially lead to scrutiny of projects and negative coverage of the renewable energy sector.

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 borders, and to flyway-scale conservation as birds move through and use habitats within their countries.

Special attention needs to be given to the development of wind farms and the associated power lines along these migration flyways. Governments 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 governments of the potential impacts of wind farms on birds, and recommend specific practices that can reduce these impacts.

Having legislation and regulations in place which mainstreams bird and biodiversity concerns across government departments and differing sectors, including public infrastructure projects, will ensure that birds and biodiversity are integrated into the decision-making process. Ensuring that contracts and bidding documents between the designated national authority and

the wind farm operator and developer include references and commitments related to bird and biodiversity issues will facilitate lasting sustainable development, and protect birds and biodiversity, now and for future generations. Terms of Reference should also refer to the need to take into consideration impacts on birds and biodiversity, and undertake an adaptive management approach. Legislation and regulations must include compliance and redress mechanisms that are robust enough to ensure that non-compliance will result in significant impacts on the practitioner.

## 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<sup>1</sup>. The Altamont Pass development in California, USA, with over 5000 turbines, is responsible for the deaths of an estimated 1000 raptors annually<sup>2</sup>.

Significant effects of wind farms on birds can include:

- **Collision:** with turbines and blades and other infrastructure, leading to death or injury which could impact on birds. At Altamont Pass in California, it is estimated that over a 20-year period 25,000-100,000 birds were killed on a wind farm consisting of 7,300 turbines<sup>3</sup>;
- **Displacement** from habitats that are used 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. Displacement effects can mean that habitat adjacent to a development is not utilised by birds for feeding, roosting or nesting, meaning the impact of the development is greater than the area occupied by the turbines, 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<sup>4</sup>;
- **Habitat impacts:** fragmentation of landscape, or site specific damage which can reduce the ability of an area to support birds and bird populations.

The potential impacts and effects a development may have are dependent on the 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 bird population. However, if successive wind farms have impacts, the cumulative effect may exceed the capacity of the population to regenerate, in which case the bird population will go into decline.

On a migratory flyway the potential impacts can lead to disruption of linkages between distant feeding, roosting, moulting and breeding areas.

## 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

<sup>1</sup> 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

<sup>2</sup> Smallwood, K. S. and Thelander, C. G. (2008) Bird mortality in Altamont Pass Wind Resource Area California. J. Wildl. Manage.72: 215-213.

<sup>3</sup> 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

<sup>4</sup> Hotker (2006) the impact of repowering of wind farms on Birds and bats Michael-Otto-Institut imNABU Bergenhusen

used in conjunction with other mechanisms, such as improving energy efficiency at the consumer level to reduce overall energy demand, for example through the use of low energy lighting systems.

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

The use of a **Strategic Environmental Assessment (SEA)** at the pre-planning stage enables governments to identify long-term strategic areas for future development, and also cut down on potential impact costs in the future. An SEA should be carried out as part of a strategic planning framework, and can be used to input into national development plans. Governments can use the SEA to identify areas which are appropriate for development, and help developers guide their investment decisions.

An SEA will also help identify any potential cumulative effect that renewables infrastructure could potentially have across a landscape or a region. The SEA should take into account planned as well as existing developments from other sectors. This helps to ensure that the **cumulative impacts** from wind farms combined with other sectors do not produce unexpected landscape barriers or hazards.

Governments should legislate and plan for an SEA to be used to inform future developments, and to be integrated into a national development plan. The SEA should be carried out by trained professionals and include an ornithological appraisal. 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 is a continual process, and should take place over successive years, being informed by new technologies, information and impact assessments.

Stakeholder consultation 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 in to the development process.

The SEA will be reinforced and enhanced when it is conducted in conjunction with sensitivity mapping, which records the locations and movements of species that are vulnerable to the impacts of infrastructural development. **Sensitivity mapping** enables 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 the selection of appropriate locations.

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 effectiveness of the sensitivity mapping tool will be enhanced through the input of new and additional data as it arises.

Other planning and decision tools, such as **IBAT**, can also aid in the planning and development processes. IBAT is a decision support tool which can help governments in the screening process, and can be used alongside the sensitivity map.

The outcomes of the SEA should be communicated across all government departments and sectors, to guarantee that the information it contains is mainstreamed and used in decision making. The outcomes should not be confined to environmental ministries, but utilised by all departments, especially the

designated national authority responsible for approving renewable energy projects. Greater communication and coordination between the environment departments and the departments in charge of energy sector development can help ensure capacity is increased, and strategic planning is achieved.

There should be a central repository for all the planned and existing developments which have both been approved and also been rejected. This should list the location of the development and its design.

When appropriate sites have been identified, it is essential that governments require an **Environmental Impact Assessment (EIA)** to be carried out for all developments. The EIA will aid in identifying the extent of risks to birds and other biodiversity at the site/project level, and must appropriately assess the bird and biodiversity value of the site. SEA and EIA can lead to the mainstreaming of birds and biodiversity concerns across multiple sectors, and allow for the integration of the environment into planning and development frameworks.

Ecological data generated by EIA and SEA should be a freely available and accessible public resource stored in a centralised information system. This enables strategic analysis, and also the generation of greater knowledge regarding the birds present across the landscape, the likely impacts that may occur, and the cumulative impact of developments.

Governments must ensure that robust legislation or regulations are in place to ensure that EIA is carried out to a high standard, and that the results are consistent with international best practice. Governments may want to refer to specific guidelines to enhance the robustness of the EIA process.

The EIA should enable specific risks to be addressed, and must outline 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<sup>5</sup>:

- 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.

A robust baseline survey is an essential component of an EIA assessment, and governments should ensure this is required. The baseline survey should last for a minimum of a year, but depending on the species present could last up to three years, to take into account seasonality of bird species as they migrate through an area. Within key areas of the flyway, the use of radar to aid assessment of migration movements is strongly recommended.

<sup>5</sup> Business and Biodiversity Offsets Programme (BBOP) (2012) Standard on Biodiversity Offsets. [www.forest-trends.org/documents/files/doc\\_3078.pdf](http://www.forest-trends.org/documents/files/doc_3078.pdf)

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 impacted by a project. The methodology should be reviewed by a trained ornithological expert, to ensure the methods are appropriate. BirdLife Partners can provide advice on this assessment to ensure its appropriateness.

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 threatened and breeding bird species, and collision risk assessment
5. Wintering ornithological surveys may also be required.

The baseline surveys will provide the information on which ongoing monitoring actions are based. Predicted impacts should be fully explained, and evaluated as clearly and accurately as possible. An appropriate EIA may recommend that the impacts are too detrimental and this recommendation should be adhered to. The EIA may have identified an area important for birds and other biodiversity which had not previously been recognised. Consent for a development should be conditional on the outcomes of an EIA.

Precautionary avoidance of harm to birds and biodiversity is an essential consideration when siting a wind farm. However, depending on the technology used and the site-specific habitat and species present, developments may be possible in places that are important for birds and biodiversity without significant negative impacts. This evaluation will be informed by an appropriate EIA. By having legislation and guidelines in place, governments can ensure that optimum results in terms of negative environmental impacts and maximum renewable resources are achieved.

One outcome of the EIA should be the production of an Environmental Management Plan, which should specify the actions to be undertaken during project construction and operation to prevent, minimise, mitigate, or compensate for any adverse environmental impacts. A non-technical summary should also be produced in the local language which explains predicted impacts as clearly and accurately as possible. It is vital that the EIA processes and these documents are open to stakeholder consultation.

## 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 could be reduced by appropriate routing of the lines, and using appropriate mitigation measures including bird deflectors, and pole design which minimises electrocution risks. Any development and its assessment must take into consideration its connection to the grid network. 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. Within a wind farm development, power line cables should be routed underground and follow access roads where possible.

## Construction activities

The construction of the renewable infrastructure has the potential to have a significant impact on biodiversity, and in particular on resident bird species with territories close to the construction site<sup>6</sup>. These impacts can be reduced by utilising environmentally-sensitive construction practices and techniques. Legislation should ensure that environmental disturbance is minimised.

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 construction materials come from local and 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. Project legal agreements should reflect the need to carry out environmentally friendly construction activities.

## Mitigation actions

Mitigation actions are site and location specific; governments should ensure that national and regional legislation guarantees that appropriate mitigation actions are carried out where impacts are likely. These mitigation actions should also be reflected in project contracts, terms of reference and bidding documentation. Enforcement mechanisms should be put in place to ensure actions are implemented.

Mitigation actions include:

- Lattice tower structures should be avoided, 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<sup>7</sup>;
- 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 re-location 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%<sup>8</sup>. 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 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;

<sup>6</sup> 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

<sup>7</sup> 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

<sup>8</sup> 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

- 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. Lights should flash synchronously over the site. 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. The Federal Aviation Authority regulations in the USA allows for proportions of the site to be lit, e.g. one in five turbines 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 the turbine body, 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 can reduce the risk associated with impact on bats.

The primary objective must be to avoid any adverse impact, which can be done through appropriate site selection. Mitigation actions such as 'shutdown-on-demand' are a mitigation measure, not a mechanism to allow development in high-risk areas. Offsets as part of the mitigation hierarchy should be the option of last resort, and if required, should be directed towards conservation efforts and habitat restoration, targeting those species and habitats affected by the development.

## 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. Governments need to ensure that continuous monitoring takes place for a minimum of one year, and ideally three years post-construction. This should be embedded in any contracts issued to the wind farm operators by the designated national authority, with the responsibility placed on the developer to deliver these surveys using trained and qualified individuals. As data is lacking in most of the region, it may be possible to halt monitoring after one year if no impacts are seen, after consultation with local experts. The data should be freely available to the public, as this can greatly aid in the scientific study of the impact of wind farms and birds and inform future actions.

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 qualified individuals. Monitoring activities should include mortality surveys, and be designed to deliver robust, scientifically accurate information which can be made publicly available. BirdLife international is in the process of developing guidance in relation to both pre- and post-construction monitoring, and these documents will provide useful reference to help in standardising methodologies.

Ideally the Before-After Control Impact (BACI)<sup>9</sup> approach should be used, which compares the data collected in pre-construction surveys at the project site and 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

mitigation actions such as shutdown-on-demand and relocation of problem turbines, and significantly reduce the impact on birds. Where impacts are occurring, measures included in legislation and regulations must be in place to ensure mitigation actions occur. Penalties should be in place for non-compliance, and such penalties should be significant enough to ensure compliance.

## Strengthening national and international legislation

### National legislation

BirdLife International, its partners and its staff are committed to ensuring a lasting sustainable future for all. We recognise the importance of renewable energy in ensuring development and energy access for all. Wind energy has a vital contribution to make to reducing carbon emissions and the fight against climate change. Countries have the right to utilise their resources for the benefit of their citizens, and any impacts that wind farms may have on birds and biodiversity can be minimised by having the appropriate mechanisms in place.

Every country needs a national planning framework for infrastructure projects, including the strategic development of renewable technologies, which integrates biodiversity considerations, and can inform a range of stakeholders and sectoral strategies. Protection of birds and biodiversity will help ensure that they are available for future generations.

The use of SEA and EIA should inform any national development or sustainable development plans. The use of such tools can inform governments and designated national authorities on appropriate areas for development, and ensure developments which deliver the multiple co-benefits of environmental integration, protection of biodiversity, security of energy supply and lasting sustainable development. The definition of 'environment' in national legislation and procedures should fully incorporate the concept of biological diversity as defined by the Convention on Biological Diversity and related conventions.

Governments should seek to ensure that the EIA legislation they have in place or are in the processes of defining ensures that EIAs are carried out to a high standard, by competent and trained individuals. In order to be effective, the EIA process should be fully incorporated into existing legal planning processes, and not be seen as an 'add on'. EIA assessments should be reviewed by external and independent experts, to ensure their appropriateness. No decision on granting permission for a development should be given until the EIA process has been completed.

National governments should complete an SEA to inform any developments and identify priority areas for development. National legislation should require an EIA to be carried out for all wind farm developments. As more information is gathered in the region, it may be possible to implement thresholds which can be used to inform the need for a full EIA. The SEA and EIA processes must include appropriate activities, including bird surveys and post-construction monitoring. The methods of investigation must deliver robust scientific data.

National governments should ensure that birds and biodiversity concerns are mainstreamed across all government department and sectors. The outcome of any SEA processes should be communicated across all relevant departments, including planning, environment, and the designated national authority in charge of wind energy development.

Clear legislation and resulting regulations are needed to ensure protection of birds and compliance by developers. Project legal agreements and bidding documents need to reflect agreed

<sup>9</sup> 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

wind farm operating standards, which specify post-construction monitoring and data-sharing, operational curtailment, and equipment and landscape maintenance. Mitigation measures are more likely to be implemented if they have been explicitly described and budgeted-for in project agreements, bidding documents and contracts. Redress and compliance mechanisms need to be developed to ensure that operators and developers are adhering to rules.

Stakeholder consultation is a vital component in delivering lasting sustainable development. Stakeholder consultation results in expert opinion being included in project delivery. National governments should work to provide a framework where various stakeholders and interest groups can provide input into development plans, and their knowledge and expertise can be utilised. The establishment of national committees which include stakeholder groups can aid this processes. The participatory processes should be carried out in a transparent manner, which can result in a sense of shared ownership and responsibility.

Governments should also set out to strengthen existing environmental legislation, such as the protection of important areas, and legislation to reduce the likelihood of developments affecting these areas.

## International Agreements

National governments have made a number of international commitments regarding birds and biodiversity, and the mainstreaming of birds and biodiversity across sectors and departments can help ensure that these commitments are met.

The [Strategic Plan for Biodiversity 2011-2020](#), adopted at [Convention on Biological Diversity](#) (CBD) COP 10 in 2010, provides a comprehensive global framework for achieving the vision of '[Living in Harmony with Nature](#)', including the 20 headline Aichi Targets for 2015 or 2020. These targets call for the mainstreaming of biodiversity across government, so that biodiversity values are integrated across sectoral plans and policies, and adverse effects can be minimised. Governments must recognise the fundamental importance of mainstreaming biodiversity within sectoral policies, and use the development and implementation of National Biodiversity Strategies and Action Plans (NBSAPs) as an entry point to promote inter-sectoral planning and integrated implementation. The use of SEA and EIA contributes to the mainstreaming of biodiversity within the context of any strategic development plan. [Article 14 of the CBD](#) identifies impact assessment as a key instrument for achieving the conservation and other objectives of the convention. The CBD has also endorsed formal texts on [voluntary guidelines](#) for incorporating biodiversity into impact assessments.

A range of other international agreements have made references to the impact of renewable developments on birds, and migratory birds in particular. At the 7th meeting of the parties to the [Convention on Migratory Species](#) (CMS) in 2002, Resolution 7.5 on '[Wind turbines and migratory species](#)' calls on parties to identify areas where migratory species are vulnerable to wind turbines, and to use comprehensive Strategic Environmental Assessment procedures to identify appropriate sites for development. The BirdLife sensitivity mapping tool and IBAT decision support tool can contribute invaluable data in this respect. The sensitivity mapping tools developed by BirdLife International will be enhanced through the provision and integration of additional data.

Another relevant international agreement which is directly related to the region is the [Agreement on the Conservation of African-Eurasian Migratory Water birds](#) (AEWA). In 2012, Resolution 5.16 '[Renewable Energy and Migratory Water birds](#)', calls for the development and strengthening of national renewable energy planning, and for the developments to include monitoring in order to avoid and minimise the adverse effects of renewable energy installations, and is of particular relevance for the region. Resolution XI.10 of the [Ramsar Convention](#), on '[Wetlands and Energy Issues](#)', also contained a specific draft resolution in relation to energy, providing guidance on addressing the implications for wetlands of policies, plans and activities in the energy sector, and stressing the need for integrated planning. These resolutions should be referenced when developing wind energy policy, and should be shared among government departments.

BirdLife Partners are well placed to offer expert advice to strengthen planning and developments. Expert consultation on the appropriate methods for integrating bird and biodiversity concerns within SEA and EIA will greatly improve strategic planning, and help governments address their international commitments.

This factsheet is part of a suite of guidance materials produced by BirdLife for governments, financiers such as development banks, and developers and consultants. These factsheets can be used to engage and lobby stakeholders on specific issues where there is a need to reduce the negative impacts on birds. The sharing of good practice examples and success stories with regional partners will ensure that lessons can be learned.

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.