

Protecting pollinators from pesticides

Issues and options to consider when drafting pesticide legislation, beekeeping legislation, and biodiversity legislation



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1. INTRODUCTION

This document is a product of the Food and Agriculture Organization of the United Nations (FAO) under the European Union funded programme “Capacity Building Related to Multilateral Environmental Agreements in African, Caribbean and Pacific Countries Phase III (ACP MEAs 3).”

FAO recognizes biodiversity and ecosystem services as the basis for sustainable food production and resilient livelihoods. In the face of the growing challenges of climate change and biodiversity loss, FAO leads the global agenda on mainstreaming biodiversity across agricultural sectors for sustainable agrifood systems. The ACP MEAs 3 project aims to enhance sound biodiversity and agrochemical management working at the national, regional and global levels.

The objective of protecting pollinators from pesticides can touch on many different interconnected sectors. When viewed under a One Health approach,¹ several different legislative domains, as well as the interlinkages between them, are important to consider in order to provide the legal tools necessary to support efforts to protect pollinators from pesticides. Accordingly, this document explores how selected features observed in national pesticide legislation, beekeeping legislation, and biodiversity legislation can be adapted to provide stronger tools which can be used to help protect pollinators from pesticides.

This document builds off preparatory work conducted in support of the *FAO Global Seminar on Strengthening Regulations to Protect Pollinators from Pesticides*, held in February 2022². In particular, the present document builds off an initial review of selected legislation in ten selected African, Caribbean, and Pacific countries that was conducted in 2021. The present document expands that review to draw from the current legislative practices of a wider set of countries across regions and contexts. The primary focus of this document is the current legislative practices across countries with low- and middle-income economies.

The scope includes both primary legislation (typically enacted by a country’s legislature), and secondary legislation and other subsidiary instruments typically published by implementing government agencies. Moreover, the scope includes both managed and wild pollinators.

Each country’s unique context brings unique considerations for how to draft or revise legislation to support the protection of pollinators from pesticides. But in any case, it is unlikely that drafting legislation to protect pollinators from pesticides will be pursued in isolation. This is because it represents just one window of perspective out of many possible intersecting perspectives. For example, in addition to pesticides, pollinators face many potential threats from habitat loss, parasites and disease, monotonous diets, competition, climate change, and so on, and some of these factors may even have interactions with the effects of pesticides.³ Each of these other threats to pollinators may bring policy responses and regulatory objectives that may, or may not, overlap with those discussed in this document.⁴ Viewed from the other side, the impact on pollinators is just one concern out of the many regulatory concerns addressed by beekeeping legislation, pesticide legislation, biodiversity legislation, and same for other types of legislation. For this reason, this document does not propose or advocate for a specific piece of legislation protecting pollinators from pesticides. Instead, this document highlights selected elements commonly found in these three legislative domains and illustrates how these elements may be added or tailored over time to better support efforts to protect pollinators from pesticides. It is also critical that these three legislative domains be viewed within the broader legal framework of the country. Indeed, there are several other legal domains and instruments that could include relevant provisions here, such as legislation on animal health and production, general environmental legislation, air and water pollution legislation and so on. Thus, while pesticide legislation, beekeeping legislation and biodiversity legislation have been identified

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as the focus here, there are other legislative domains that could potentially be important in a given country context.

It is rare to start from a blank canvas, since most countries have put in place at least some legislative provisions focused on pesticides and biodiversity, and many have also put in place at least some legislative provisions focused on beekeeping. Accordingly, it is perhaps more likely that any pathway to reform will be strongly influenced by the thematic divisions between the legislative domains already in place in a country. In that context, elements focused on protecting pollinators from pesticides may be raised in the context of separate broader discussions on the reform of beekeeping legislation, pesticide legislation, biodiversity legislation, and so on. Which legislative domain to focus on can also be influenced by the specific regulatory objectives driving the reform dialogue, as illustrated in **Table 1** below. Regardless, a national dialogue on a new piece of legislation or reforms to an existing piece of legislation can be an important opportunity to raise for discussion and possible inclusion some of the legal elements discussed further below, which can provide valuable tools to competent

authorities and other stakeholders seeking to take action to protect pollinators from pesticides.

In terms of organization, this document is broken down into three sections, separately covering pesticide legislation (**Section 2**), beekeeping legislation (**Section 3**), and biodiversity legislation (**Section 4**). Each section highlights a menu of possible issues to consider when drafting or revising legislation with the aim of protecting pollinators from pesticides. For each element, key drafting features and options will be summarized and illustrated with concrete examples from country legislation. These examples from country legislation do not necessarily represent global best practices or good practices but rather illustrate the diversity of approaches being taken and options to address key issues. These cannot be considered good practices in of themselves without a deeper analysis at the country level. Moreover, examples from country legislation rely on **unofficial machine translations** of legal texts and are provided for general illustration purposes only. In all cases, readers should always consult the official, authoritative, up-to-date texts of country legislation when undertaking any deeper analysis of the issues and options covered in this document.

Table 1. Examples of possible regulatory objectives under each legislative domain, relevant for protecting pollinators from pesticides

Pesticide legislation	Beekeeping legislation	Biodiversity legislation
<ul style="list-style-type: none">• Ensuring that pesticides available on the market are less toxic to pollinators• Ensuring that pesticides are used in a manner that is less risky for pollinators• Ensuring that decision-makers have information about pesticide incidents and effects on pollinators	<ul style="list-style-type: none">• Ensuring that decision-makers have information about the status of managed pollinator populations• Requiring measures to protect managed pollinators from nearby pesticide applications	<ul style="list-style-type: none">• Ensuring that decision-makers have information about the status of pollinator populations• Ensuring the protection of pollinator habitats, including from pesticide applications and other human-driven threats

Source: Author's own elaboration.



2. PESTICIDE LEGISLATION

As a starting point, one of the key entry-points in protecting pollinators from pesticides would be through strengthening provisions in pesticide legislation. One key benefit of focusing on pesticide legislation is that it would be able to directly target the dangerous substances themselves, which may be dangerous for all kinds of pollinators, including both wild and domesticated species, the former which could fall outside the scope of beekeeping legislation, as will be discussed in the section below on beekeeping legislation.

Note that this section will not consider all the aspects of a regulatory framework for pesticides, as these are well-covered in other publications, such as the *FAO-WHO International Code of Conduct on Pesticide Management – Guidelines on Pesticide Legislation (2nd Edition)*, which provides detailed point-by-point guidance

for the development of national pesticide legislation. The *FAO-WHO International Code of Conduct on Pesticide Management* itself also contains broader guidance on reducing health and environmental risks from pesticides (Article 5), and regulatory and technical requirements for pesticides (Article 6). Rather, this section aims to highlight those issues and options within pesticide legislation which are most relevant for the objective of protecting pollinators, as summarized in **Table 2** below. However, it is important to keep in mind that no single country has all these legal elements in their pesticide legislation. Rather, each country will have their own unique mix according to their unique context, policy priorities, and so on. Furthermore, each included element must be tailored and drafted to meet those unique conditions.

Table 2. Key issues to consider, relevant to protecting pollinators, when drafting pesticide legislation

Selected elements from pesticide legislation	Issues to consider
Introductory provisions	<ul style="list-style-type: none"> Whether to include objectives and/or guiding principles relevant for protecting pollinators from pesticides
Registration of pesticides	<ul style="list-style-type: none"> Whether registration decisions include a representative of the ministry in charge of the environment or biodiversity protection Whether to require toxicity testing for pollinators Whether to include criteria and/or protection goals relevant for pollinators in registration, bans, and registration revocation decisions Whether to follow specific pollinator hazard or risk assessment methodologies Whether to require pollinator risk mitigation measures as part of a registration decision
Operator licensing and competence	<ul style="list-style-type: none"> Whether to require competence/training for pesticide operators that is relevant for protecting pollinators
Labelling	<ul style="list-style-type: none"> Whether to require the inclusion of information on risks to pollinators and mitigation measures

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Table 2. (Cont)

Selected elements from pesticide legislation	Issues to consider
Use	<ul style="list-style-type: none">• Whether to restrict how, when, where, or what type(s) of pesticides are applied in relation to pollinators• How long before a pesticide application should notice be provided to beekeepers• How should notice be transmitted between pesticide users and beekeepers• Which beekeepers must be notified in the event of pesticide use• What information must be included in the notice provided• Whether and under which circumstances and conditions pesticide users will be liable for harm to bees (and other pollinators)
Advertising	<ul style="list-style-type: none">• Whether to include restrictions relevant for pollinator protection for pesticide advertising
Integrated pest and pollinator management	<ul style="list-style-type: none">• Whether to require promotion of integrated pest and pollinator management
Information collection and monitoring	<ul style="list-style-type: none">• Whether to require monitoring of effects on humans, animals, and the environment (including pollinators)
Incident reporting	<ul style="list-style-type: none">• Whether to require reporting of observed unintended incidents involving pollinators
Inspection	<ul style="list-style-type: none">• Whether to include inspection powers that are sufficiently broad for investigating effects of pesticides on pollinators
Offenses and penalties	<ul style="list-style-type: none">• Whether to include specific offenses and penalties for violations of rules relevant to protecting pollinators

Source: Author's own elaboration.

2.1 Introductory provisions

Pesticide legislation may in some cases include a provision with overarching objectives, where one or more of those objectives are relevant to the protection of pollinators from pesticides. These objectives are commonly framed broadly in terms of the protection of human health, animal health, and the environment, and this

could be interpreted as broadly encompassing concerns related to the protection of pollinators for pesticides. For example, legislation on agricultural pesticides in **Afghanistan** includes among its incentives to prevent risks to human, animal, plant health, resulting from the use of pesticides and to protect plants and environment from the adverse effects of pesticides.⁵ Similarly, pesticide legislation in **Bhutan** includes as



one of its objectives to “minimize deleterious effects to human beings and the environment consequent to the application of pesticides.”⁶ Pesticide legislation in **Canada** sets a primary objective of preventing unacceptable risks to individuals and the environment from the use of pesticides.⁷ Pesticide legislation in the **Maldives** is similar in including among its objectives to prevent or reduce the risk of pesticide exposure to humans, animals, biodiversity, and the environment.⁸ Pesticide legislation in **United Arab Emirates** includes as one of its objectives to “ensure a high level of protection for humans and animal life and environment safety.”⁹

Pesticide legislation in **Croatia** goes into further detail, as it sets its objectives as “to achieve the sustainable use of pesticides, to reduce risks and negative effects from the use of pesticides in a way that ensures a high level of protection of human and animal health as well as environmental protection and preservation of biodiversity, the introduction of mandatory application of the basic principles of integrated plant protection for the control of harmful organisms plants and alternative approaches and techniques, such as non-chemical plant protection measures to achieve sustainable and competitive agriculture.”¹⁰ Finally, **Yemen** includes an objective with even greater relevance for pollinators, as it aims to, “avoid the risks of pesticides and the poisonous effects thereof to human and animal health as well as the environment, and to protect the natural enemies of pests and economically beneficial insects.”¹¹

Legislation may also in some cases include guiding principles for the interpretation and implementation of the legislation. One particularly relevant guiding principle for the protection of pollinators from pesticides is the precautionary principle, since data on effects on pollinators may be limited in many county contexts. For example, pesticide legislation in **North Macedonia** provides that it “is based on the precautionary principle, ensuring that the

active substances or pesticide products placed on the market do not have a negative effect on human or animal health or the environment, including cases where there is scientific uncertainty regarding the risks related to human or animal health or the environment resulting from the use of these products.”¹² Pesticide legislation in **Gibraltar** provides that regulations “shall not prevent the competent authority from applying the precautionary principle in restricting or prohibiting the use of pesticides in specific circumstances or areas.”¹³

2.2 Registration of pesticides

Pesticide registration offers one key entry-point to introduce considerations on pollinator protection, by requiring the competent authority to consider effects on pollinators when authorizing or registering a pesticide for use in the country. This may either take the form of affirmative criteria to be authorized or registered, or criteria for refusal of an application to register a pesticide. While conceivably this could involve an explicit requirement to consider effects on pollinators, what has been commonly observed is a more general, broader requirement to consider effects on animals and the environment (FAO, 2022). In some cases, registration provisions may include different requirements or procedures for different types of pesticides, such as for certain biopesticides or types deemed to have lower risks.

Thus, in the **United Republic of Tanzania**, pesticides that are highly toxic or cause poisoning effects to humans and animals shall not be registered unless the government sub-committee responsible for pesticide registration imposes additional conditions and restrictions for its safe use and disposal.¹⁴ In **Rwanda**, the registrar responsible for pesticide registration shall consider negative impacts to the health of living beings and the environment, and may reject an application to register a pesticide if use of the pesticide would lead to an unacceptable

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risk or harm to public health, plants, animals or the environment.¹⁵ Similarly, the board responsible for pesticide registration in Kenya may refuse to register a pesticide if its use would lead to an unacceptable risk or harm to public health, plants, animals or the environment.¹⁶ With respect to the **Niger**, pesticide registration criteria are set at the regional level and these are referenced in national legislation; within **ECOWAS**, pesticide registration criteria must include consideration of harmful impact and dangers posed to the environment,¹⁷ and under **CILSS** regulations, a pesticide can only be registered if it is not harmful to non-target fauna under normal conditions of use in the Sahel and it has no unacceptable effects on the Sahelian environment.¹⁸ In **Dominica**, the Board responsible for registering pesticides may refuse to register a pesticide if use of the pesticide may constitute a risk to domestic animals, wildlife or the environment.¹⁹ In **Samoa**, the Committee responsible for registering pesticides must consider toxicological data and environmental factors including effects on non-targeted species; registration may be refused if a pesticide is too hazardous to animal health or the environment.²⁰

Similarly, **China's** regulations prescribe that toxicology and environmental impact must be considered by the competent government authority when deciding whether to register a pesticide, and the regulations encourage the phase out of pesticides with risks to animal safety and the environment.²¹ In **Australia**, pesticides must meet safety criteria in order to be approved and registered, including that it would not likely have an unintended effect that is harmful to animals, plants, or things or to the environment.²² In the **United States of America**, the Administrator responsible for registering pesticides shall register a pesticide if, among other factors and subject to any prescribed conditions, it will perform its intended function with unreasonable adverse effects on the environment and when used in accordance with widespread and commonly recognized

practice it will not generally cause unreasonable adverse effects on the environment.²³ In **Ireland**, per European Union (EU) requirements, pesticides must have no unreasonable effects on the environment, including non-target species, biodiversity, or ecosystems.²⁴ Beyond this core element in laws or regulations, several high-income countries have put in place extensive further details in subsidiary guidelines or other subsidiary instruments to define when an effect of a pesticide on pollinators will be considered acceptable or not in the evaluation of an application for pesticide registration²⁵ (FAO, 2022).

Legislation in some cases may impose a mandate for the competent authority to make certain pesticide registration information publicly available. The objectives behind such provisions are in line with broader principles found across environmental law and human rights law, and including in international conventions such as the UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (the Aarhus Convention). While such provisions in legislation are often written in general terms for the publication of pesticide registration information, in some cases, such provisions in legislation may even include a particular focus in relation to pollinators. For example, pesticide legislation in **Albania** requires the competent authority to publish a list of toxicity of registered pesticides to pollinating insects, especially to bees, and make it available on its official website.²⁶

2.2.1 Pesticide registration board

In many countries, pesticide legislation contains provisions that provide for the establishment of independent, multisectoral mechanisms to make decisions on pesticide registration. This kind of collaborative decision making aligns with a One Health approach and could be viewed as one potential procedural mechanism to help ensure that potential impacts on



pollinators are considered during the decision-making process for registering pesticides. While such mechanisms can take many forms and may have different names, these typically comprise representatives from agriculture ministries, responsible for evaluating agronomic benefits and potential risks to animal health; environment ministries, tasked with assessing biodiversity and ecological impacts; and health ministries, which examine implications for vector control and public health.²⁷ For instance, pesticide legislation in **Bhutan** establishes a multisectoral pesticide registration board composed of members from the ministries in charge of agriculture, health, environment, economic affairs, and food.²⁸ Similar mechanisms exist in **Eswatini**²⁹ and **Liberia**,³⁰ among many other examples.

2.2.2 Registration data requirements

Legislation may require testing for toxicity to pollinators as a part of pesticide registration requirements. This may take the form of information to be filled out or attached to a standard form to be submitted when an applicant seeks to register a new pesticide. Such requirements are common across regions, and are typically framed as requirements for the submission of environmental toxicity testing, or toxicity testing for honeybees and other non-target organisms. The choice of scope of such toxicity testing requirements (for example, specific species requirements, and the kind of testing) can have important implications for whether such testing requirements actually serve to identify important potential risks to pollinators.

As examples, the **Plurinational State of Bolivia, Kenya, Lebanon, and Saint Lucia** all require applicants seeking to register a pesticide to submit information about toxicity to bees and other non-target organisms.³¹ With respect to the **Niger**, at the regional level **CILSS** regulations prescribe the composition of the dossier to

be submitted with an application for pesticide registration; this includes studies of the effects of the pesticide on beneficial arthropods, including honeybees.³² Similarly, in **Dominica**, the dossier for pesticide registration must include testing information about the toxic effects the use of that pesticide may have on bees, other wildlife, domestic animals and the environment.³³ In the **Solomon Islands**, the competent authority responsible for registering pesticides shall classify pesticides by hazard according to toxicological data, including hazards to bees.³⁴

Such requirements are also observed in some regional initiatives. For example, for those countries that are members of the **Gulf Cooperation Council**, legislation requires that the pesticide registration application include information on toxicity on humans, animals and environment and impact on bees, fishes, earthworms, and other beneficial creatures and side effects.³⁵ For those countries that are members of the **Andean Community**, pesticide legislation requires the submission of data on the effects of the formulated pesticide product on the environment, including specifically toxic effects on bees.³⁶

Requirements to conduct toxicity testing for effects on pollinators can be extensive and detailed in some country contexts. Thus, **China's** regulations specify in detail the toxicity testing results that must accompany applications to register a new pesticide, and this includes acute toxicity test data for honeybees.³⁷ **Australia** requires testing the toxicity of products in relation to relevant organisms and ecosystems.³⁸ In the state of **California in the United States of America**, regulations prescribe that any registration application for a pesticide likely to contact pollinating bees must include testing data for acute toxicity to bees.³⁹ **European** requirements are extensive and detailed when it comes to requirements to conduct testing for effects on arthropods, including specific provisions on testing for effects on bees.⁴⁰

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2.2.3 Registration bans and severe restrictions

Legislation may ban or severely restrict pesticides because of potential harm to pollinators. The ban or severe restriction make take the form of a ban or restriction on use, and/ or on other activities such as importing, manufacturing, or distribution. While conceivably provisions that enable banning or severely restricting pesticides could specify harm to pollinators as a reason, observed provisions tend to frame such provisions more generally in terms of impacts on animal life or the environment, among other factors.

For example, the **United Republic of Tanzania** provides for both temporary prohibitions and full bans, which may be due to damage to animal health or the environment; once a pesticide is banned, it is forbidden to “import, manufacture, transport, distribute, export or sell restricted or banned pesticides, and the list of banned or restricted pesticides is to be published in

the country’s gazette.⁴¹ **Rwanda** provides for banning any pesticide that has been refused registration or had its registration withdrawn, with the list of banned pesticides published in a ministerial order.⁴² In **Zambia**, the competent Minister may ban, severely restrict, or restrict the use of product of pesticides likely to be harmful to animal life or the environment, and the banned pesticide shall be published in a newspaper of general circulation within seven days.⁴³ Similarly, **Myanmar’s** competent authority may prohibit the use of a pesticide based on facts received that the pesticide may be hazardous to human beings, animals, crops, or the environment.⁴⁴

For the **Niger**, at the regional level, both ECOWAS and the Sahelian Pesticide Committee are charged with developing a list of pesticides that are banned or severely restricted for health or environmental reasons within respective member states.⁴⁵ Although there is no mention of environmental criteria or other criteria





specifically, **Saint Lucia** grants full discretion to the competent Minister to add or remove pesticides from a list of banned pesticides included as a schedule in legislation.⁴⁶

Dominica grants power to the competent Minister to make regulations prohibiting certain pesticides or classes of pesticides, and this was exercised in 2020 with the publication of a list of pesticides that may not be imported into the country.⁴⁷

Note, however, that **Romania's** pesticide legislation specifically provides that pesticides "classified as very toxic (T+) and toxic (T) have the regime of strictly regulated products, for which purpose: a) for their manufacture, sale, import, distribution and use, only legal entities will be registered/authorized that have qualified persons, confirmed by the professional attestation certificate, with training in the field of agriculture/biological/biochemical or forestry, at a higher level or of medium level, as well as the means necessary for the safe storage, handling and use of these products, to eliminate the risks of poisoning people, animals and polluting the environment, as well as to protect bees."⁴⁸

2.2.4 Registration revocation

Legislation may provide a pathway to cancel a pesticide's registration in light of new information about the effects of pesticides on pollinators. In some contexts, legislation may frame such provisions in general terms that could be broad enough to encompass risks to pollinators. For example, pesticide legislation in **Egypt** provides that the competent authority may suspend or revoke a pesticide's registration for, among other reasons, the case where pesticides cause unexpected hazards to human health or the environment.⁴⁹ The competent authorities in **Kenya** and the **Niger** may suspend or revoke a pesticide registration if new information comes to light that the pesticide is dangerous or unsafe or original registration criteria are no longer met.⁵⁰ In **Samoa**, the competent authority may cancel a pesticide's registration certificate if

it is suitably demonstrated that the pesticide causes undesirable harm to animal health or the environment, and notice of cancellation must be published in the national gazette and a public newspaper.⁵¹ Similarly, in **Dominica** and **Saint Lucia**, the competent authority may cancel a pesticide's registration when it believes that a pesticide poses a risk to animals or the environment, and the competent authority in Saint Lucia may also issue a recall order.⁵²

In **Europe**, similar to in Kenya and the Niger, the competent authority may withdraw or amend a pesticide's approval if it considers that the pesticide no longer satisfies its approval criteria.⁵³ In **China**, the competent authority must organize a pesticide registration review committee to review information about a pesticide's adverse effects to animals or the environment; after the review, the committee may decide to forbid or restrict the use of the pesticide and then publicize the decision to the public.⁵⁴ If it becomes clear that a registered pesticide does not meet safety criteria, then the competent authority in **Australia** may suspend or cancel the pesticide's registration and order a recall of the pesticide.⁵⁵ At the federal level in the **United States of America**, the competent authority may cancel a pesticide's registration and require a product recall if the pesticide, when used in accordance with common practice, causes unreasonable adverse effects on the environment.⁵⁶

Closely related to provisions on registration revocation, legislation may impose pesticide recall obligations. For example, pesticide legislation in **Eswatini** provides that where registration of a pesticide is cancelled, the competent authority "shall order a recall of the pesticide where necessary to protect human, animal, or plant health or the environment."⁵⁷ Similarly, in **Ethiopia**, legislation provides that "where the registration of a pesticide is cancelled, the Ministry may order a recall of the pesticide where necessary to protect human, animal or plant health or the environment. Any

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pesticide dealer in possession of a recalled pesticide shall report to the Ministry within 30 days from the date of the recall order.”⁵⁸

Morocco’s pesticide legislation similarly requires that registration holders must immediately recall pesticide products whose registration has been cancelled due to reasons of protection of human health, animal health, or the environment, at their own cost and risk.⁵⁹

2.3 Operator licensing and competence requirements

Legislation may in some cases impose specific licensing conditions or competence requirements on pesticide operators, aiming to improve regulatory control over some activities holding specific risks, including risks associated to pollinators. This could for example, include operators involved in drone-based and aerial applications of pesticides, among other potential categories of operators.

In some countries, legislation may provide general relevant competence requirements for licensed operators. For example, **Mauritania** requires that operators must have “knowledge of the different pesticides, treatment equipment and their uses, mastery of the methods, conditions and parameters for conducting phytosanitary treatments, possible sources of environmental contamination, human and animal exposure and the precautions to be taken to avoid or remedy them.”⁶⁰

In other cases, such competence requirements may be specifically focused on pollinators. For example, legislation in **Bosnia and Herzegovina** requires that persons responsible for selling pesticides must complete a training program with a fixed curriculum that includes emergency protection measures in case of accidents and measures to reduce the risk of pesticide use to non-target organisms, specifically including bees and other pollinators.⁶¹ Similarly, legislation in **Bulgaria** requires that professional users, distributors

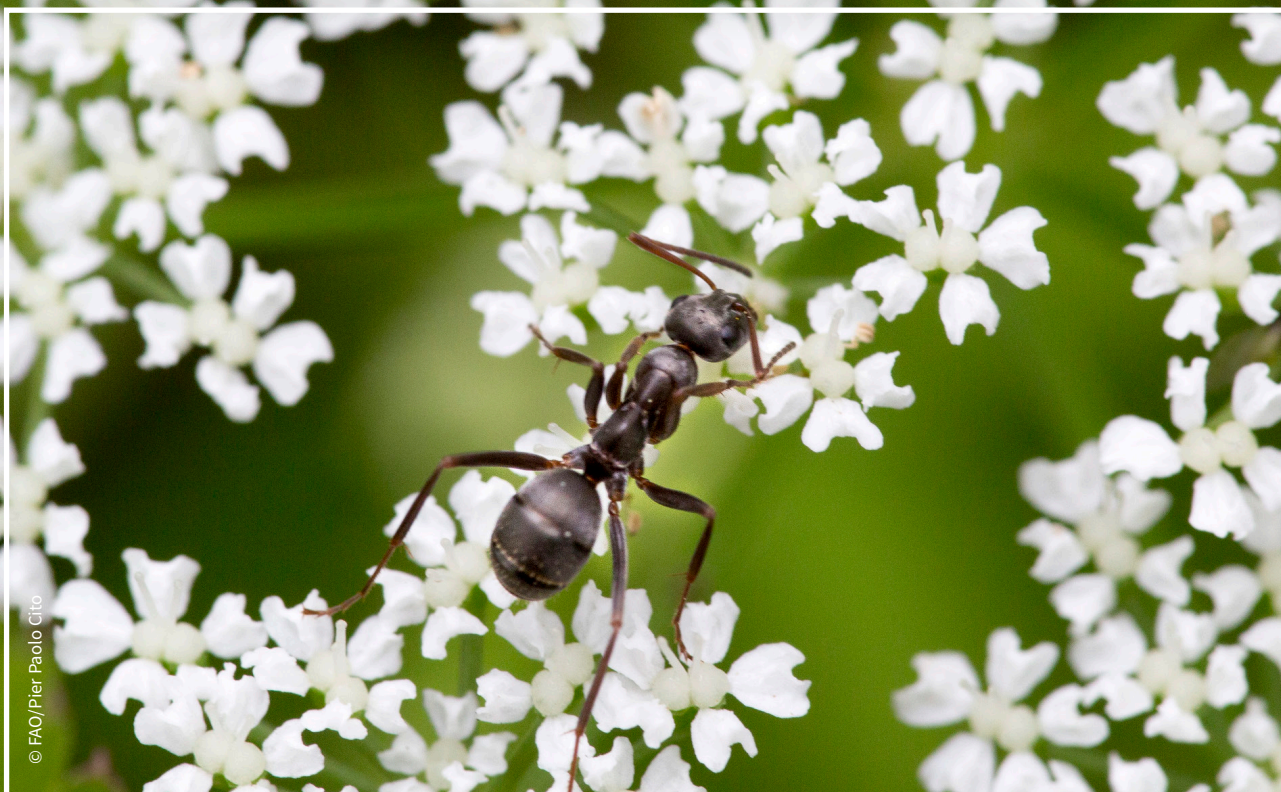
and pesticide consultants must obtain qualifying higher education or a training certificate that includes curriculum components on risks to beneficial insects, wildlife, biodiversity and the environment, and measures to reduce those risks.⁶²

Legislation may also in some cases provide for the power to suspend or cancel a pesticide operator license in the event that the operator poses a hazard to human health, animal health or the environment. For example, pesticide legislation in **Liberia** provides that the competent authority may suspend or cancel a license if “it considers that the action appears necessary to prevent or remove a hazard to people, crops, animals or the environment.”⁶³ Similarly, pesticide legislation in **Malawi** provides that the competent authority may suspend, cancel, or refuse to renew an operator’s license if necessary to do so to protect human or animal health or the environment.⁶⁴

2.4 Labelling

Legislation may require that pesticide labels contain information about potential hazards to pollinators and/or precautions to mitigate hazards to pollinators. Labels may contain both advisory and compulsory language. Such information requirements may be narrowly focused on pollinators, or more generally framed in terms of hazards to animals or the environment.

Thus, in some countries, legislation may generally require that pesticide labels contain information on risks to animals and/or the environment. Thus, pesticides in **Rwanda** are required to contain labels with statements or prohibiting directives on use which may be necessary to protect animals or the environment.⁶⁵ Similarly, in **Japan**, pesticides that are toxic to animals or plants must include on their labels a statement to that effect.⁶⁶ In **Kenya**, pesticides are required to have labels that contain statements identifying any



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significant hazard to animals or the environment as well as instructions regarding the procedures to alleviate such hazards to animals or the environment.⁶⁷ In **Saint Lucia** and **Dominica**, pesticides are required to have labels that contain appropriate instructions for the protection of domestic animals, wildlife and the environment.⁶⁸

In other contexts, legislation may also require labeling information specific to pollinators. Among countries that are members of the **Gulf Cooperation Council**, legislation requires that pesticide labels must contain information about adverse effects of the pesticide on surrounding plants, bees and fishes.⁶⁹ Pesticide legislation in **Argentina** requires to include on pesticide labels information on environmental risks, including the pesticide's ecotoxicological class for bees, birds and fish.⁷⁰ **Viet Nam** requires that pesticides highly toxic to honey bees must include a warning on the label stating "Do not spray during flowering periods."⁷¹ Similarly, pesticide legislation in **Belize** contains detailed requirements for how information about toxicity to bees should be displayed on pesticide labels.⁷²

Going beyond a warning of effects, legislation in some countries may also require labels to contain instructions on how to reduce risks for pollinators or non-target organisms more generally. For example, pesticide legislation in **Indonesia** requires that labels contain instructions on how to avoid negative impacts on non-target organisms (such as pollinators) and the environment.⁷³ Similarly, in **China**, it is required to clearly state on pesticide labels any likely adverse impacts on beneficial organisms (such as bees) and the environment more generally, as well as preventative measures to alleviate such impacts.⁷⁴ Pesticide labels in **Australia** are required to comply with the Agricultural Labelling Code, which requires specific information and instructions necessary for the protection of honeybees and other insect pollinators.⁷⁵ In the **United States of America** at the federal level, the United States Environmental Protection Agency requires that a pesticide's label contain statements about hazards to non-target organisms such as pollinating insects, and appropriate precautions to avoid such hazards (including, for example, a bee icon and a bee advisory box on the label

Pesticide legislation

of pesticides that pose a high risk to bees).⁷⁶

European requirements for pesticide labels are extremely detailed, and include specific safety precaution language related to managing effects on pollinating insects.⁷⁷

2.5 Use

Legislation may require that pesticide users take steps to protect pollinators from harm when applying pesticides.

In some cases, this may be framed in terms of a general obligation to take care when using pesticides. For example, the **United Republic of Tanzania** broadly requires that pesticides shall not be used in a manner likely to cause adverse effects on the environment and shall not be used in contravention of pesticide product specifications or any legal or regulatory requirement.⁷⁸ Similarly, **Mozambique** requires that pesticides must be applied in such a way that they do not prejudice crops, animals, consumers of plant and animal products, non-targeted organisms, and also to minimize risks to the applicant, to the population in general and to the environment.⁷⁹

In **China**, pesticide users are required to protect beneficial organisms and the environment when applying pesticides, and agricultural and environmental authorities are mandated to strengthen guidelines for users to govern the application of pesticides and to prevent pollution.⁸⁰ **Australia** accomplishes a similar function by explicitly requiring each pesticide user to read each pesticide label before each use, to comply with all provisions on the label, and then requiring the inclusion of instructions to prevent harm to pollinators on the label.⁸¹ Pesticide users in the state of **California in the United States of America** are required to exercise reasonable precautions to avoid contamination of the environment, and no pesticides may be applied when there is a reasonable possibility of damage to nontarget species.⁸² California grants power to the state's

competent authority to promulgate specific pesticide use rules to protect bees.⁸³ Pesticide users in **Ireland** are required to apply good practice principles published by the competent authority, which include, for example, that pesticides used should have the least possible side effects on non-target organisms and the environment.⁸⁴

Pesticide legislation may in some cases establish specific restrictions on the use of pesticides in relation to plant flowering periods. For example, pesticide legislation in **Algeria** prohibits the application of pesticides on all crops and forest stands visited by bees and pollinating insects during flowering; only pesticides duly authorized for use during this stage may be applied.⁸⁵ The **Republic of Moldova** prohibits the use of pesticides toxic to bees during flowering periods on plants pollinated with the help of bees.⁸⁶ In **Rwanda**, a person may only spray pesticides for agricultural purposes outside of flowering periods and if it will not harm or kill bees; in addition, spraying may only be done at nighttime, and the product option least toxic to bees must be selected.⁸⁷ Similarly, in **Albania**, "to protect beneficial insects and their pollinating activity, the use of pesticides on flowering plants, whether cultivated or spontaneous, is prohibited. Treatments with pesticides can be carried out up to three days before flowering, as well as after the fall of the petals, proceeding with the cutting of spontaneous flowering plants, which are found under or near the crops to be treated."⁸⁸

Legislation may impose an obligation on pesticide users to select a less risky pesticide if applying pesticides near sensitive areas. For example, pesticide legislation in the **Dominican Republic**, when there are wild species near the area of influence of the property that may be affected by the application of a pesticide, the person responsible for the operation must use a chemically selective product and a technique that does not affect the indicated species.⁸⁹

In some cases, pesticide legislation may also impose restrictions on the manner of



pesticide application in order to reduce risks to pollinators. For example, pesticide legislation in **Albania** prohibits aerial application of pesticides because of the risks involved.⁹⁰ Pesticide legislation in **Ecuador** prohibits aerial application of pesticides that are extremely toxic or dangerous to humans, animals, or agricultural crops.⁹¹ Pesticide legislation in **Kyrgyzstan** requires that, “in order to protect bees from the effects of pesticides, the treatment of areas should be carried out in the late hours, by spraying with ground equipment only. In this case, the apiaries must be taken to a distance of at least 5 kilometers from the treated areas, or the bees must be isolated. It is prohibited to carry out chemical treatment of gardens if there is flowering vegetation in them.”⁹²

In some cases, pesticide legislation may impose specific obligations for spraying near apiaries, and this is an important intersection with beekeeping legislation. For example, the **United Republic of Tanzania** provides that pesticide spraying during the daytime is prohibited within seven kilometers of an apiary.⁹³ Pesticide legislation in **Armenia** provides that aerial application of pesticides is only allowed in case of the impossibility of using ground techniques or the need to cultivate large areas in a short period of time; in all cases, it is prohibited to conduct aerial applications of pesticides within 5 kilometers of locations where beehives are installed permanently.⁹⁴ In **Georgia**, legislation requires that pesticides should be applied in the evening using ground equipment, and hives should be moved 1-5 km away from the spraying site or the bees should be isolated for a specified amount of time.⁹⁵

Pesticide legislation may also impose general obligations on pesticide users to notify local populations and/or post signage with warning information. In some cases, such notice requirements may be broad in nature. For example, pesticide legislation in **Colombia** requires pesticide users to inform neighbors about the application so that they can take the necessary measures to protect people, food,

medicines, agricultural or livestock farms, especially when it comes to species susceptible to the harmful action of pesticides.⁹⁶

In some cases, such notice requirements may be specifically focused on protecting pollinators. For example, pesticide legislation in **Belarus** requires that pesticide users post warning signs at the border of the area of application, and affirmatively notify apiary owners within 5 kilometers of the site of application via mass media notifications.⁹⁷ Pesticide legislation in **Albania** requires that users of pesticides are obliged to notify nearby beekeepers about the place and time of the treatment, in writing, three days before, through the local government bodies.⁹⁸ Similarly, pesticide legislation in **Bosnia and Herzegovina** requires giving 48 hours-notice to local beekeepers before pesticide applications, and specifies that the notice must contain the date and time of treatment, the product to be used, the applicator’s contact details, and information about the place of application.⁹⁹ Similar obligations are found in the pesticide legislation of **Serbia**.¹⁰⁰ **Bulgaria’s** pesticide legislation mandates the food safety agency to establish an electronic system for the submission and dissemination of information on planned pesticide uses, facilitating notifications between pesticide users and beekeepers.¹⁰¹

2.6 Advertising

Legislation may contain provisions that regulate the content of pesticide advertising on points that are generally or even specifically relevant for protecting pollinators from pesticides. For example, legislation in **Brazil** requires that commercial advertising of pesticides via any means of communication must contain a clear warning about the risks of the product to human and animal health and the environment, and guidance to follow the pesticide’s label instructions.¹⁰² Specifically in relation to pollinators, **Paraguay** prohibits any advertising of pesticides showing applications around beehives.¹⁰³

2.7 IPM or pesticide risk/use reduction planning

Legislation may require integrated planning or other similar measures to reduce the overall use of pesticides or the impact of pesticides on pollinators. This may take the form of promoting or requiring the implementation of Integrated Pest Management or Integrated Pest and Pollinator Management. It may also take the form of detailed requirements to develop and implement plans to reduce the use of pesticides or their impacts, or encouraging voluntary measures. While conceivably such planning could consider impacts on pollinators, observed provisions in legislation tend to focus more broadly on reducing impacts on the environment.

In the **United Republic of Tanzania**, the authority responsible for plant health is tasked with the function of promoting Integrated Pest Management.¹⁰⁴ Pesticide legislation in the **Lao People's Democratic Republic** provides that the "State encourages and promotes individuals, legal entities and organizations to invest in business operations in the least hazardous pesticides, biological pesticides and to use environmental-friendly management approaches, such as integrated pest management and good agricultural practices, through the provision of information, techniques, tax and duty incentives according to the law."¹⁰⁵ Moreover, in the **Lao People's Democratic Republic**, "individuals, legal entities and organizations using pesticides shall [...] only use pesticides when necessary in order to reduce the risks of pesticides and comply with the principles of integrated pest management."¹⁰⁶ **Nicaragua** requires its competent authority to "promote education programs on alternative means of control and integrated management of pests and diseases, which ensure the sustainability of the productive processes and do not cause unacceptable damage to sustained agricultural and industrial activity, human health and the environment in general."¹⁰⁷

In **China**, the government is mandated to gradually reduce the use of pesticides in favor of biological controls, physical controls, improved equipment, and other measures.¹⁰⁸ Furthermore, county-level governments in China are required to make and implement plans to reduce pesticide use and encourage pesticide users to voluntarily reduce the volume of pesticides used.¹⁰⁹ In the **United States of America**, at the federal level, legislation promotes Integrated Pest Management by directing the competent government authority to implement research, demonstration, and education programs on the topic, and directing federal agencies to apply Integrated Pest Management in their own pest management activities.¹¹⁰ **Europe** requires member states to adopt national action plans to reduce risks to human health and the environment from the use of pesticides.¹¹¹ **European Union** member states are further required to take all necessary measures to promote low pesticide-input pest management, including Integrated Pest Management.¹¹²

2.8 Information collection and monitoring

Legislation may require active monitoring for unintended or adverse effects of pesticide use on pollinators. This may involve the development and implementation of monitoring plans or systems, or just tasking a particular government authority with monitoring.

In practice, such requirements tend to be broadly framed around monitoring effects on humans, animals, and the environment, rather than specifically focused on pollinators. For example, in **Rwanda**, inspectors under the competent authority responsible for pesticide registration are tasked with supervising pesticide use and monitoring for negative impacts and effects of such pesticides.¹¹³ **Zambia** provides that the competent government authority should collect data on the use of pesticides and effects on the environment, as well as the presence of pesticides in the environment.¹¹⁴ For countries



that are members of the **West Africa Economic and Monetary Union**, pesticide legislation requires that countries monitor the effects of pesticides on humans, animals, plants and the environment.¹¹⁵ Similarly, pesticide legislation in **Burundi** requires the competent authority to develop and implement programs for impact assessment and surveillance of the impact of pesticides on people, animals, plants, and the environment.¹¹⁶ In **Cambodia**, pesticide legislation requires the competent authority to implement studies and research to monitor and collect information on pesticide impacts and dangers to humans, animals and the environment.¹¹⁷

China requires provincial agricultural departments to establish pesticide safety risk management systems to monitor on an ongoing basis the impacts of pesticide use, including impacts on non-target organisms (including bees) and the environment; provincial departments are then required to report monitoring results to the central Ministry of Agriculture.¹¹⁸ At the federal level in the **United States of America**, the competent authority shall develop and implement a national pesticide monitoring plan, including monitoring of incidental exposure of animals to pesticides and environmental pesticide pollution.¹¹⁹ A similar provision is found in **Morocco**, where the competent authority is mandated to develop a national phyto-pharmacovigilance plan which shall collect data on adverse effects of pesticides on human health, animal health and the environment.¹²⁰

In support of such information collection provisions, pesticide legislation may impose recordkeeping and reporting obligations on pesticide users. For example, pesticide legislation in **Albania** requires pesticide users (except for those using pesticides in agricultural production for family consumption) to keep a register of pesticide use and make it available to inspectors.¹²¹ Similarly, **Nepal** requires

any “person, institution or body producing, synthesizing, importing, exporting, commercially using, storing, selling, distributing, transporting and disposing pesticides shall properly maintain the records containing, inter alia, the quantity, price and other prescribed details of the pesticides transacted by such person, institution or body.”¹²²

2.9 Incident reporting

Also closely related to information collection and monitoring (as discussed separately), legislation may require reporting of observed unintended effects of pesticides on pollinators. However, it tends to be more common for countries to frame such provisions around reporting unintended effects more broadly, especially in relation to human health, animal health and the environment. It is also important to note that, in practice, some countries also have created specific bee poisoning incident reporting systems that can be either mandatory (i.e., prescribed by legislation) or voluntary in nature.¹²³

Thus, several countries have imposed generalized incident reporting obligations. For example, in **Gabon**, pesticide legislation requires “Any person on whose premises or land, of dead and injury or death of another person or animal has occurred as a result of exposure to, use or handling of chemicals or pesticides shall send a notice within twenty-four hours of such death or injury to the Registrar.[...] Any livestock officer who has reason to believe that certain ailments and death occurring in any area under his charge may be linked to exposure to any chemicals or pesticide shall notify the Registrar.”¹²⁴ Similarly, pesticide legislation in **Malaysia** requires that registration holders must report to the competent authority any adverse effects of the pesticide on human beings, animals, plants, fruits or property within 60 days.¹²⁵ **South Africa** requires that pesticide registration holders must immediately report the competent authority any factual or scientific

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evidence of any adverse effect or risk of the pesticide to human health or the environment.¹²⁶

Pesticide users, dealers, and producers in **China** are all obligated to immediately report to local agricultural authorities when they discover new information that a pesticide poses serious harm or a significant risk to animals or the ecological environment.¹²⁷ At the federal level in the **United States of America**, the holder of a pesticide registration must notify the competent government authority about any new or additional factual information regarding a registered pesticide's unreasonable adverse effects on the environment.¹²⁸

Subsidiary regulations further specify in detail the information about adverse effects which must be reported.¹²⁹ Holders of pesticide registrations in **Australia** are required to report to the competent authority any new information about the registered product, and failure to report is subject to monetary penalties.¹³⁰

Europe requires that the holder of a pesticide authorization must immediately notify the competent authority of the Member State that granted the authorization when the holder becomes aware of potentially harmful effects on animal health or the environment.¹³¹

2.10 Inspection

Legislation may provide powers for pesticide inspectors that are sufficiently broad to allow them to investigate cases where pollinators have been affected by pesticides. For example, in **Liberia**, pesticide legislation, among the powers provided to pesticide inspectors are to "inspect any land actually, or reported to be, exposed to pesticides; investigate complaints of injury to human beings and animals, or damage to land and pollution of water bodies resulting from the use of pesticides."¹³² **Uganda** provides that inspectors may "enter any place, premises,

vehicle, or vessel [...] in which he or she believes there is material, a person, an animal, or crop contaminated by a [pesticide]."¹³³

Legislation may also provide specific inspection powers focused on investigating impacts of pesticides on pollinators. For example, **Serbia** is one such case where legislation provides specific inspection powers in relation to the impacts of pesticides on pollinators. There, pesticide inspectors are given the specific powers to "take samples of means for the protection of plants, plants, plant products and prescribed objects, free of charge, as well as water, soil, bees, aquatic organisms and other non-target organisms, for examination; check whether the producer has informed the Ministry and users without delay about possible harmful consequences of plant protection products, i.e. residues of plant protection products, on human and animal health, surface and underground water or the environment, as well as new knowledge about possible restrictions; [...] check whether plant protection products are applied in accordance with the provisions of Article [...] 49 of this law [on protection of bees]."¹³⁴

2.11 Offenses and penalties

Finally, although less common across observed examples, legislation may in some cases provide specific offenses relevant to the protection of pollinators from pesticides. For example, **Serbia** prescribes a fine of 700 000 to 3 000 000 dinars for the specific offense of applying a pesticide toxic to bees contrary to the rules of use prescribed under pesticide legislation.¹³⁵



3. BEEKEEPING LEGISLATION

Beekeeping legislation is one of several important potential tools that can govern the activities and relations that impact on managed pollinators. Thus, while pesticide legislation provides an avenue to protect all pollinators from certain pesticides, beekeeping legislation is often a more appropriate location to provide targeted protection of key species of (managed) pollinators. This protection is not limited by the scope of pesticide legislation and may consider a wider range of topics.

However, at present, beekeeping legislation is still relatively rare from a global perspective. It is not universal or even widespread across all countries and contexts. Across low-income and middle-income economies,¹³⁶ preliminary desk research suggests that less than half have put in place specific primary legislation or secondary legislation (or even dedicated sections of primary or secondary legislation) on beekeeping. Thus, from among these countries, 51 country examples have been identified and reviewed for the purposes of this section. These examples of beekeeping legislation provide insights into the current state of country practice when it comes to drafting beekeeping legislation.

The collection of beekeeping legislation found in these countries was analyzed and each provision of each piece of legislation was then classified into different legal elements. For the purposes of facilitating discussion below, these legal elements have been grouped into several sections: (a) *introductory provisions* that are common across many kinds of legislation, such as a definitions section, scope of application section, and so on; (b) *administration* elements that deal with the establishment and operations of public entities relevant for beekeeping; (c) *regulation of beekeeping* elements that cover the typical business practices of beekeepers, such as apiary registration, production of products like honey, and so on; (d) *bee protection* elements that focus on ensuring the protection of bees from poisoning, diseases, habitat loss, and so

on; (e) *compliance and enforcement* elements that address items such as inspections, offenses and penalties; and finally, (f) *miscellaneous and final provisions*, such as the power to make relevant subsidiary legislation.

While not globally exhaustive (especially given the focus only on a selection of low income and middle-income countries), these legal elements represent a menu of possible options to consider when drafting or revising beekeeping legislation with the aim of protecting pollinators from pesticides. However, it is important to keep in mind that no single country has all these legal elements in their beekeeping legislation. Rather, each country will have their own unique mix according to their unique context, policy priorities, and so on. Furthermore, each included element will be tailored and drafted to meet those unique conditions.

Below each legal element will be discussed one-by-one, grouped according to the sections mentioned above. For each element, key drafting features and options will be summarized and illustrated with concrete examples from country legislation. Although not all, many of the elements of beekeeping legislation discussed below present an opportunity to incorporate aspects or features to support the protection of pollinators from pesticides, as summarized in **Table 3**.

3.1 Introductory provisions

3.1.1 Definitions

Beekeeping legislation commonly includes one or more provisions dedicated to defining the key words to be used in the legislation. Definitions provisions are nearly universal across the examples studied, but they are slightly less common among the examples from Latin America and the Caribbean, and among those found in countries with upper-middle-income economies. Their inclusion will depend primarily on each country's legal tradition. In

Protecting pollinators from pesticides

Issues and options to consider when drafting pesticide legislation, beekeeping legislation, and biodiversity legislation

Beekeeping legislation

Table 3. Key issues to consider, relevant to protecting pollinators, when drafting beekeeping legislation

Selected elements from beekeeping legislation	Issues to consider
Introductory provisions	<ul style="list-style-type: none">• Whether to add a definition or cross-reference to a definition of pesticides• Whether to include an objective related to protecting pollinators from pesticides or protecting pollinators more generally• Whether to include a broad policy priority for protection of pollinators from pesticides
Administration	<ul style="list-style-type: none">• Whether to assign a specific mandate and powers to an institution to protect pollinators from pesticides• Whether to include specific support for further research on the protection of pollinators from pesticides• Whether to require a focus on protection of pollinators from pesticides in beekeeping sector planning efforts
Regulation of beekeeping	<ul style="list-style-type: none">• Whether to include a right for beekeepers to be informed about pesticide uses that could impact bees• Whether to include registration requirements to facilitate notifications about pesticide use• Whether to include specific requirements to keep apiaries located far away from pesticide use, or vice versa• Whether to include pesticide residue limits in beekeeping legislation or other sectoral legislation• Whether to include notice/authorization requirements for moves to ensure that apiary registration remains up to date for pesticide use notifications• Whether to give beekeeping associations a recognized role in protecting pollinators• Whether to include specific provisions on organic bee products in beekeeping legislation



Table 3 (Cont.)

Selected elements from beekeeping legislation	Issues to consider
Bee protection	<ul style="list-style-type: none"> • Whether to include habitat protection obligations and/or protected areas where pesticide use is restricted • How long before a pesticide application should notice be provided to beekeepers • How should notice be transmitted between pesticide users and beekeepers • Which beekeepers must be notified in the event of pesticide use • What information must be included in the notice provided • Whether and under which circumstances and conditions pesticide users will be liable for harm to bees • Whether to include specific pesticide use rules in beekeeping legislation that go beyond obligations found in pesticide legislation • Whether to include specific obligations for beekeepers to take certain measures in the event of nearby pesticide use • Whether to include any specific pesticide product restrictions that go beyond those found in pesticide legislation • Whether to include provisions governing what happens if a poisoning issue occurs • Whether to include provisions governing liability in the event of poisoning of pollinators by pesticides
Compliance and enforcement	<ul style="list-style-type: none"> • Whether inspection powers have a sufficient scope to allow for enforcement of obligations related to pesticide use
Miscellaneous and final provisions	<ul style="list-style-type: none"> • Whether additional subsidiary legislation will be needed to fill in the details about protection of pollinators from pesticides

Source: Author's own elaboration.

many countries, it is standard legislative drafting practice to include such a definition provision in all new pieces of legislation. Where present, such definitions will typically be found near the beginning or end of a legislative instrument, or alternatively, near the beginning or end of each section of a legislative instrument.

A definitions section can be drafted with several underlying objectives in mind. Among them, it can be used to clarify the scope of what the

legislation applies to by clarifying the meaning of key terms. It can also make legislation more accessible and understandable to stakeholders. Definitions can help to define the scope of which pesticides trigger obligations under beekeeping legislation to protect bees. However, among included examples, it is relatively rare for the definitions provision in beekeeping legislation to include a definition of pesticide or related terms. Where a definition of the term pesticide

Beekeeping legislation



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is included in beekeeping legislation, one aspect to consider is whether and how to align the definition of pesticides with its definition in pesticide legislation or other sectoral legislation (such as environmental legislation).

In some cases, there may be a mismatch between definitions between beekeeping legislation and pesticide legislation. For example, **Zimbabwe's Bees Act** defines the term insecticide as, "any substance which is manufactured for the purpose of killing insects and is to be applied, either dry or wet, mechanically under pressure," and herbicide is defined as, "any substance which is manufactured for the purpose of killing non-woody plants and is to be applied, either dry or wet, mechanically under pressure."¹³⁷ Notably however, this focus on insecticides and herbicides is narrower than the scope of *Zimbabwe's Pesticides Regulations*, which focus on the term pesticides, defined as "a formulation containing an active ingredient, and includes fungicides, biopesticides, pheromones, insecticides, nematocides, acaricides, avicides, herbicides, arboricides, adjuvants, bactericides, molluscicides, rodenticides, termite poisons, any substance which is used for the control of virus disease of plants and any substance which is used to retard or stimulate the growth of plants, wood treatment chemicals, insect and snake repellents, but excludes substances which are intended for plant nutrition or for veterinary remedies and preparations."¹³⁸

As another example, **Yemen's Decision of the Minister of Agriculture and Irrigation No. 16 Regarding the Beekeeping and Apiculture System** defines a pesticide succinctly as "a chemical substance that is recommended to be used to combat a specific pest or disease."¹³⁹ However, *Yemen's Law No. 25 Regulating the Circulation and Trade of Plant Pesticides* defines the term pesticide in much greater detail as "any material or element competent or mixture of chemical products or natural preparation used in the



field of agriculture for the purpose of protecting plants against pests or for eliminating such pests by way of combating or destruction or chasing away or attraction or reduction in numbers. This also includes the use of hormones and all other products regulating growth, fruit bearing and loss of leaves or flowers within the scope of pesticides for plant pests, and all materials are used for the protection of crops before or after harvesting or during storage and transportation.”¹⁴⁰

Aligning key definitions across beekeeping legislation and pesticide legislation, such as the definition of the term pesticide (or where applicable, definitions of chemical pesticides and biopesticides), may help to align stakeholder understanding, expectations, and implementation of obligations to protect bees from pesticides. Aligning definitions can be challenging, especially when different pieces of legislation may be separated by decades of experience. Depending on a country’s legal tradition, one additional option, although it may reduce ease of reading for stakeholders, is to make use of cross references between beekeeping legislation and pesticide legislation.

3.1.2 Scope of application

Beekeeping legislation may include a scope of application provision which describes to whom, what, and/or where the beekeeping legislation will apply. The inclusion of such a provision will again depend heavily on the legal tradition of each country. Such provisions are common across regions, though somewhat less common in Latin America and the Caribbean and East Asia and the Pacific. Among the possible underlying objectives for including such a provision are to clarify for stakeholders whether beekeeping legislation will be relevant and applicable to their activities.

As a starting point, in some cases, the scope of application provision may outline to which stakeholders the beekeeping legislation is intended to be applicable. For example, **Cuba’s**

Decree No. 176 - Protection of Beekeeping and Melliferous Resources provides that “[t]he provisions established by this Decree [...] will be applicable to: (a) holders of hives; and (b) state entities that have in their areas useful plants for beekeeping.”¹⁴¹ The *Law of Beekeeping Promotion and Protection of Pollinating Agents* in the state of Jalisco in **Mexico** provides that “The provisions of this law are of public order and social interest and of general observance throughout the territory of the State of Jalisco. [...] The following are subject to this Law: I. All natural and legal persons who are habitually and sporadically dedicated to the breeding, promotion, improvement, exploitation, technological innovation, mobilization and commercialization of bees and their products; as well as those that carry out functions of industrialization, packaging, storage, commercialization, and transport of their products in the State; II. The areas in the zones considered as suitable for the growth and development of beekeeping in the State; and III. The agreements entered into between the Federation, Federal Entities, Municipalities and experts in the matter of this law, with State agencies or entities.”¹⁴²

A scope of application provision may also outline the activities to which the beekeeping legislation will apply. Thus, for example, **Madagascar’s Decree No. 2004-1135 on Bee Breeding** provides that “[t]his decree determines the general conditions for the implementation of beekeeping, the protection of the bee herd on the national territory and defines the methods of control of hive products [...]”¹⁴³ Similarly, the **United Republic of Tanzania’s Beekeeping (General) Regulations** provide that, “[t]hese regulations shall apply in relation to the keeping, hunting, storage and business in apiary products or bee products.”¹⁴⁴

In some countries, the scope of application provision functions as a summary of the content of the legislative instrument. This is the case, for example, in **Türkiye**, where the

Beekeeping legislation

Regulation on Apiculture provides that “[t]his Regulation covers all kinds of production, breeding, obtaining breeding material related to beekeeping, determining the principles on fixed and wandering beekeeping, taking necessary precautions for bee health and transport, standardization of tools, machinery and materials, training, projecting, development of honey agriculture, queen bee breeding, and artificial insemination in honey bees.”¹⁴⁵ The entity Republika Srpska within **Bosnia and Herzegovina** takes a very similar approach in its *Law on Beekeeping*, which provides, “This law regulates: breeding, protection, selection and reproduction of bees; accommodation apiary; bee grazing and bee transport method; establishment and management of the bee cadastre; preparation and implementation of grazing order; trade in bee colonies, queens and bee products and establishing records of beekeepers and apiaries.”¹⁴⁶ In contrast, **Rwanda’s** *Law No. 25/2013 Determining the Organization and Functioning of Beekeeping* provides a more succinct summary, whereby “[t]his Law shall determine the organization and functioning of the beekeeping in Rwanda.”¹⁴⁷

3.1.3 Objectives

Beekeeping legislation may contain one or more provisions that specify the objectives of beekeeping legislation. Looking globally, while such provisions are somewhat common in beekeeping legislation from Latin America and the Caribbean, they are less common Sub-Saharan Africa, the Middle East and North Africa, Europe and Central Asia, and East Asia and the Pacific. One possible underlying drafting objective here is to guide the interpretation and implementation of beekeeping legislation.

Often, such objectives will relate generally to the promotion of the beekeeping sector. For example, **Colombia’s** *Law No. 2193* provides that, “The purpose of this law is to establish mechanisms to encourage the

promotion and development of beekeeping and its complementary activities. For this, public policies and the execution of projects and programs that guarantee the promotion and protection of beekeeping, its environment and development will be implemented as a strategic component for the protection and preservation of biodiversity, agricultural conservation and adaptation to climate change, in the national territory.”¹⁴⁸ Similarly, **Azerbaijan’s** *Law No. 765-IIIQ on Beekeeping* provides “The purpose of the legislation of the Republic of Azerbaijan on beekeeping is to achieve the development of beekeeping in Azerbaijan by creating a legal basis for improving the selection and breeding work in beekeeping, preserving and improving the gene pool of local bee breeds and populations, breeding high-yielding honey bees with stable genetic traits and increasing the production of beekeeping products.”¹⁴⁹ Also in a similar fashion, **Bulgaria’s** *Law on Beekeeping* provides that “[t]he purpose of the law is to create conditions for the development of beekeeping as a sub-branch of animal husbandry to create and maintain the necessary number of bee families, to maintain biological diversity and ecological balance in nature, obtain normal yields from cultivated plants and produce quality bee products.”¹⁵⁰

While specific objectives related to protecting bees from pesticides have not been observed in the legislation of the countries studied for this document, in some cases, the objectives provision will include objectives that relate to protecting bees generally. For example, **Turkmenistan’s** *Law No. 266-V on Beekeeping* provides that “The objectives of this Law are: 1) meeting the needs of the population in bee products; 2) ensuring the protection of the rights and legitimate interests of legal entities and individuals, engaged in beekeeping on the territory of Turkmenistan; 3) creation of conditions for breeding, maintenance of honey bees and their use for pollination of agricultural entomophilous plants; 4) development



of production of beekeeping products; 5) protection of honey bees; 6) preservation and improvement of the gene pool of honey bees; 7) improvement of technologies for the production of bee products.”¹⁵¹ Similarly, **Romania’s Law No. 383 on Beekeeping** provides “The object of this law is the creation of the legal framework regarding the regulation of beekeeping activity in order to protect bees and develop beekeeping.”¹⁵²

The objectives provision can also serve as a link to broader sectoral objectives such as alleviation of poverty, sustainable development and the protection of biodiversity. For example, the **United Republic of Tanzania’s Beekeeping Act** provides, “[t]he objectives of this Act shall be: (a) to promote, and enhance the contribution of the beekeeping sector to the sustainable development of Tanzania and the conservation and management of her natural resources for the benefit of present and future generations; (b) to enhance national capacity to manage and develop the beekeeping sector and enable the sector to make a contribution to the alleviation of poverty; (c) to ensure that the management and development of beekeeping is devolved to the lowest possible level of Government consistent with maintaining and promoting high standards of quality; (d) to ensure the sustainable existence of honeybees by the creation, maintenance and effective management of bee reserves and apiaries; (e) to improve the quality and quantity of honey, beeswax, and other bee products to ensure the sustainable supply of the same; to improve bio-diversity and increase employment and foreign exchange earnings through sustainable bee products-based industrial development and trade.”¹⁵³ Similarly, **Law No. 13.870** of the province of Santa Fe in **Argentina** provides that its objectives shall be to, “[p]rotect all the beekeeping flora as territorial wealth, in such a way that it allows a sustainable development of beekeeping, in balance with other industrial activities, ensuring the diversity of the flora, food production, contributing to regional

development and promoting the generation of the sources of work in each Commune and Municipality of the Province.”¹⁵⁴

3.1.4 Policy priorities

Closely related to the objectives of beekeeping legislation, in a few country contexts, beekeeping legislation has been observed to contain provisions that prescribe sector policy priorities and approaches to be undertaken to protect bees. Such provisions are relatively rare globally, but several examples have been observed in Europe and Central Asia. These examples tend to be very similar in approach across countries in the region and tend to mention the protection of bees from pesticides.

For example, **Kazakhstan’s Law No. 303-II ZRK on Beekeeping** provides, “[p]rotection and reproducing of bees shall be carried out by owners by: 1) protection of habitat of bees, conditions of breeding, places of movements and ways of migration of bees; 2) veterinary and sanitary serving of apiaries; 3) provision of optimal quantity of bee communities in range of their resettlement; 4) scientifically-based and rational use of bees; 5) taking measures on prevention of ruin and intentional elimination of bee communities; 6) protection of bees upon application of pesticides, mineral fertilizers and other drugs; 7) supporting of activity aimed at preserving of bees.”¹⁵⁵

As another example, **Turkmenistan’s Law No. 266-V on Beekeeping** lists similar points: “Honey bees are protected by: 1) compliance with zootechnical and veterinary and sanitary standards and rules of keeping honey bees and placement of beehives with bee colonies at the sources of honey collection; 2) fulfillment of the requirements for the protection of natural habitats, migrations and migration routes honey bees; 3) prevention of poisoning of honey bees by pesticides and agrochemicals; 4) prevention of diseases of honey bees, their treatment, pest control of bees families; 5) facilitating the unhindered transportation of bee colonies; 6)

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protection of hives with bee colonies from ruin; 7) organization of scientific research in the field of protection of honey bees; 8) advertising beekeeping in the media, educating citizens of careful attitudes towards bees, including encouraging activities to protect honey bees; 9) provision of state support for beekeeping.”¹⁵⁶

3.1.5 Guiding principles

Beekeeping legislation may include a provision which lists basic principles which are meant to guide the interpretation and implementation of the legislation. Such provisions are closely related to objectives provisions, but provisions on guiding principles are somewhat rarer among the examples studied for this document. Only a few examples were observed from among the legislation studied.

One such example is from the department of La Paz in the **Plurinational State of Bolivia**, which provides in its *Law No. 210*, that, “[t]his Law is governed by the following principles: a) Transparency: The administrative actions of public resources and the exercise of the public function of the public servants, as well as beneficiaries will be governed by honesty, ethics, accountability and publicity. b) Responsibility: Within the scope of their powers, the Autonomous Territorial Entities, the Economic Productive Organizations and Producer Associations, share responsibility in compliance with the provisions of this Law. c) Control: Activity shall be delegated to any natural or legal person to exercise social control in the projects to be executed. d) Equity: It is the common welfare of women and men, with full and effective participation to achieve fair production. e) Wellbeing: It is the condition and development of an integral material, spiritual and physical life, in harmony with itself, the family, social environment and nature. f) Conservation: Every person is obliged to conserve the diversity of bees and other pollinators in the Department of La Paz. g) Promotion: As a strategic natural resource for the departmental economy, the

promotion of production, transformation and commercialization is guaranteed through public policies. h) Prevention: Taking preventive and mitigation measures as a priority in the face of the impacts of production, climate change and natural disasters.”¹⁵⁷

As another example reflecting the role of customary legislation in beekeeping is **Yemen’s Decision of the Minister of Agriculture and Irrigation No. 16 Regarding the Beekeeping and Apiculture System**. This Decision provides, “The competent department shall take advantage of the customs and traditions prevailing in the different regions in organizing the beekeeping sector. [...] Everything that is not stipulated in this regulation is to take advantage of the customs and traditions prevailing in the different regions in organizing the beekeeping sector.”¹⁵⁸

3.1.6 Regulatory basis

Beekeeping legislation may specify the legal authority under which it has been enacted. In the case of primary legislation, this may be a reference to a constitutional provision, or in some cases, an overarching framework piece of legislation. In the case of secondary legislation, this may be a reference to one or more pieces of primary legislation which provide the authority to enact secondary legislation. In some regional contexts, this may be a reference to a regional or other international legal instrument applicable to the country. This regulatory basis has important practical considerations for setting the scope of what subsidiary legislation can cover.

Often, a provision specifying the regulatory basis for legislation will be found in the preamble or other introductory matter at the beginning of legislation. However, in some country legal traditions, such a regulatory basis may instead be included as a standalone provision within legislation. For example, **Belarus** includes such a standalone provision in its *Decree No. 55 of the Ministry of Agriculture and Food Validating Veterinary and Sanitary*



Regulation on Apiculture, which in relevant part provides, “[t]hese veterinary and sanitary rules for keeping bees (hereinafter referred to as the Rules) were developed on the basis of the fifth paragraph of the second part of Article 9 of the Law of the Republic of Belarus of July 2, 2010 “On Veterinary Activities” (National Register of Legal Acts of the Republic of Belarus, 2010, No. 170, 2/1713).”¹⁵⁹ Similarly, **Türkiye** includes such a standalone provision in its *Regulation on Apiculture*, which provides, “[t]his Regulation has been prepared on the basis of the Decree-Law on the Organization and Duties of the Ministry of Food, Agriculture and Livestock, dated 3/6/2011 and numbered 639, and the Veterinary Services, Plant Health, Food and Feed Law dated 11/6/2010 and numbered 5996.”¹⁶⁰

3.2 Administration

3.2.1 General institutional structure

Beekeeping legislation may establish and assign powers and responsibilities to one or more institutions to govern or otherwise carry out functions related to the beekeeping sector. Provisions on institutions seek to clarify several questions, including: (a) which public bodies have responsibilities related to beekeeping, (b) what specific responsibilities those bodies have, (c) what powers they have available to help fulfill those responsibilities, and (d) how they should coordinate with other institutions and stakeholders to fulfill those responsibilities. In the case where a new institution is being established for beekeeping, legislation may also specify aspects such as the institution’s internal structure, procedural rules, accountability mechanisms, and so on.

Institutional provisions in beekeeping legislation often start with a basic sentence that assigns a mandate to oversee the beekeeping sector. Thus, one simple and direct example is **Rwanda’s** *Law No. 25/2013*, which provides that “[t]he beekeeping shall be managed and supervised by the Ministry in charge of beekeeping.”¹⁶¹

Similarly, **Guatemala** provides in *Ministerial Agreement No. 169-2012* that “[t]he Ministry of Agriculture, Livestock and Food, through the Safety Directorate of the Vice Ministry of Agricultural Health and Regulations, is responsible for ensuring the application and compliance with the provisions established in this Ministerial Agreement.”¹⁶² **Yemen’s** *Decision of the Minister of Agriculture and Irrigation No. 16 Regarding the Beekeeping and Apiculture System* provides that the competent authority for beekeeping shall be the Bees Department at the General Directorate for Livestock Development at the Ministry’s General Office.¹⁶³

Such a mandate is then typically filled out in greater detail with the specific responsibilities of those bodies. Thus, **Colombia** in *Law No. 2193* provides that “[t]he Ministry of Agriculture and Rural Development is responsible for the promotion and development of beekeeping. It should integrate policies, strategies, programs, projects, methodologies and mechanisms that affect the promotion of beekeeping, such as production, distribution and marketing of bee products in the national territory. [...] Actions will be developed to strengthen and make visible the role of the bee and beekeeping production chain. [...] It corresponds to the competent national authority, Colombian Agricultural Institute, or whoever takes its place, the sanitary protection of beekeeping. For these purposes, this authority must issue in the year following the entry into force of this law, a guide for the management, preservation, protection, and conservation of beekeeping.”¹⁶⁴

Depending on a country’s political structure, responsibility for the sector may also be distributed over multiple levels of government, from the central to the local. For example, **Turkmenistan** in its *Law No. 266-V on Beekeeping* provides that “State regulation in the field of beekeeping is carried out by the Cabinet Ministers of Turkmenistan and local executive authorities and local self-government.”¹⁶⁵ *Law No. 266-V on Beekeeping* then goes on

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to assign different scopes of responsibility for each level: “The Cabinet of Ministers of Turkmenistan in the field of beekeeping: 1) determines the state policy; 2) promotes the development of international cooperation of Turkmenistan; 3) adopts normative legal acts of Turkmenistan in the field of beekeeping development; 4) resolve other issues within its competence in accordance with this Law and other normative legal acts of Turkmenistan. [...] Bodies of local executive power and local self-government in the field of beekeeping: 1) create conditions for the safe placement of hives with bee colonies; 2) promote the development of beekeeping; 3) provide a land plot for temporary accommodation of bee colonies in close proximity to the sources of honey collection; 4) control the fulfillment of duties assigned to beekeepers; 5) solve other tasks assigned to their powers by the legislation of Turkmenistan.”¹⁶⁶ In some country cases, such as in **Armenia**, competent authorities are given highly detailed mandates where several dozen responsibilities and powers may be listed out.¹⁶⁷

In addition to assigning core responsibilities to a competent authority for oversight of the beekeeping sector, several countries have also created a specific body that is constituted to advise the competent authority on matters related to beekeeping. The province of Santa Fe in **Argentina**, in its *Law No. 13.870* creates a Provincial Beekeeping Dialogue Table consisting of public and private representatives that generally advise the competent authority on beekeeping issues, the development of new policies and regulations, and strategic directions.¹⁶⁸ Similarly, the **United Republic of Tanzania’s** *Beekeeping Act* creates a National Beekeeping Advisory Committee consisting of a gender balanced panel of public and private representatives with technical expertise in beekeeping, to advise the competent authority on all matters related to the implementation of beekeeping legislation.¹⁶⁹ As further examples,

similar advisory bodies are also created by legislation in **Panama**¹⁷⁰ and **Bulgaria**.¹⁷¹

Within provisions on institutions, it is possible to include a specific mandate and/or power to protect pollinators from pesticides. This goes above and beyond the specific pollinator protection provisions discussed elsewhere in this document. For example, the state of Jalisco in **Mexico** has included the protection of pollinators from pesticides as a central part of the powers given to the Secretariat of Agriculture and Rural Development of Jalisco. Thus, “[t]he Secretariat will have the following powers: [...] Implement public policies to achieve the protection of pollinating agents, and stop deforestation and the intensive and indiscriminate use of agrochemicals.”¹⁷² Similarly, **Tajikistan’s** *Law No. 820 on Beekeeping* provides that the powers of the competent authority for beekeeping include, “ensuring the implementation of measures to prevent honey bee diseases, treat them, combat insects harmful to bee colonies and prevent poisoning of honey bees with pesticides and other chemicals.”¹⁷³ **Armenia’s** equivalent provision in *Law No. HO-71-N on Beekeeping* is worded more broadly in terms of poisoning of bees: “[t]he authorized body in the field of beekeeping exercises the following powers: [...] implementation of prevention and treatment of diseases, poisoning of honey bees, control of pests threatening the existence of these bees.”¹⁷⁴

3.2.2 Beekeeping promotion

Beekeeping legislation may contain provisions focused on efforts to promote the beekeeping sector within the country and/or within international markets. Such provisions tend to be more common in legislation from countries in Europe and Central Asia, and Latin America and the Caribbean.

In some countries, provisions promoting beekeeping may take the form of general policy statements recognizing the importance of the



sector. For example, **Kosovo's**¹ *Law No. 02/L-111 on Beekeeping* provides, “[t]he importance of the beekeeping sector: Beekeeping is an important sector of the country’s agriculture, a source of natural products with high food, dietary and medical value. Bees through pollination influence the increase in production of many agricultural crops. Bees influence the maintenance of forest and pasture flora by renewing nature as a link in the ecological chain. The exercise of beekeeping activity is carried out in apiaries by beekeepers who are natural or legal persons and who possess bee societies and necessary equipment for the development of this activity according to the provisions of this law.”¹⁷⁵

In some countries, provisions promoting beekeeping may take the form of a mandate for sector development planning, or implementation of an existing sector development plan. For example, **Peru's** *Law No. 26305* provides,

“Beekeeping and the agro-industrial activity of bee products are declared of national interest due to their economic, social and ecological importance, and the domestic bee -*apis mellifera* bee- and native bee species as useful insects must be protected, as well as the bee flora as national wealth, avoiding its indiscriminate felling and promoting its reforestation. The Ministry of Agriculture is entrusted with the elaboration of the National Beekeeping Development Plan, in coordination with the other organisms and institutions of the sector.”¹⁷⁶ In the entity Federation of Bosnia and Herzegovina within **Bosnia and Herzegovina**, the Ministry of Agriculture, Water Management and Forestry is tasked with preparing and carrying out a beekeeping development program focused on “a) increasing productivity and production in beekeeping, b) improving the quality and marketing of bee products, c) improving the health of bees and reducing the

¹ Throughout this document, references to Kosovo shall be understood to be in the context of Security Council resolution 1244 (1999).



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risk of bee poisoning, d) preserving the existing ones, increasing and making better use of them.”¹⁷⁷

Finally, in some countries, legislation may go beyond planning requirements to include detailed, specific incentives or other measures designed to support or promote the beekeeping sector. For example, **Uzbekistan’s Presidential Decree No. PP-3327** includes the implementation of a sector development plan, and further includes incentives for free use of protected lands by beekeepers, extension training for beekeepers, preferential credit or leasing options for beekeeping equipment, customs exemptions for beekeeping equipment, free office space for sector associations, and visa preferences for entry by foreign experts and specialists in beekeeping.¹⁷⁸

3.2.3 Research

Beekeeping legislation may include specific provisions that mandate or promote technical research activities in support of the development of the beekeeping sector. Such dedicated provisions on beekeeping research are relatively rare, but a few examples have been observed across a minority of countries in different income groups in Sub-Saharan Africa, Europe and Central Asia, and Latin America and the Caribbean. Provisions that mandate technical research have as their underlying objective clarifying roles and responsibilities. On the other hand, provisions that promote technical research may often be driven by underlying objectives such as signaling that research is a policy priority.

Often these research provisions have a broad and general focus. For example, **Ukraine’s Law No. 1492-III on Beekeeping** provides that, “[s]cientific support in the field of beekeeping is carried out by the Ukrainian Academy of Agrarian Sciences through the network of its research institutions in accordance with the Law of Ukraine ‘On Scientific and Scientific-Technical Activities.’”¹⁷⁹ Similar, but going into more detail

about the scope of research, **Azerbaijan** in *Law No. 765-IIIQ on Beekeeping* provides, “Scientific and research institutions shall conduct research that ensures the development of beekeeping in the country and the production and application of apiphyto products of special importance for human health, preparation of relevant recommendations and proposals, improvement of selection and breeding programs in the field of beekeeping, improvement of existing breeds and populations of bees, methods and methods of creating inbred lines and types. preparation and implementation, effective organization of prevention and treatment of bee diseases, protection of bees from pests and enemies, application of artificial insemination in beekeeping and conducting other modern scientific and technical research.”¹⁸⁰

However, it is also possible to specifically mandate or promote research on protecting pollinators from pesticides. For example, **Peru** in its *Resolution No. 143-95-AG*, provides that, “[t]he Ministry of Agriculture shall support the research and application of biological control, as well as the integrated control of pests in crops, in defense of pollinating insects.”¹⁸¹

Finally, in rare cases, beekeeping legislation may impose a specific permit requirement for conducting bee- or beekeeping-related research. This is the case in **Ethiopia** where *Proclamation No. 660/2009* requires that “[a]ny foreigner who wishes to engage in bee research shall obtain a written permit issued by the Ministry.”¹⁸² The **United Republic of Tanzania** also requires that researchers obtain a permit from the competent authority before undertaking any research into bee reserves, and its *Beekeeping Act* provides detailed procedural and documentation requirements for obtaining such a permit.¹⁸³

3.2.4 International cooperation

Beekeeping legislation may contain provisions that promote or outline the scope of international cooperation between parties



(public and/or private) in the beekeeping sector. While somewhat rare globally, these provisions are particularly common in examples of legislation from Europe and Central Asia, especially former Soviet countries. The underlying objective behind such provisions may involve compliance with broader legislative drafting practices in the country, and fostering sector development through knowledge transfer across borders.

Observed provisions on international cooperation range from very brief mentions to detailed provisions. In some cases, such provisions on international cooperation are merely cross references to another piece of legislation on international cooperation. This is the case in **Turkmenistan's Law No. 266-V on Beekeeping**, which provides that "[i]nternational cooperation of Turkmenistan in the field of beekeeping is carried out in accordance with the legislation of Turkmenistan."¹⁸⁴ **Azerbaijan's Law No. 765-IIIQ on Beekeeping** similarly provides a basic provision that, "[i]nternational cooperation in the field of beekeeping is carried out on the basis of international conventions signed by the Republic of Azerbaijan, contracts, agreements, agreements and other international legal norms concluded with foreign countries."¹⁸⁵ **Tajikistan's Law No. 820 on Beekeeping** contains a very similar provision but goes one step further to promote international cooperation: "[t]he Republic of Tajikistan promotes the development of international cooperation in the field of beekeeping. International cooperation of the Republic of Tajikistan in the field of beekeeping shall be carried out in accordance with international legal acts recognized by Tajikistan."¹⁸⁶

Ukraine is one example of a more detailed provision on international cooperation. **Ukraine's Law No. 1492-III on Beekeeping** provides a list of activities which shall constitute its international cooperation in the beekeeping sector: "Ukraine participates in international cooperation in the field of beekeeping on the

basis of multilateral and bilateral agreements. Ukraine's participation in international cooperation in the field of beekeeping is carried out in accordance with the procedure established by the legislation of Ukraine, by: conducting joint scientific research; development and implementation of international programs; mutual exchange of information and study of international experience; participation in international congresses, conferences, symposia, exhibitions, fairs and their holding; acquiring membership in international organizations of beekeepers; maintenance of international professional and industrial contacts."¹⁸⁷

3.3 Regulation of beekeeping

3.3.1 Beekeeper rights

Beekeeping legislation may contain provisions that establish or recognize certain legal rights to be enjoyed by beekeepers. Such provisions are somewhat rare globally but tend to be more common in Europe and Central Asia.

The legal rights of beekeepers that are recognized by legislation vary from country to country. As a starting point, some countries recognize a right to keep bees. For example, **Kazakhstan's Law No. 303-II ZRK on Beekeeping** provides that, "[i]ndividuals and legal entities have the right to engage in beekeeping. It is not required to obtain any permission from the state body to engage in beekeeping."¹⁸⁸ **Armenia's Law No. HO-71-N on Beekeeping** establishes several beekeeper rights: "[t]he number of bee colonies for natural and legal entities is not limited, except for the case provided for in Article 5, Part 2 of this Law. A natural or legal person who has released a bee swarm has the right to return it. Beekeepers have the right to receive information about situations that pose a danger to bees."¹⁸⁹ **Turkmenistan's Law No. 266-V on Beekeeping** provides, "[b]eekeepers have the right: 1) to place stationary apiaries on the land plots owned by them or use in accordance with the

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legislation of Turkmenistan; 2) place a nomadic apiary for honey collection on agricultural, forestry and other plots of land with the consent of the owners or users of land plots, regardless of places of registration of bee colonies; 3) receive state support for the development of beekeeping; 4) receive veterinary assistance in carrying out disease prevention measures for bees, their treatment, pest control of bee colonies; 5) receive from public authorities and local governments timely, complete and reliable information on the state of the environment, as well as situations that pose a danger to bees; 6) demand, in accordance with the procedure established by the legislation of Turkmenistan, compensation for losses caused to them by legal or natural persons.¹⁹⁰

Legislation may also contain provisions dealing with a beekeeper's ownership rights over the bees being kept. For example, **Madagascar's Decree No. 2004-1135 on Bee Breeding** provides, "The overflight of a swarm on land does not confer on the owner of this land the right of ownership over the bees. The wild swarm belongs to the owner of the land on which it has settled."¹⁹¹ The **Republic of Moldova's Law No. 70 on Beekeeping** provides that, "[t]he beekeeper has the right: a) to practice the breeding of bee breeds approved in the Republic of Moldova; b) to request permission (agreement) from the public authorities and land owners for the placement of the apiary in the pastoral area; c) to collect his swarm of bees escaped from his own apiary and continuously tracked, located in foreign territory, its owner not having the right to collect it; d) to gather the swarm of bees found, without supervision from the owner, and shelter it in its own hive with the right of further possession; e) to demand, according to the legislation in force, the recovery of damages caused by natural or legal persons; f) - repealed; g) to associate in various associations of beekeepers in accordance with the provisions of Law no. 312/2013 regarding groups of agricultural

producers and their associations and of Law no. 837/1996 regarding public associations."¹⁹²

3.3.2 Registration of beekeepers, locations and apiaries

Beekeeping legislation may contain provisions on the voluntary or mandatory registration of beekeepers, locations, or apiaries. Registration provisions are common across regions and income groups, especially in Latin America and the Caribbean, Europe and Central Asia, and the Middle East and North Africa. Registration provisions can serve several underlying objectives, as the information provided by registration serves as a foundational step for realization of a number of other mandates and stakeholder obligations, including notification provisions for the application of pesticides.

Such provisions may be framed either as registration requirements or permission/licensing requirements, the most important distinction being that permission/licensing systems require a review and approval by a competent authority before beekeeping may be carried out. As an example of a registration requirement, **Colombia's Law No. 2193** provides that, "[i]t is the responsibility of all beekeepers to register their apiaries and implement Good Beekeeping Practices in their production systems."¹⁹³ Similarly, **Kosovo's Law No. 02/L-111 on Beekeeping** provides, "[a] natural or legal person dealing with beekeeping is obliged to inform the Municipal Directorate for Agriculture, by April 30 of each calendar year, about the number and location of beekeeping companies, in order to enter the register of beekeepers. [...] The Municipal Directorates of Agriculture are obliged to bring the register of beekeepers to the MAFRD within 30 days after the end of the registration period."¹⁹⁴ Along the same line, **Panama's Law No. 46 Regulating Beekeeping** provides that, "[t]o carry out beekeeping, any person, natural or legal, must register in the General Registry of Beekeepers, which, for this purpose, will be maintained by the Beekeeping



Section of the Ministry of Agricultural Development, and may carry out its registration procedures through its legal representative or beekeeping organization.”¹⁹⁵

On the other hand, under **Jordan’s Directive No. Z/19 Regulating Apiculture**, “[i]t is not permissible to establish or operate any apiary without a license from the Ministry in accordance with the provisions of this Directive. The license expires at the end of December of each year, and the apiary owner must submit a request to renew the license within a maximum period of the end of March of each year.”¹⁹⁶ Similarly, **Brazil’s Resolution No. 496** requires obtaining an authorization from the competent authority before operating a meliponary.¹⁹⁷

Registration may be carried out at a centralized national level or a subnational or even local level. For example, **Madagascar’s Decree No. 2004-1135 on Bee Breeding** provides that “[a]ny apiary installation must be authorized by the territorially competent Mayor. Any written request for authorization by the beekeeper to set up an apiary must be addressed to the Mayor after consultation with the local Technical Service in charge of Breeding. This request must include: the name of the owner, the location of the apiary, and the number of hives envisaged.”¹⁹⁸

Registration requirements will typically focus on registering information about both beekeepers and their apiaries. For example, **Belize’s Bees Control Act** provides that, “[e]very person who, on 31st December in any year, possesses or has the charge or management of any apiary or hive of bees shall on or before 28th February in the following year report in writing to the Chief Agricultural Officer(a) the number of apiaries in his charge or possession on 31st December of the previous year; (b) the number of hives in each such apiary; (c) the place and district in which each such apiary is situated.”¹⁹⁹ Such registration requirements share similar underlying objectives with the veterinary or sanitary passport systems employed by some countries. For example, **Russian Federation’s**

Federal Law No. 490 on Beekeeping provides that, “[f]or each apiary in the manner established by the subject of the Russian Federation, a veterinary and sanitary passport shall be issued.”²⁰⁰

Countries vary on the duration of validity of registration, from annually renewable up to permanent validity (one time registration with no fixed duration). For example, **Rwanda’s** beekeeping certificate is valid for two years, renewable.²⁰¹ **Costa Rica’s Decree No. 15.563/MAG/S** provides that, “[t]he [beekeeping] registration certificate will be valid for five years, and may be canceled in the event that the provisions of the Law and these Regulations are not complied with.”²⁰² Especially when registration is not limited in duration, legislation may impose an obligation on beekeepers to update the authorities if information submitted for registration later changes. For example, **West Bank and Gaza Strip’s Decision No. 13** provides that, “[a]piaries shall be officially registered in the Ministry’s records if the following conditions are met: 1. The beekeeper must be the owner of three or more classes of hives. 2. Fill out the form prepared in this regard by the Ministry. [...] 7. Inform the Ministry of the locations of the apiaries, their numbers, sale and purchase, their health condition and any new developments in their regard [...]”²⁰³

Legislation may provide extensive procedural details governing the process for registration. For example, **Zambia’s Animal Health (Bee Keeping) Regulations** provide dedicated sections on the application form for a permit to operate a beekeeping farm for commercial products, the format of the permit document itself, the timeline for decisions on permit applications, requests for additional information, procedures for rejection and amendment of permits, requests for duplicate copies of permits, grounds for suspension or revocation of a permit, and the application fees.²⁰⁴

Legislation may specify that certain registration details must be displayed on apiaries. For

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example, **Costa Rica's Decree No. 15.563/MAG/S** requires that, "[t]he beekeeper is obliged to keep the boxes of his hives marked with his registration number."²⁰⁵ Similarly, **Bulgaria's Law on Beekeeping** provides that, "permanent apiaries are necessarily fenced, and in regulated land properties they are fenced, ensuring the safety of the site and preventing free access and passage of people and animals, and are marked with a plate with the registration number of the apiary."²⁰⁶

Legislation may contain detailed requirements on the structure and operation of the registry. For example, **Montenegro's Rulebook on Identification and Registration of Bee Colonies** provides that, "(1) The register of apiary holdings is kept in electronic form. (2) The register from paragraph 1 of this article contains: 1) unique identification number of the apiary; 2) first and last name, address, BMB and telephone number of the beekeeper; 3) the total number of hives with the identification number of each hive and the type of hive (3)

Entering data in the register from paragraph 1 of this article is done on the basis of confirm on the identification of bee colonies and the registration of apiaries. (4) The data from the register referred to in paragraph 2 of this article shall be entered into the (5) The certificate from paragraph 3 of this article is issued on the Form that is an integral part of these regulations."²⁰⁷

Paraguay's Decree No. 25045 provides that the registry of beekeepers and beehives must contain at least the following fields: "(a) name of the beekeeper and/or owner, (b) name of responsible authorized technician, (c) mark, if any, (d) type of hive, (e) characteristics of exploitation, (f) breed of bees, (g) apiary locations, and (h) number of beehives per apiary."²⁰⁸

Finally, some countries will explicitly link their registration requirements to the need to protect pollinators from pesticides. For example, **Romania's Law No. 383 on Beekeeping** provides, "Beekeepers who place beehives in pastoral areas or in the winter are obliged to





communicate to the local public administration authorities in whose territorial radius the place, the period, the number of bee families, as well as the address of the beehive owner, ensuring their records, as well as the protection of bee families against phytosanitary treatments."²⁰⁹

3.3.3 Associations

Beekeeping legislation may include provisions establishing or supporting the establishment of associations of beekeepers. Such provisions have been observed in a minority of countries but are particularly frequent among low-income countries and countries in Europe and Central Asia. The objectives of such provisions may vary from country to country, but often include facilitating the coordination of implementation of legislation, facilitating sector-wide consultation, and professional development of the sector.

Observed provisions range from soft, permissive provisions allowing the formation of associations of beekeepers to detailed provisions that legally establish a new association of beekeepers. On one end of the spectrum, **Madagascar's Decree No. 2004-1135 on Bee Breeding** provides in relevant part that, "[b]eekeepers can form different forms of organizations in regulatory forms: associations, groups, cooperatives, unions, or federations."²¹⁰ Similarly, **Tajikistan's Law No. 820 on Beekeeping** provides in relevant part that, "[b]eekeepers shall have the right to establish beekeeping associations in accordance with the legislation of the Republic of Tajikistan."²¹¹ On the other hand, for example, **Rwanda's Prime Minister's Order No. 04/03** contains extensive provisions establishing a union of all beekeepers in the country, determining its mission and responsibilities, its internal structure and procedures, and its financial mechanisms.²¹²

Some countries may include specific provisions designed to incorporate beekeeper associations in the policymaking process and the

implementation of legislation. Thus, for example, the **Russian Federation**, in its *Federal Law No. 490 on Beekeeping* provides, "1. Beekeeping farms shall have the right to form unions (associations) in accordance with civil legislation. 2. Unions (associations) with participation in the formation and implementation of state policy in the field of development of beekeeping shall have the right to: 1) take part in the development of draft regulatory legal acts, state programs providing for measures in the field of beekeeping development; 2) take part in the generalization and dissemination of the achievements of science and technology, Russian and international experience in the development of beekeeping; 3) provide state authorities with the information necessary for the formation and implementation of state policy in the field of beekeeping development."²¹³ Notably, **The Republic of Moldova's Law No. 70 on Beekeeping** establishes beekeeper associations at the local, district and national level, and tasks them with, among other duties, to, "take measures to protect bees, the environment, honey sources, the population and animals located in the area of activity of bee families."²¹⁴

3.3.4 Breeds

Beekeeping legislation may contain provisions that govern which bee breeds may be used in beekeeping, or provisions to support the development or protection of certain bee breeds. Such provisions are found primarily in upper-middle income countries and especially in Europe and Central Asia. One possible underlying objective for such provisions is to support the development of the beekeeping sector through protection or improvement of bee genetic resources over time.

Legislation may impose specific measures to protect and/or promote certain local breeds of bees. For example, **Yemen's Decision No. 16 Regarding the Beekeeping and Apiculture System** provides, "[t]he competent administration, in

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cooperation with other relevant authorities, determines the areas where the pure Yemeni bee breed exists and makes them absolute natural reserves. It is forbidden for bee species from other regions to enter them in order to preserve them as a genetic source of the pure Yemeni breed and multiply them. [...] The Ministry encourages and supports the establishment of stations for breeding queens from the Yemeni bee breed with desirable characteristics and selling them to beekeepers at reasonable prices."²¹⁵

Legislation may impose geographic restrictions on bee breeding activities, or geographic zones of protection around areas where bee breeding is carried out. For example, **Brazil's** CONAMA Resolution No. 496 provides that, "The breeding of native stingless bees will be restricted to the geographical region of natural occurrence of the species, in accordance with what is indicated in the National Catalog of Native-Stingless Bees, to be published by the Chico Mendes Institute for Biodiversity Conservation - Chico Mendes Institute. The breeding of native stingless bee species outside the region of their natural occurrence may be authorized by the competent environmental agency, according to its risk analysis."²¹⁶ **Tajikistan's** Law No. 820 on Beekeeping provides, "[i]n order to provide individuals and legal entities with valuable populations and breeds of honey bees, as well as to improve the breeding value of honey bee populations and breeds in certain territories (areas of their natural habitat), breeding farms and breeding reproducers (breeding apiaries) are created. Protective areas with a radius of at least fifteen to twenty kilometers shall be established around breeding farms and breeding reproducers (breeding apiaries), on the territory of which it is forbidden to import bee colonies or queen bees of other populations and breeds of honeybees, as well as bee colonies or queen bees of unknown origin."²¹⁷ Similarly, **Russian Federation's** Federal Law No. 490 on Beekeeping provides, "At a distance of up to 25 kilometers from organizations engaged in

breeding work in the field of beekeeping, the implementation of beekeeping by individuals and legal entities using bees classified as breeds different from those used in breeding work of these organizations is prohibited."²¹⁸

3.3.5 Apiary location

Beekeeping legislation may contain provisions that prescribe requirements for the location of apiaries. These provisions often have a double underlying objective of protecting bees (and bee products) from locations that could be harmful to them and protecting the public from undesirable interactions with bees. Such provisions are widespread across regions and income groups but are particularly common in the Middle East and North Africa, and Europe and Central Asia, as well as low-income countries.

Provisions on apiary location are typically framed as a list of identified sensitive locations, and corresponding minimum required distances, and different lists may be provided for fixed versus migratory apiaries. For example, **Serbia's** *Rulebook on Beekeeping* provides that, "[b]eekeeping can be done in a stationary apiary provided that: 1) is placed at a distance that must be at least: (1) 500 meters from production and processing plants, which process agricultural products, i.e. 100 meters from other plants, (2) 100 meters from the highway, railway, airport, and the flights when housing the apiary must not face the highway, railway and airport, (3) 20 meters from facilities for human habitation or animal breeding, (4) 100 meters from a preschool or school institution, boarding school, playground and other sports grounds for children and adults, (5) 15 meters from the categorized road, i.e. at least five meters if there is an obstacle with a height of 2.20 meters between the apiary and the categorized road (wall, building, densely planted trees, hedge, fence without openings, etc.), (6) 500 meters from a neighboring apiary that has at least 21 hives, or 200 meters from



a neighboring apiary that has up to 20 hives, which are located outside a populated place, (7) 300 meters, as well as 150 meters laterally from the neighboring apiary in the direction of the bees' excursion, on the pasture of arable, fruit and industrial honey crops, which is located outside the inhabited place, (8) 50 meters from the first neighboring apiary, which is located in a populated place; 2) the flights of all hives, nuclei and brood chambers should not face directly towards: (1) doors and windows of residential and business buildings, pre-school and school institutions, boarding schools, cattle stables and categorized roads, (2) border of the neighboring property, if the apiary is at a distance of less than five meters from the border."²¹⁹

Other apiary location provisions may be framed more in terms of general principles than fixed distances. For example, the **Dominican Republic's Resolution No. 4/06** provides, "[t]he establishment of apiaries and/or hives in urban areas, close to homes, recreational centers, educational centers, candy stores and other establishments whose activities are hindered and threatened by the presence of bees is prohibited."²²⁰ Similarly, **Kazakhstan's Law No. 303-II ZRK on Beekeeping** provides, "[i]ndividuals and legal entities place beehives in places where people's safety is ensured. District (city) executive bodies establish the procedure for regulating the safe placement of beehives. [...] Nomadic apiaries should be located at least one and a half kilometers from each other and at a distance of three kilometers from permanent apiaries near honey collection sources. It is not allowed to place permanent and mobile beehives on the flight path of honeybees from other previously placed beehives to honey collection sources."²²¹

In some countries, the requirements on apiary location will make specific reference to ensuring adequate distance from local pesticide uses. For example, the **Philippines' National Standard 186:2016** requires that, "[t]he site [of the apiary] should also be safe from destructive

enemies of bees and preferably from toxic chemicals. [...] The distance of the apiary or meliponary from farms utilizing pesticides and industrial sites should be at least three (3) km and 500 m radius, respectively."²²²

The **United Republic of Tanzania's Beekeeping (General) Regulations** require that, "[a]ny apiary product or bee product except where Integrated Pest Management is applied shall be established at least 7 kilometers away from where pesticides are applied. [...] No person shall establish an apiary near a tobacco farm except in a distance of 7 kilometers away from where apiary is kept."²²³

3.3.6 Apiary movements

Beekeeping legislation may contain provisions that govern the movement of apiaries. Such provisions are somewhat common across regions and income groups and tend to be more common in upper-middle income countries, particularly in Europe and Central Asia and Latin America and the Caribbean. One underlying regulatory objective behind many provisions governing the movement of apiaries are the protection of bee health, specifically the control of transmission of diseases and pests. Other underlying objectives include ensuring that apiary registration information remains up to date.

Legislation may require (a) providing notice to a competent authority or (b) obtaining a prior authorization, before moving apiaries. Thus, for example, **Panama's Law No. 46 Regulating Beekeeping** requires that any person who moves apiaries must obtain a certificate from the competent authority, and additionally, must provide ten-days' advance notice to the competent authority prior to each apiary movement.²²⁴ Such notice requirements may include a carveout for emergency moves. For example, both **Panama** and **Costa Rica**, in its *Decree No. 15.563/MAG/S*, include a requirement to notify the competent authority within 48 and 24 hours, respectively, after the

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emergency move.²²⁵ In some countries, such as **Belarus**, this notice requirement may be framed in terms of the requirement to obtain a veterinary certificate prior to movement of apiaries, where the apiaries themselves must have a veterinary and sanitary passport.²²⁶

Legislation may also impose specific technical requirements on the process of moving apiaries. For example, **Ethiopia's Proclamation No. 660/2009** provides, "[a]ny person who undertakes migratory beekeeping shall: [...] when transporting honeybee colonies, make sure that containers are covered with light mesh wire sheets or woven fabric seal that allows air into the containers and not take a pause on the way or come to a halt at locations of human and animal traffic areas so as to avoid accidental bee sting attack against persons or animals."²²⁷ **Armenia's Law No. HO-71-N on Beekeeping** has a different focus, as it provides, "[t]he transportation of bee colonies is carried out along the routes indicated by the relevant state inspection (hereinafter referred to as the inspection) of the authorized body, with accompanying veterinary documents. [...] In order to prevent the fall of beehives as a result of overheating of the hive and a sharp increase in air humidity, the traffic police are prohibited from stopping vehicles transporting beehives for more than 15 minutes, except for the cases when this is due to stopping the vehicle defined by the Law of the Republic of Armenia "On Ensuring Road Traffic Safety" or on the grounds and order of prohibiting the traffic of the vehicle. In the presence of these grounds, in order to prevent the decline of bee colonies, the protection of bee colonies is ensured by the relevant police officer."²²⁸

Legislation in some countries provides a dedicated regime to govern migratory beekeeping and the specific concerns that associated apiary movements can generate. For example, **Türkiye's Regulation on Apiculture** contains extensive provisions governing

migratory beekeepers, including provisions restricting where they may go on public and private lands, the settlement of disputes with local stakeholders, and their interactions with local governments and veterinary officials.²²⁹

3.3.7 Technical requirements for procedures and materials used

Beekeeping legislation may contain provisions that require certain technical practices when carrying out beekeeping. Such provisions are found in a few countries globally, with no clear trends across regions and income groups. The underlying objectives driving the inclusion of such provisions may vary significantly depending on the practices mentioned, including for example, protection of the environment, bee protection, and protection of bee product quality.

In some countries, provisions on beekeeping practices may take the form of a briefly worded requirement to use standard materials and practices. For example, **Peru's Resolution No. 143-95-AG** provides, "[a]ll beekeepers shall use technical hives, considering as such, those that use mobile frames, with the use of stamped wax and wire fences, of standard measures."²³⁰ Similarly, **Jordan's Directive No. Z/19 Regulating Apiculture** provides that, "[t]he cells used in the housing of bee colonies should have movable frames separated by a distance of (5/16) inch, and their measurements are universal as they are in the (modified Langstroth) systems." But in other countries, legislation's requirements for beekeeping practices can be very detailed. One such example is **Belarus**, where *Decree No. 55 of the Ministry of Agriculture and Food Validating Veterinary and Sanitary Regulation on Apiculture* contains extensive requirements for the fencing of apiaries, apiary size, hive painting, reserve hives, hive types, hive materials, required beekeeping equipment, seasonal temperature control measures, and feeding requirements.²³¹



3.3.8 Training

Closely related to the research provisions discussed separately, beekeeping legislation may contain provisions that mandate or promote training on topics related to beekeeping. Training provisions are relatively rare, with only a few observed thus far, mostly in Europe and Central Asia. Such training provisions may focus on the provision of training for beekeepers by external parties (such as the government), and/or the provision of training by beekeepers to their employees. Provisions focused on training by external parties may often be driven by an underlying objective of developing the beekeeping sector through skill building and improvement of technical or commercial practices. On the other hand, provisions focused on training provided by beekeepers to their employees may often be driven by an underlying objective of protecting worker health and safety.

Regarding training of beekeepers by external parties, the **United Republic of Tanzania's Beekeeping Act** provides that, "There shall continue to be an Institute responsible for beekeeping training, which shall – (a) develop, execute and facilitate, training programs in beekeeping; and (b) assist other organisations and persons to develop and execute training courses and programs in beekeeping." Similarly, **Romania's Law No. 383 on Beekeeping** provides that, "Beekeepers can participate in professional training programs organized by the National Agency for Improvement and Reproduction in Animal Husbandry "Prof. Dr. GK Constantinescu" or by other authorized professional training providers, under the law."²³²

On this point, it is possible to include provisions specifically focused on the provision of stakeholder training in practices to protect pollinators from pesticides. Thus, for example, **Türkiye's Regulation on Apiculture** provides that "[r]egular training activities by the Ministry are carried out or made for the beekeepers, those persons who will carry out agricultural pest

control, and the personnel who apply pesticides in order to prevent the bees from being affected by the pesticides and to prevent possible damages."²³³

Finally, regarding training provided by beekeepers to their employees, **Ecuador's Resolution No. 53 (Guide to Good Beekeeping Practices)** requires beekeepers to implement an onboarding training and a continuous training plan for employees on good agricultural practices related to beekeeping and in particular the use of any dangerous substances.²³⁴

3.3.9 Bee products

Beekeeping legislation may contain provisions that prescribe requirements for bee products such as honey. Such provisions are found broadly across regions, and are particularly common in low income countries. Often, such provisions are driven by underlying objectives related to food safety or broader consumer protection. Accordingly, even if not specifically included in beekeeping legislation, there will likely be other legal requirements on bee products in other legislative domains, such as legislation on food safety.

Such provisions may impose requirements on which kinds of processes and products may be applied in the context of beekeeping, in order to protect the safety and quality of resulting products. For example, **China's Animal Husbandry Law** provides that, "[d]uring the production process, beekeepers shall not use medicines and containers that endanger the quality and safety of bee products, so as to ensure the quality of bee products. Beekeeping equipment shall meet the national standards and the technical requirements stipulated by the relevant departments of the State Council."²³⁵ More broadly, **Madagascar's Decree No. 2004-1135 on Bee Breeding** provides that, "[b]eehive products (honey, wax, pollen, royal jelly, etc.) placed on the market must meet the requirements in force relating to safety, personal health and consumer protection."²³⁶ Going into

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more detail, **Bulgaria's** *Law on Beekeeping* and the **United Republic of Tanzania's** *Beekeeping (General) Regulations* each contain lengthy detailed provisions on controlling impurities of bee products, transport, packaging, labeling, commercialization, testing, storage, and trade of bee products.²³⁷

Such provisions may impose beekeeping-specific sanitary licensing requirements similar to those found in broader food safety legislation. For example, **Guatemala's** *Ministerial Agreement No. 169-2012* requires all individual or legal persons who produce, collect, transform, package and store honey from bees to seek and obtain a sanitary operating license from the competent authority; *Ministerial Agreement No. 169-2012* then goes on to specify in detail the documentation requirements for applications, the procedure for inspections and license issuance, suspensions, and cancellations.²³⁸

Cuba's *Resolution No. 547/13* imposes similar extremely detailed sanitary license requirements and value chain process requirements for the production of honey.²³⁹

3.3.10 Organic bee products

Beekeeping legislation may contain specific provisions on the production of organic bee products such as organic honey. While such matters are more commonly dealt with separately under organic production legislation, there are a few examples, primarily in Europe and Central Asia, where such provisions have been included in beekeeping legislation. Such provisions may focus on ensuring adequate distance between apiaries and nearby pesticide use.

One such example is **Armenia's** *Law No. HO-71-N on Beekeeping*, which provides in relevant part: "Beekeepers engage in ecological beekeeping voluntarily, and ecological apiaries are certified according to the procedure established by the authorized body. Ecological beekeeping corresponds to the principles of ecological agriculture. Ecological beehives are

placed in the areas of crops grown by ecological methods or in areas with natural vegetation, where there are sufficient supplies of natural nectar, honeydew, and pollen, as well as water. Ecological beehives are located so that areas within a 4-kilometer radius are ecological or wild natural and where no herbicides or pesticides have been applied for at least two years. In non-ecological but low-risk areas, the competent authority may allow the installation of beehives within the specified radius, if no pesticides have been used there. The four-kilometer area is also protected from cities, highways, industrial facilities, landfills, and waste incinerators [...]"²⁴⁰

3.3.11 Trade

Beekeeping legislation may contain provisions that govern the import or export of bees, bee products, or beekeeping supplies. Such provisions tend to be more common in low income and lower middle-income countries, particularly in Sub-Saharan Africa and the Middle East and North Africa. One possible underlying objective for such provisions is to provide a point of regulatory control in support of efforts to protect bee health, particularly from the spread of bee diseases and pests coming from other countries. Another possible underlying objective is to support the protection of local species from invasive species.

Thus, legislation may impose specific beekeeping import permit requirements. The specific beekeeping materials which are subject to an import permit requirement may vary from country to country. For example, **Jordan's** *Directive No. Z/19 Regulating Apiculture* provides that, "[i]t is prohibited to import colonies, queen bees, wax and pollen without a prior permit from the Ministry of Agriculture."²⁴¹ **Guyana's** *Importation of Bees Regulations* require that, "[w]ithout written permission from the Chief Agricultural Officer no person shall import into Guyana any (a) honeycombs, or (b) hives and other bee-keepers' stock which have previously been in use, or (c) queen bees, or

(d) worker bees and drone bees in any stage of development."²⁴² Similarly, **Nigeria's Bees (Import Control and Management) Act** requires that, no person shall on and after the appointed day import into Nigeria any bees, or any apicultural material for use in connection with bees or bee-keeping, unless that person is the holder of a permit in the prescribed form issued under this Act."²⁴³

Although less common, legislation may also impose specific beekeeping export permit requirements. For example, **Madagascar's Decree No. 2004-1135 on Bee Breeding** requires that, "[t]he export of bees (queens, drones, workers, grouped in colonies, swarms or isolated), populated hives, hive products (honey, wax, royal jelly, propolis, etc.) and products made from hive products is subject to the prior authorization of the Department responsible for Animal Production and a health certificate issued by the Department responsible for Animal Health. [...] The conditions for

obtaining and issuing the authorization to export bees, hive products, and products made from hive products, are determined by order of the Minister in charge of Livestock."²⁴⁴

3.3.12 Pollination services

Beekeeping legislation may contain provisions that govern the provision of pollination services by beekeepers. Such provisions tend to be relatively rare globally but are slightly more common in Europe and Central Asia.

Where present, such provisions on pollination services tend to be a brief recognition of the commercial provision of pollination services. For example, **Ukraine's Law No. 1492-III on Beekeeping** provides that, "Bees are used for pollination of entomophilous wild plants, pollination and increasing the yield of entomophilous plants for agricultural purposes and production of beekeeping products. Individuals and legal entities that grow entomophilous plants for agricultural purposes



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can use apiaries on a contractual basis to increase the productivity of these plants."²⁴⁵ Similarly, **Panama's Law No. 46 Regulating Beekeeping** provides that, "[a]ll beekeepers may lease, usufruct or loan their hives to farmers, complying with the regulations on bee health and technical management established in this Law."²⁴⁶ Likewise, **Armenia's Law No. HO-71-N on Beekeeping** provides, "Individuals and legal entities engaged in the cultivation of agricultural entomophilous plants may use bee colonies belonging to other persons for the purpose of increasing their yield, based on the contracts concluded in accordance with the Civil Code of the Republic of Armenia."²⁴⁷

In some countries, legislation may impose specific obligations on beekeepers that offer pollination services on a commercial basis. For example, **Ethiopia's Proclamation No. 660/2009** requires that, "[a]ny beekeeper who leases colonies of honeybees for pollination services shall, when placing the colonies of bees for the anticipated purpose, ensure that care has been taken to prevent accidental bee sting attack against local community members of animals in transit."²⁴⁸

3.3.13 Interactions with the public

Beekeeping legislation may contain provisions that govern situations where the activities of beekeepers intersect with the broader public. Such provisions are relatively rare globally, with only a few examples observed, all in Latin America and the Caribbean. For example, the province of Santa Fe in **Argentina** provides that, "[i]t is declared mandatory to report the appearance of swarms in urban environments. The complaint must be filed immediately with the nearest police authority, who without further ado will notify the Commune or Municipality on the first business day. The Commune or Municipality must inform the Enforcement Authority immediately and through the fastest way so that, in joint coordination, they establish the most effective measures and actions

for the safety of persons and property. [...] Among the actions and measures that the Enforcement Authority may carry out is the destruction of swarms. Said measure will be applied in cases where, having identified the owner of the beekeeping operation, he does not appear in person within two hours of being notified of the complaint, with the essential elements to control it. [...] Loose swarms may be captured or apprehended by persons engaged in beekeeping with notification to the respective Commune or Municipality, or destroyed when they represent a danger due to their aggressiveness to persons or property, in accordance with the provisions of the previous article."²⁴⁹ Similarly, **Costa Rica's Law No. 9929** provides, "[t]he Fire Department will respond when there are bee attacks on people and animals. According to its material availability, it may deliver the swarms of bees that it recovers as a result of emergency care to the Ministry of Agriculture and Livestock (MAG), which will be in charge of delivering them to the beekeepers attached to the National Beekeeping Program of the National Service of Animal Health (SENASA). In case of impossibility of delivery of swarms to the MAG, the Fire Department may deliver them to beekeepers close to the place of the incident."²⁵⁰

3.3.14 Urban beekeeping

Beekeeping legislation may contain provisions that govern beekeeping within urban areas. Such provisions are relatively rare globally, with very few examples observed. One such example is **Ethiopia's Proclamation No. 660/2009**, which requires that, "Any person who engages in urban beekeeping activities shall: a) possess basic beekeeping training certificate or employ persons having such training certificates; b) place the colonies of honeybees at locations away from the reach of animals and children; and c) build flight path fencing wall or live fencing or tight mesh wire fencing with the height of at least three meters above ground."²⁵¹



3.4 Bee protection

3.4.1 Habitat protection

Beekeeping legislation itself may contain provisions that focus on the protection of bee habitats. Such provisions are relatively common in beekeeping legislation across income groups and regions and are particularly common in Europe and Central Asia and Latin America and the Caribbean. This is an important area of intersection with pesticide legislation and provisions on integrated pest management, agroecology, and biological pest control. This is also an important intersection with general environmental legislation and biodiversity legislation (covered in the next section), which frequently contain broader, more general provisions on habitat protection that could be relevant to consider in the protection of bee habitats.

In some countries, provisions on bee habitat protection take the form of high-level policy priorities to be reflected in broader environmental, agricultural and land use planning. For example, the state of Jalisco in **Mexico** provides that, “[t]he Secretariat, in coordination with the Town Halls, will develop public policies for the care of ecosystems and production systems in favor of pollination, having as a priority: I. Implement adaptive management techniques; II. Integration of pollination in Agriculture and natural ecosystems; III. Strengthen the capacities of human resources and institutional infrastructure; IV. Put pollinators as a priority; V. Strategies to promote the conservation of pollination; and VI. Use and conserve pollination services that maintain agro-ecosystem functions. The Secretariat must coordinate efforts with the federal, state, municipal and producer authorities, so that there is no loss of natural habitat, due to changes in land use for agriculture, mining, or urban development.”²⁵²

In some countries, provisions on habitat protection take the form of a stated priority for plant species that are supportive to beekeeping. For example, **Cuba’s** Decree No. 176 provides that, “In order to propagate and diversify the existence of useful plants for beekeeping in areas of reforestation, riverbanks, dams, micro-dams, roads, livestock fences, walkways and tourist centers, among other places, preferably Plants will be planted that promote optimal beekeeping, which will be determined by the Ministry of Agriculture, in coordination, when appropriate, with those who could be harmed.”²⁵³ Similarly, **Romania’s** Law No. 383 on *Beekeeping* provides that, “In order to improve the honey resources, the local public administration authorities will prioritize the use of the land under their management for the planting of land unsuitable for agriculture, ravines, roadsides, green spaces, with trees, shrubs and other ornamental plants with interest for beekeeping.”²⁵⁴ **Paraguay’s** Decree No. 25045 contains similar preferences for plantings.²⁵⁵

In some countries, provisions on habitat protection can include specific and detailed obligations on stakeholders. For example, **Kazakhstan’s** Law No. 303-III ZRK on *Beekeeping* requires that, “[i]ndividuals and legal entities carrying out activities that may lead to the reduction of the number of honeybees are obliged to take measures to protect them, preserve their habitat, preserve honeybees, and ensure non-encroachment on areas and plants that are considered to be of special value for their survival. [...] Within a radius of up to three kilometers from the location of permanent beehives, it is prohibited to cut trees and bushes, as well as to prepare willow bark, as sources of honey collection, except for the procedures that improve the sanitary condition of forests and the conditions of their fertilization. [...] It is not allowed to demolish nests and other places where honeybee nests are located, as

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well as take honey from honeybee nests in the environment where honeybees live.²⁵⁶ Similar obligations are found in **Turkmenistan's Law No. 266-V on Beekeeping**²⁵⁷ and **Armenia's Law on Beekeeping**.²⁵⁸

In some countries, beekeeping legislation's provisions on habitat protection may create special protected areas to support managed or wild pollinators. Such protected areas may entail the prohibition of pesticide use within the protected area or with a designated radius surrounding the protected area. This is the case under the **United Republic of Tanzania's Beekeeping Act**. The Act provides for a system of private bee reserves, national bee reserves, local authority bee reserves, and village bee reserves, wherein "[n]o person shall within a bee reserve use any plant-protection substances classified by an authorized research institute which is likely to cause harm to bees, beekeeping activities, bee fodder plants or apiary products."²⁵⁹

Zimbabwe's Bees Act contains similar provisions on the designation of specified areas to protect bees and beekeeping activities.²⁶⁰

Finally, in some countries, beekeeping legislation's provisions on habitat protection may focus on supporting programs for payment for ecosystem services. For example, **Colombia's Law No. 2193** provides, "[t]he Ministry of Environment and Sustainable Development will lead the ecosystem protection of bees and other pollinating insects. The Ministry of Environment and Sustainable Development will provide technical assistance in the structuring of payment projects for environmental services to benefit owners, possessors, or occupants in good faith free from fault in rural properties that are located in strategic areas and ecosystems due to preservation actions and restoration that allow the conservation of biodiversity and environmental services associated with pollination and habitat conservation of key species. The Ministry of Environment and Sustainable Development, within a year, will implement programs to: 1. Promote research,

restoration, and conservation of bee flora. 2. Develop incentives for beekeepers for payment of environmental services. 3. Promote, in coordination with the territorial authorities, bee management policies in urban areas."²⁶¹

3.4.2 Bee health

Beekeeping legislation may contain provisions focused on the protection of bee health, particularly bee diseases. The underlying objectives of provisions on bee health generally align with those of broader provisions on animal health, and this is an important area of intersection where it is important to consider the content and scope of application of broader animal health legislation. Specific provisions on bee health have been observed in the beekeeping legislation of several countries across all regions and income groups, with particularly high frequency in Europe and Central Asia and upper-middle income countries generally. While provisions on bee health can vary significantly across countries, there are a few features that are particularly common, as discussed below.

As a starting point, in some countries, beekeeping legislation may assign a specific mandate for bee disease prevention, surveillance and diagnosis. For example, the **Republic of Moldova's Law No. 70 on Beekeeping** provides that, "[d]isease prevention in bees is ensured by beekeepers under the supervision of the National Food Safety Agency, according to Law no. 221/2007 regarding the sanitary-veterinary activity. [...] Diagnosis of bee diseases is carried out free of charge by the National Food Safety Agency."²⁶² **Paraguay's Decree No. 25045** provides, "The Ministry of Agriculture and Livestock shall formulate a sanitary program for the prevention and control of infectious diseases and pests of bees that may endanger the health state of the population."²⁶³

Complementary to this is a legal obligation upon beekeepers and other stakeholders to carry out preventative or treatment measures



required by the competent authority. For example, **Tajikistan's Law No. 820 on Beekeeping** provides that, "[i]ndividuals and legal entities are obliged to carry out measures to prevent diseases of honey bees, their treatment, and the fight against pests of bee colonies. Individuals and legal entities for the implementation of measures to prevent diseases of honey bees, their treatment, control against pests of bee colonies can attract specialists in the veterinary industry."²⁶⁴

Closely related, beekeeping legislation may include provisions that require beekeepers to notify the competent authority upon discovering the presence of a bee disease or pest. Thus, for example, **West Bank and Gaza Strip's Decision of the Council of Ministers No. 13 on the Honey Beekeeping Business Organization System** provides in relevant part that, "[t]he beekeeper is obligated to inform the competent veterinarian in the Ministry in the event of suspicion of an epidemic situation as soon as possible."²⁶⁵ Similarly, **Jamaica's Bees Control Act** provides, "Every owner or person having the charge or management of an apiary who knows of or suspects the existence of any disease in such apiary shall with all practicable speed give notice in writing to the Chief Plant Protection Officer of the fact of the apiary being so infected or suspected, and shall in such notice give all information in his power as to the extent and nature of such disease. The said notice shall be served personally on the Chief Plant Protection Officer or shall be addressed to him by registered post."²⁶⁶

Once a disease or pest has been detected, beekeeping legislation may assign several powers to the competent authority, and several obligations upon beekeepers and other stakeholders to act. Legislation may assign the power to declare a quarantine area and associated restrictions to prevent the further spread of disease. For example, **Costa Rica's Decree No. 15.563/MAG/S** provides that, "[i]n

the presence of a serious outbreak of infectious or contagious disease, the Ministry of Agriculture and Livestock will declare a quarantine, whose area, duration, and conditions will be determined by its technical staff. During the quarantine, the beekeeper will not be able to carry out any operation in the apiary without the presence and authorization of the technicians. People, animals, and vehicles will be prevented from passing through the vicinity of the affected apiary."²⁶⁷

Finally, beekeeping legislation may provide to a competent authority the power to require the application of a specific treatment, or the destruction of any apiary or bees if determined to be necessary. For example, **Botswana's Importation of Bees Act** provides that, "[t]he President, any administrative officer or any other person authorized by the President may: [...] cause to be cleaned, disinfected or destroyed, any apiary or place where bees are kept if disease is found to exist therein; and [...] cause to be destroyed any bees, honey or anything else imported in contravention of this Act or the regulations made under it or found to be affected with disease."²⁶⁸ Similarly, **South Africa's Government Notice No. R. 858** provides, "[t]he executive officer shall order the destruction of any honey-bee colony infected with a notifiable disease (a) which is kept in an unmarked beehive; or (b) where a beekeeper has (i) not implemented; or (ii) not successfully implemented, management measures to eliminate the notifiable disease."²⁶⁹

Along with the power to destroy, legislation may provide guidance on the issue of compensation in the event of an order to destroy an apiary. For example, the **Bee Industry Act of the Solomon Islands** provides that, "(4) Where any bees or other things subject to control under any such regulation are found to be infected, or to have been exposed to infection, with any pest or disease to which the regulation applies, any inspector may destroy them by such means as

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he thinks fit or cause them to be so destroyed. [...] (6) No compensation shall be payable in respect of any exercise of the powers conferred by subsections (4) and (5)."²⁷⁰

Finally, beekeeping legislation may impose conditions on the types of treatments that may be applied to apiaries. For example, *Law No. 13.870* of the province of Santa Fee in **Argentina** requires that, "[f]or the treatment of hives, only veterinary products registered by SENASA and indicated for beekeeping use may be used, the use of products other than those indicated being subject to sanctions."²⁷¹

3.4.3 Pesticide product restrictions

Beekeeping legislation itself may contain provisions that affect which pesticides may be applied. Note that this is more often covered within pesticide legislation, and such provisions are relatively rare in beekeeping legislation globally. But a few brief examples have been observed in Latin America and the Caribbean and Europe and Central Asia. Thus, for example, **Cuba's** Decree No. 176 provides, "The Ministry of Agriculture will evaluate the pesticides used or to be used in the country, in order to determine their degree of toxicity for bees, being obliged to inform the users of these products, the results obtained as well as the exact location of the locations of any hive that could be damaged, for the purpose of adopting the pertinent measures for the protection of the species."²⁷² **Kazakhstan's** Law No. 303-II ZRK on Beekeeping provides that, "[t]he list of plant protection products, mineral fertilizers and other preparations used for the processing of honey plants is approved by the authorized state body in the field of honey beekeeping."²⁷³

3.4.4 Pesticide use rules

Beekeeping legislation itself may contain provisions that impose specific technical requirements on how, where and when pesticides are applied. Such provisions are

relatively common globally, especially among low-income countries, and countries located in Europe and Central Asia and the Middle East and North Africa. One underlying objective behind such provisions is to try to reduce the likelihood that the characteristics of the application itself will pose a high risk to bees. Note that provisions about pesticide product choice will be discussed separately below.

In some countries, legislation may impose restrictions on the timing of when pesticides may be applied. For example, the **Russian Federation**, in its *Instruction on the Measures to Prevent the Poisoning of Bees and to Prevent and Eradicate Bee Diseases and Pests*, provides that, "pesticide application is only to be carried out during the absence of summer bees in the morning or evening. It is not permitted to apply pesticides to flowering honey and pollen plants during the summer."²⁷⁴ Similarly, **Kosovo's** Law No. 02/L-111 on Beekeeping provides that, "[i]t is prohibited to spray plants in the localities where bees are located during flowering."²⁷⁵ The **Republic of Moldova's** Law No. 70 on Beekeeping and the **West Bank and Gaza Strip's** Decision No. 13 also prohibit pesticide use during flowering periods.²⁷⁶ **Türkiye's** Regulation on Apiculture provides, "[n]o pesticides are to be applied to the sources where the bees drink water. Spraying is applied in the evening or early in the morning when the bees are not flying."²⁷⁷ The **United Republic of Tanzania's** Beekeeping (General) Regulations provide that, "No spray of pesticides shall be done during the day time within at least 7 kilometers to or inside an apiary."²⁷⁸ **Rwanda's** Ministerial Order No. 001-11.30 requires that, "Any person who sprays toxic substances used in agriculture must do so only: 1° before the flowering period or after flowers have withered away; 2° if the bees cannot suffer any harmful effects; 3° if the toxic substance may not lead to death of bees; 4° if the substance may not intoxicate honey or any other honey product. [...] Without prejudice to provisions of Article 20



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of this Order, any person who intends to spray any toxic substance must do so in evening hours during sunset when the bees return to their hives."²⁷⁹

Alongside pesticide use rules, some legislation will also detail required processes to be undertaken by beekeepers in the context of nearby pesticide use. For example, **Belarus's Decree No. 55 of the Ministry of Agriculture and Food Validating Veterinary and Sanitary Regulation on Apiculture** provides detailed timelines for the isolation of bees following a pesticide application, how they should be isolated, and how and when they should be reintroduced to ensure no negative effects on the bees.²⁸⁰

In other countries, such provisions are of a more general nature, imposing obligations on pesticide applicators to take precautions during use. For example, **Ethiopia's Proclamation No. 660/2009** requires that, "Any person engaged in crop protection undertakings shall have the responsibility to take proper precaution to avoid poisoning fatalities that may occur on honeybees due to improper use of pesticide chemicals."²⁸¹

In some countries, legislation may task a competent authority with developing separate rules or guidelines on pesticide use to protect pollinators. For example, **Colombia's Law No. 2193** provides, "For the purposes of protecting and preserving beekeeping, the National Government, through the Ministry of Environment and Sustainable Development, must issue a guide for the management and preservation of nests and swarms in the year following the entry into force of this law, both for beekeepers and for the awareness of farmers in general about the proper use of pesticides and their effects on bees; the promotion of the use of pesticides of natural origin and the importance of pollinators for crops. The guide for management and preservation must contain the guidelines for the correct process of knowledge, management, and reduction of the risk of the presence of bees in urban and rural areas other

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than their natural habitat and the provisions related to the authorities and institutions at the municipal level who are in charge of dealing with these incidents and emergencies.²⁸²

Finally, in some countries, such provisions may take the form of a brief cross reference to other legislation on pesticides. For example, the province of Santa Fe in **Argentina**, in Law No. 13.870, provides that “[t]he activity of application of phytosanitary products will be subject to current national and provincial regulations, using the mechanisms that they impose in each region in order to avoid any undesired consequences on the local beekeeping activity.”²⁸³ Similarly, **Turkmenistan’s Law No. 266-V on Beekeeping** provides, “Prevention of poisoning of honey bees by pesticides and agrochemicals carried out in accordance with the legislation of Turkmenistan in the field of safe handling of pesticides and agrochemicals.”²⁸⁴

3.4.5 Notification

Beekeeping legislation may contain provisions that require a person applying pesticides to provide some form of advance notice so that beekeepers can take measures to protect their bees. Such provisions are relatively common globally, but there is variation across regions and income groups. Notification requirements tend to be more common in middle income countries than low-income countries and tend to be most common in Europe and Central Asia and the Middle East and North Africa. Such provisions are somewhat less common in Sub-Saharan Africa, East Asia and the Pacific, and Latin America and the Caribbean.

Legislation may vary in the length of advance notice which must be provided. Here, there is a potential tradeoff between giving enough time to beekeepers to take protective measures versus allowing sufficient logistical flexibility for pesticide applicators. Observed lengths range from two days up to ten²⁸⁵ days. For example, **West Bank and Gaza Strip’s Decision of the**

Council of Ministers No. 13 requires pesticide users to “[n]otify neighboring beekeepers at least 48 hours before the date of spraying about the type of pesticide and the date of spraying so that the beekeeper takes the necessary measures to protect his apiary.”²⁸⁶ **Cuba’s Decree No. 176** requires that “[w]hoever uses pesticides that are toxic for beekeeping will be obliged to inform five (5) days in advance to the hive keepers whose apiaries are located in the area where said pesticides will be applied, the chemical product that will be used and its degree of toxicity, so that the hives are properly protected.”²⁸⁷ Finally, in some cases, legislation will be silent on the length of advance notice required; one such example is the notification requirement contained in the **United Republic of Tanzania’s Beekeeping (General) Regulations**.²⁸⁸

Legislation may vary in mechanisms or channels by which notice is provided to beekeepers. Countries may vary in what is the most practical, efficient, and effective means of communicating information from pesticide applicators to local beekeepers. For example, **Zimbabwe’s Bees Act** provides: “(1) An occupier of land who receives notice in terms of section fifteen shall give at least forty-eight hours’ notice to the beekeeper concerned of any intended application of insecticides or herbicides to his land, a description of the insecticide or herbicide and the means by which the insecticide or herbicide will be applied. (2) Notice by an occupier of land of any programme of intended applications of insecticides or herbicides to his land during the period of twelve months following the date of the giving of the notice shall be regarded as notice in terms of subsection (1) of any such applications made in accordance with such programme. (3) A notice referred to in subsection (1) shall be given to the bee-keeper personally or be sent by registered post to his last known address. (4) An occupier of land who gives notice in terms of subsection (1) shall keep a record of the date and means by which he gave the notice and shall, within forty-



eight hours of giving such notice, advise the conservation committee for the area concerned, in writing, that he has given such notice and the means by which he gave it."²⁸⁹

Countries may also vary on whether the government serves as an intermediary for notifications. Thus, for example, **Costa Rica's** Decree No. 15.563/MAG/S provides that agricultural extension agents are to serve as intermediaries for notifications: "[a]ny person who decides to apply pesticides, whether by aerial or ground spraying, is obliged to notify the nearest Extension Agency, at least seventy-two hours in advance, and must report the date, time, type of pesticide, location of the farm and name of the application company. The Agricultural Extension Agent of the area must notify the beekeeper who has a registered apiary at least forty-eight hours in advance, the day, time, and place where the spraying will take place so that he proceeds to protect his hives."²⁹⁰ In **Romania**, a similar intermediary role is played by local councils and administrators of agricultural or forestry land.²⁹¹

Legislation may vary in the geographical limits within which beekeepers must be notified. For example, the state of Jalisco in **Mexico** requires that, "[i]n order to protect bee colonies from the toxic action of chemical, agricultural, and forestry products, the obligation of farmers, ranchers, and foresters to notify the associations in writing at least 72 hours in advance is established. of beekeepers or directly to beekeepers who have hives or apiaries located at a distance of less than 3 kilometers from the property where said products will be used, so that the interested party can take the measures they deem appropriate to avoid poisoning their bees." The **Russian Federation's** Federal Law No. 490 on Beekeeping requires that, "[n]ot later than three days before the work on the use of pesticides and agrochemicals, the persons responsible for carrying out such work shall ensure that the population of

settlements located at a distance of up to 7 kilometers from the boundaries of the land plots planned for treatment with pesticides and agrochemicals is communicated through the mass media (radio, print, electronic and other means of communication and communication) information about such work."²⁹² **Ukraine's** Law No. 1492-III on Beekeeping calls for an even larger radius of 10 kilometers from the application site.²⁹³ However, often legislation is potentially less clear on this point, using terms like "nearby," "adjacent," or "neighboring" to describe which beekeepers must be notified.

Legislation may also vary in the scope of the information which must be provided in the notice. Here, there is a potential tradeoff between the need to give adequate information for beekeepers to take appropriate action, and the notification burden on pesticide applicators. For example, **Türkiye's** Regulation on Apiculture requires that, "[t]he beekeepers in and around the areas where agricultural pest control will be carried out are notified seven days in advance by the organizations and individuals [applying pesticides], the width of the area included in the spraying program, the type of pesticide to be used, the time of release, the duration of action and the effect on honey bees."²⁹⁴

Legislation in some countries provides that the burden for harm to bees from pesticides shifts if notification has been provided. For example, in **Yemen**, Decision of the Minister of Agriculture and Irrigation No. 16 requires that, "[n]omadic beekeepers must inform the owners of farms adjacent to their apiaries of their presence, and farmers and organizations organizing national campaigns and the like must notify the beekeepers present near their fields before spraying with pesticides for a period of not less than 5 days. [...] The beekeeper, upon notification, must take all necessary precautions to protect his bees from pesticide poisoning."²⁹⁵ Similarly, **Kosovo's** Law No. 02/L-111 on Beekeeping provides, "After the announcement

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on the place and time of spraying plants with chemical preparations (pesticides) poisonous to bees is published, the beekeeper is obliged to take all protective measures by closing the doors of the hives or removing the bee colonies at least 6 km away as the crow flies from the spraying area for a certain time. If the beekeeper does not take adequate measures according to paragraph 1 of this article, he has no right to demand compensation from anyone for poisoning the bees."²⁹⁶

3.4.6 Post poisoning

Closely related to the liability element discussed separately, beekeeping legislation may contain provisions that address situations where there has been a suspected poisoning of bees by pesticides. Such provisions are rare globally, but two examples have been observed in Europe and Central Asia. Thus, the **Republic of Moldova's Law No. 70 on Beekeeping** prescribes a role for public laboratories in the event of potential poisoning of bees by pesticides, as it provides, "[t]he authorized public laboratories are obliged, upon addressing the beekeepers, to immediately carry out the analyzes of the samples submitted on the subject of contamination with chemical substances and to present the results within 48 hours from the moment of addressing."²⁹⁷ **Ukraine** has promulgated *Instructions on Prevention and Establishing the Fact of Bee Poisoning by Means of Plant Protection*. The Instructions provide extensive details about the procedure for determining the cause of death of bees, including the establishment of a permanent fact-finding commission for that purpose, and the technical processes to be undertaken to remedy the situation.²⁹⁸

3.4.7 Liability

Beekeeping legislation may contain provisions that govern the liability of beekeepers for damage they cause, and the liability of other stakeholders for damage caused to beekeepers and their apiaries. Such provisions tend to be

more commonly found in upper middle-income countries, particularly in Europe and Central Asia, and Latin America and the Caribbean.

Where present, provisions on liability for damage often do contain a focus on liability for damages caused by the application of pesticides or the failure of pesticide applicators to comply with prior notification requirements. For example, **Costa Rica's Decree No. 15.563/MAG/S** provides that "[t]he person responsible for the mortality of bees, caused by the application of pesticides, is the owner of the crop, together with the personnel hired for this task. [...] Any natural or legal person who, when applying pesticides, causes damage to third parties, whether due to negligence or deceit, will be liable for the fines indicated in article 33 of the Animal Health Law, without prejudice to the legal actions to which they gave rise."²⁹⁹

Legislation may prescribe a procedure, or a mandate to develop a procedure to determine liability in the event of possible bee poisoning after a pesticide application. For example, the province of Santa Fe in **Argentina** provides that, "The Enforcement Authority must have technical protocols, as well as suitable personnel, to be able to immediately prove any episode denounced by beekeeping organizations regarding the eventual affectation of hives by phytosanitary products."³⁰⁰ Similarly, **Romania's Law No. 383 on Beekeeping** provides that, "[i]n the event that the beekeeper, through non-compliance by the owner of agricultural and forestry areas with the provisions of para. (1) [notification prior to pesticide application], register deaths in bee families, the local council and the administrators of agricultural or forestry land, based on the sanitary-veterinary document establishing the causes of mortality, draw up a damage assessment report and establish the amount of compensation to be granted to the beekeeper or to the owners of agricultural or forestry areas, at the market value of the bee colonies and the honey production that should have been obtained after harvesting."³⁰¹



3.4.8 Dispute resolution

Beekeeping legislation may contain provisions focused on the resolution of disputes between sector stakeholders. Such provisions are relatively rare globally, but a few examples have been observed in Europe and Central Asia. Where present, such provisions tend to take the form of brief cross references to other broader legislation, rather than specific processes to be followed for resolution of beekeeping disputes. Thus, for example, **Turkmenistan's Law No. 266-V on Beekeeping** provides a brief cross reference: "Disputes arising in the field of beekeeping are resolved in the manner prescribed by the legislation of Turkmenistan."³⁰² **Azerbaijan's Law No. 765-IIIQ on Beekeeping** contains a nearly identical provision, but with a narrower scope focused on disputes related to violations of legislation: "Disputes related to violations of the legislation on beekeeping are resolved in accordance with the legislation of the Republic of Azerbaijan."³⁰³ **Ukraine's Law No. 1492-III on Beekeeping** takes a slightly different approach with similar effect: "Disputes arising in the field of beekeeping are resolved by the court in accordance with the procedure established by law."³⁰⁴

3.5 Compliance and enforcement

3.5.1 Enforcement mandate

Beekeeping legislation may include specific provisions clarifying which institution or institutions shall enforce compliance with legislation. Such provisions are closely related to the penalty, inspection, and institutional powers provisions discussed separately, but a few countries treat this issue separately in their legislation. For example, **Paraguay's Decree No. 25045** provides that the Ministry of Agriculture and Livestock's Department of Beekeeping is responsible for ensuring the enforcement of the decree.³⁰⁵ **Jamaica's Bees Control Act** provides a role in enforcement for the Director of Public Prosecutions, providing

that "[n]o prosecution for an offence against this Part shall be instituted except by or with the consent of the Director of Public Prosecutions."³⁰⁶ **Belize** similarly provides a role in oversight of enforcement to the Chief Agricultural Officer, as it provides that "No prosecution for an offence against section 6 or 10 shall be instituted except by or with the consent of the Chief Agricultural Officer."³⁰⁷ Finally, the state of Jalisco in **Mexico** provides that "[i]t corresponds to the Secretariat [of Agriculture and Rural Development of Jalisco] to investigate, declare and sanction the infractions to this law, as well as turn the actions carried out to the Secretariat of Planning, Administration and Finance in order to make the sanctions effective in accordance with the Fiscal Code of the State of Jalisco. [...] If the infraction also constitutes a crime, the Secretariat will consign the facts to the Attorney General's Office of the State of Jalisco, without prejudice to applying the appropriate administrative sanctions."³⁰⁸

3.5.2 Recordkeeping

Beekeeping legislation may contain provisions that require beekeepers to keep records of their activities. Such provisions are relatively rare globally, with only a few examples observed across different regions. One possible objective underlying such provisions is to aid in checking compliance with legal obligations. Another possible objective is to support information collection efforts that inform sector planning or mapping efforts.

Where present, recordkeeping obligations tend to be brief and not necessarily go into the details of how or what records should be kept. For example, **Uganda's Animal Diseases (Control of Bee Diseases) Rules** requires that, "[a] beekeeper or a person who sells bees, bee products, by-products or bee equipment shall (a) keep records of production of the bees and bee products for inspection by the Commissioner; and (b) file annual returns to the Commissioner."³⁰⁹ Similarly, **Jordan's Directive**

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No. Z/19 *Regulating Apiculture* provides that “[b]eekeepers are obligated to keep records of their apiaries, and they must facilitate the inspection process by the specialized employees of the Ministry of Agriculture.”³¹⁰ The recordkeeping provisions in **Peru’s Resolution No. 143-95-AG** have a slightly different focus, as the recordkeeping obligation applies to beekeeper associations, who must keep records of the number of colonies kept by members, and report that information to the competent authority for sector planning and mapping purposes.³¹¹

3.5.3 Inspection

Beekeeping legislation may include specific provisions on inspection. Inspectors can play a vital role in incentivizing compliance with legislation by identifying and correcting infractions. Inspection provisions are found in examples of legislation across most regions and income groups, although they are more common in low-income countries. Typically found in primary legislation, such provisions may cover (a) the appointment of inspectors, (b) powers of inspectors, and (c) inspection procedures. In addition, beekeeping legislation may include a complementary obligation on stakeholders to facilitate inspections (i.e., **Jordan**),³¹² and a specifically enumerated offense for obstructing inspectors in their official duties (i.e., **Belize**).³¹³

One straightforward example of an inspection provision is found in the *Beekeeping and Bee Products Act* of **Saint Vincent and the Grenadines**, which defines how inspectors are appointed and the powers they are granted: “The Governor-General may appoint a fit and proper person to be Inspector of Apiaries (hereinafter referred to as “the Inspector”). The Inspector shall be under the control of the Chief Agricultural Officer and those members of the staff of the Department of Agriculture to whom the Chief Agricultural Officer shall delegate authority. [...] The Inspector may, with such

assistance as may be necessary, enter on any land, whether open or enclosed, including any plantation, nursery, orchard, garden, pleasure ground, yard, house, building or other place where bees are kept, between the hours of 8 a.m. and 6 p.m. of any day for the purpose of inspecting the hives or honey, for making inquiries as to disease and any other relative condition, and for discharging such duties as may be imposed upon him by this Act or any regulations made hereunder.”³¹⁴

The most common power of beekeeping inspectors is the power to enter private premises. But some examples of legislation provide additional powers to inspectors, including to request information or documents. In relevant part, **Ethiopia’s Proclamation No. 660/2009** provides, “[a]ny apiculture resources development inspector assigned by the Ministry or the appropriate state organ shall have the powers and duties to: a) enter, during working hours, the premises of a beekeeper and undertake inspection and assessment of beekeeping equipment and beekeeping practices to ensure compliance with the provisions of this Proclamation and regulations and directives issued hereunder; b) request any beekeeper to furnish any information related to his operations; and c) submit, to the appropriate body, evidences gathered in the course of carrying out inspections and are relevant for prosecuting violations of the provisions of this Proclamation.”³¹⁵

In some cases, the permissible purposes for inspection may be limited and may not be adequate to allow inspectors to examine cases related to the application of pesticides. In the context of legislation focused on bee diseases, such inspections may sometimes be limited to bee disease concerns only. For example, under **South Africa’s Government Notice No. R. 858** an inspection may only be conducted to “determine whether there are any notifiable diseases or a *Capensis*-infected colony on the property.”³¹⁶ Similarly, **Paraguay’s Decree**



No. 25045 provides that “[t]he Ministry of Agriculture and Livestock is empowered to carry out inspections to verify the sanitary state of the existing beehives in the country when it is necessary.”³¹⁷ Applying a different perspective, **Türkiye’s Regulation on Apiculture** has inspection provisions that are focused on ensuring compliance with breeding requirements and bee product (honey) requirements.³¹⁸

Beekeeping inspection provisions may instead complement and add to existing broader provisions on inspection in the livestock sector, agriculture sector, environmental sectors, etc. Thus, for example, the entity of Republika Srpska within **Bosnia and Herzegovina** provides in its *Law on Beekeeping* that “[i]nspection supervision over the implementation of this law and the regulations adopted on its basis carried out by the Republic Administration for Inspection Affairs of Republika Srpska and local units of self-government through agricultural and veterinary inspection. (3) Inspection supervision over the implementation of this law in accordance with the decisions of the units of local self-government is also carried out by communal police.”³¹⁹

Notably, **Kosovo’s Law No. 02/L-111 on Beekeeping** builds off of existing provisions in separate legislation that govern livestock and veterinary inspectors, to add new powers relevant to protecting pollinators from pesticides: “The livestock inspector, in addition to the authorizations he has according to the legal provisions, is authorized to: a) Inspect beekeepers, bee societies, beekeepers’ equipment and tools, as well as bee products in production and circulation; b) Control the placement of bees in permanent or mobile apiaries, as well as order their deployment if they are placed in violation of the law; c) Control the use of pesticides that are poisonous to bees in the blooming phase of plants; d) Prohibit the use of pesticides harmful to bees without the permission of the authorized bodies and without announcing the use of pesticides in the media.”³²⁰

3.5.4 Offenses and penalties

Beekeeping legislation may include provisions that define which actions or omissions will constitute a legal offense subject to penalties. Penalty provisions are included with the objective of improving compliance by stakeholders with the obligations contained in legislation. Such provisions are widespread across regions and income groups and are more typically included in primary legislation and secondary or tertiary legislation. While most observed penalty provisions are general in nature to apply to all violations of beekeeping legislation, a few countries have gone more into detail to include specific penalties focused on protecting pollinators from pesticides.

Several countries have introduced penalty provisions that specifically deter breaking rules about notification and the application of pesticides near apiaries. Several of these provide for monetary penalties. For example, **Cuba’s Decree No. 176 - Protection of Beekeeping and Melliferous Resources** provides in relevant part that, “He/she will contravene the regulations on beekeeping and honey resources, and will be imposed the fine and other measures indicated in each case, whoever [...] b) being responsible, does not provide information on the exact location of the hives susceptible to damage by the application of pesticides, 50 pesos; c) Knowing the existence of apiaries, do not inform in the established term the chemical product that you would use and its degree of toxicity, 50 pesos; ch) as a beehive holder, warned in advance of any activity that could cause damage to them, do not adopt the corresponding measures in order to avoid them, 50 pesos.”³²¹ **Kosovo’s Law No. 02/L-111 on Beekeeping** provides in relevant part that, “[a] natural or legal person is fined for misdemeanor in the amount of £200 to £2 000 if: [...] they spray plants without warning according to Article 29 of this law.”³²² Similarly, **Bulgaria’s Law on Beekeeping** provides for specific monetary fines to protect pollinators from pesticides: “(1) Whoever does not comply

with the measures for the protection of bees from poisoning and the methods of carrying out plant protection, disinfection and disinsection activities, determined in accordance with Art. 32, is punishable by a fine of BGN 3 000 to BGN 5 000. (2) When the violation under para. 1 is committed by a legal entity or a sole trader, a property sanction in the amount of BGN 8 000 to BGN 10 000 is imposed."³²³

A few countries have included imprisonment and criminal penalties more broadly among relevant penalties. For example, **Zimbabwe's** *Bees Act* provides specific penalties for the failure of land occupiers to provide notice to beekeepers about pesticide applications, where such failure makes one "liable to a fine not exceeding level three or to imprisonment for a period not exceeding one month or to both such fine and such imprisonment."³²⁴ **Ethiopia** provides for the option of even longer imprisonment in its *Proclamation No. 660/2009*, which provides in relevant part that "Any person who commits hazard on natural habitat while operating beekeeping or cause to spread honeybee diseases to healthy colonies or induce harm on beekeeping and bee products due to improper use of pesticides or cause damage on the honeybee colonies and ecology of the area due to fire hazard while honey hunting is punishable with a fine from Birr 5 000 to Birr 10 000 or imprisonment from three up to seven years or both."³²⁵ Finally, **Ukraine's** *Law No. 1492-III on Beekeeping* leaves penalties more open-ended as it provides that disciplinary, administrative, civil, and criminal liability may apply to persons found guilty of "not reporting (concealing) or providing false information about the occurrence of a threat to bees when using plant protection products."³²⁶

3.6 Miscellaneous and final provisions

3.6.1 Rulemaking

Beekeeping legislation may include provisions for one or more government bodies to prepare and enact subsidiary legislation. Such provisions are typically found in primary legislation where authority is delegated to one or more implementing agencies to enact more detailed rules to operationalize the relatively brief provisions found in primary legislation. In some cases, rulemaking power will be provided in a standalone provision, and in other cases, it may be included among a broader list of powers and/or responsibilities of one or more government agencies. Among others, one possible underlying objective of such rulemaking provisions is to allow for the allocation of more technical or rapidly evolving details to subsidiary legislation which can be often easier to amend over time.

In some cases, rulemaking powers may be framed broadly. This the case in **Belize's** *Bees Control Act*, which provides in relevant part, "[the] Minister may make regulations for the purpose of more effectually carrying out the provisions of this Act."³²⁷ Similarly, **Peru's** *Law No. 26305* provides in relevant part, "[t]he Ministry of Agriculture is empowered to prepare the regulations of this law in coordination with the Association of Beekeepers of Peru and other public and/or private institutions specialized in beekeeping."³²⁸ Along the same line, **Ethiopia's** *Proclamation No. 660/2009* broadly provides that "[t]he Council of Ministers may issue regulations necessary for the implementation of this Proclamation. The Ministry may issue directives necessary for the implementation

4. BIODIVERSITY LEGISLATION

Biodiversity legislation is another key potential domain for efforts to protect pollinators from pesticides. Thus, while beekeeping legislation may often include provisions with targeted protection of key species of (managed) pollinators, biodiversity legislation is often much broader in scope. It incorporates a wide range of provisions intended to protect species diversity, genetic diversity and ecosystem diversity – with potential application to both wild and managed pollinators.

As a starting point in terms of international context, the Convention on Biological Diversity (CBD) is the main instrument governing biodiversity, with almost universal participation,³³¹ regulating (i) the conservation of biodiversity, (ii) the sustainable use of its components, as well as (iii) the fair and equitable sharing of benefits arising from the use of genetic resources (article 1). Supplementing agreements to the CBD are the Cartagena Protocol on Biosafety (Cartagena Protocol), which seeks to protect biodiversity from potential risks posed by living modified organisms (LMOs), as well as the Nagoya Protocol on access to genetic resources and the fair and equitable sharing of benefits arising from their utilization to the CBD (Nagoya Protocol). As discussed further below, both the CBD itself and its protocols have been hugely influential also in shaping the scope and content of national biodiversity legislation.

Under the CBD, states have the right to exploit their own resources pursuant to their own environmental policies, however, they are responsible for ensuring that activities do not cause damage to the environment of other states or in areas beyond national jurisdiction (article 3). This obligation is of particular relevance to the protection of wild pollinators such as wild bees, seeing as their habitats may cross national boundaries.

Broadly speaking, the CBD foresees two types of conservation measures which countries may adopt: in-situ conservation (article 8), meaning within a conservation site, as well as ex-situ conservation (article 9). Both of these types of measures are important for the protection of pollinators, particularly ex-situ. In terms of in-situ conservation, contracting parties shall prevent the introduction of invasive alien species, which threaten ecosystems, habitats or species (article 8(h)). Article 14 requires environmental impact assessment of proposed projects likely to have significant impact and introduce arrangements to ensure that environmental consequences are being taken into account, to promote exchange of information and provide for liability and redress. Technical and scientific cooperation in the field of conservation and sustainable use should be promoted (article 18). The CBD also incorporates important legal principles and approaches, such as an ecosystems approach, as well as the precautionary principle.

The protection of pollinators has been a longstanding focus of discussions and initiatives by parties to the CBD. For example, at the CBD COP5 in 2000, the conservation and sustainable use of pollinators was recognized through establishment of the *International Initiative for the Conservation and Sustainable Use of Pollinators (International Pollinator Initiative (IPI))* (COP Decision V/5, section II). The initiative aimed to: (i) Monitor pollinator decline, its causes and its impact on pollination services; (ii) address the lack of taxonomic information on pollinators; (iii) assess the economic value of pollination and the economic impact of the decline of pollination services; and (iv) promote the conservation, restoration and sustainable use of pollinator diversity in agriculture and related ecosystems.³³² FAO was invited to facilitate and co-ordinate the Initiative and prepare a Plan of Action, which was adopted at COP 6 (Decision VI/5).



Some years later, in 2016, the second phase of the IPI, the *International Initiative on the Conservation and Sustainable Use of Pollinators (IPI 2.0)*, was launched through Decision XIII/15 at COP13 in Mexico. FAO was tasked with the facilitation and coordination of the updated Plan of Action from 2018 to 2030. The aim of the second phase is to coordinate worldwide action to enable policies and strategies, support field-level implementation, engage civil society and private sector actors, and promote monitoring, research, and assessment for the conservation and sustainable use of pollinators. The *IPI Plan of Action 2018-2030* promotes coordinated worldwide action to enable policies and strategies, support field-level implementation, engage civil society and private sector actors, and promote monitoring, research, and assessment for the conservation and sustainable use of pollinators (Section 3 Objective and purpose) and was adopted through Decision 14/6 at COP15 in Egypt.

Also in 2016, the *Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) assessment report on pollinators, pollination and food production of 2016* hereby played a vital role in identifying and understanding potential risks. It identified: a.) values of pollinators and pollination, b.) status and trends in pollinators and pollination, and c.) drivers of change, risks and opportunities, and policy and management options.³³³ Findings under this report were presented to the plenary of the 20th meeting of the Subsidiary Body on Scientific, Technical and Technological Advice. Subsequently, 15 recommendations were adopted, and were submitted for consideration at CBD COP13.

Decision 15 was adopted at CBD COP13 in Mexico, endorsing the IPBES report recommendations. It encouraged parties to: “integrate consideration of issues related to the conservation and sustainable use of pollinators in agriculture and forestry policies, national biodiversity strategies and action plans,

national adaptation plans for climate change, national action programmes for combating desertification and other relevant national policies plans, and programmes, taking into account the values of pollinators and pollination, inter alia, to promote the implementation of the actions below, to improve the management of pollinators, to address drivers of pollinator declines and to reduce the crop yield gaps due to pollination deficit.”³³⁴ The Decision also encouraged parties to “promote pollinator friendly habits, through, for instance, promotion of diversity of habitats and production systems in the landscape through, inter alia, support to ecologically based agriculture.”³³⁵

Decision 15 further encourages “improvement of management of pollinators and reducing risks from pests, pathogens and invasive species, amongst other recommendations, through promotion of diversity of habitats and production systems in the landscape through, inter alia, support to ecologically based agriculture.”³³⁶ Moreover, “reducing risks from pesticides, including insecticides, herbicides and fungicides, it is encouraged to: develop risk reduction strategies; where pesticides pose a risk to pollinators, to improve pesticide application practices; promote weed management strategies; improve, as appropriate, risk management procedures for pesticides, and, where necessary, for LMOs to better take into account possible impacts (...) taking into account the precautionary approach; and to avoid or minimize the synergistic effects of pesticides with other drivers that have been proven to pose serious or irreversible harm to pollinators.”³³⁷ Finally, Decision 15 encouraged parties to ‘implement enabling policies and activities such as developing incentives for farmers and indigenous people and local communities to protect pollinators and pollinator habitats.”³³⁸

In December 2022, the Kunming-Montreal Global Biodiversity Framework (GBF) was

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adopted in Montreal at CBD COP15. It includes four goals to be achieved by 2050 and 23 targets to be achieved by 2030. Target 11 makes direct reference to pollination. The target aims to “[r]estore, maintain and enhance nature’s contributions to people, including ecosystem functions and services, such as regulation of air, water, and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and

disasters, through nature-based solutions and ecosystem-based approaches for the benefit of all people and nature.”

Target 7 is also directly relevant to the protection of pollinators from pesticides in its aim to reduce pollution to levels that are not harmful to biodiversity. It calls for countries to “[r]educe pollution risks and the negative impact of pollution from all sources, by 2030, to levels that are not harmful to biodiversity and

Table 4. Key issues, relevant to protecting pollinators, to consider when drafting biodiversity legislation

Selected elements from biodiversity legislation	Issues to consider
Introductory provisions	<ul style="list-style-type: none">• Whether to include a specific objective related to protecting pollinators from pesticides or protecting pollinators more generally• Whether to include definitions with relevance to protecting pollinators from pesticides
Administration	<ul style="list-style-type: none">• Whether to include a specific government mandate focused on protecting pollinators from pesticides
Planning and monitoring	<ul style="list-style-type: none">• Whether to require the government to set planning targets for the abundance and diversity of pollinator populations, and undertake planning and put in place measures to meet those targets• Whether to impose inventory and monitoring requirements that are specifically focused on pollinators
Conservation measures	<ul style="list-style-type: none">• Whether to include provisions for the designation of protected areas relevant for pollinator habitat protection
Threats to biodiversity and its components	<ul style="list-style-type: none">• Whether to include restrictions on pesticide use that could impact protected areas or biodiversity more broadly
Genetic resources, traditional knowledge and access to benefits	
Research and education	
Compliance and enforcement	<ul style="list-style-type: none">• Whether to include specific offenses and penalties for violations related to the use of pesticides impacting biodiversity

Source: Author’s own elaboration.



ecosystem functions and services, considering cumulative effects, including: reducing excess nutrients lost to the environment by at least half including through more efficient nutrient cycling and use; reducing the overall risk from pesticides and highly hazardous chemicals by at least half including through integrated pest management, based on science, taking into account food security and livelihoods; and also preventing, reducing, and working towards eliminating plastic pollution.”

Other targets relate to the protection of pollinators from pesticides by calling for an ecosystems approach. In line with the Nagoya Protocol, GBF Target 5 prescribes to ‘ensure that the use, harvesting and trade of wild species is sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spill-over, applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous peoples and local communities.’. Importantly, Target 10 prescribes to “ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity (...) conserving and restoring biodiversity and maintaining nature’s contributions to people, including ecosystem functions and services.” Based on these GBF targets, countries are tasked with setting and pursuing national targets.

Within the framework of these international obligations, in the last few decades, many countries across all regions and income groups have enacted national biodiversity legislation. This section does not intend to present an exhaustive review of all elements found in biodiversity legislation. Instead, below, this section will highlight several elements of biodiversity legislation which are particularly relevant to consider for protecting pollinators from pesticides. It takes a broad view of the scope of what constitutes biodiversity legislation.

Thus, while these elements may be present in specific legislation on biodiversity conservation in some country contexts, in many other country contexts, such provisions may be found included within broader legislation on environmental protection, protected areas, wildlife, nature restoration, land use, and others.

4.1 Constitutional provisions

It is important to first note that a number of countries have included provisions on biodiversity conservation within their national constitutions. Understandably, these tend to be countries which have either introduced whole new constitutions, or have made substantial revisions, since the 1990s. Where present, these constitutional provisions may have important foundational considerations for the development of national primary and secondary legislation on biodiversity.

Thus, several countries have included a constitutional provision obligating the government to take steps to conserve biodiversity. For example, the Constitution of **Bangladesh** provides: “The State shall endeavor to protect and improve the environment and to preserve and safeguard the natural resources, biodiversity, wetlands, forests and wildlife for the present and future citizens.”³³⁹ The Constitution of **Bhutan** provides, “[t]he Royal Government shall: Protect, conserve and improve the pristine environment and safeguard the biodiversity of the country; Prevent pollution and ecological degradation; Secure ecologically balanced sustainable development while promoting justifiable economic and social development; and Ensure a safe and healthy environment.”³⁴⁰ The Constitution of **Colombia** provides, “[i]t is the duty of the State to protect the diversity and integrity of the environment, to conserve the areas of special ecological importance, and to foster education for the achievement of these ends.”³⁴¹ Similar provisions are also observed in examples such as **Kenya**,³⁴² **Hungary**,³⁴³

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Iraq,³⁴⁴ **Nepal**,³⁴⁵ **Somalia**,³⁴⁶ and **Zambia**,³⁴⁷ among others.

Notably on this point, the Constitution of the **Maldives** explicitly recognizes the link between biodiversity and pollution, as it provides, “The State has a fundamental duty to protect and preserve the natural environment, biodiversity, resources and beauty of the country for the benefit of present and future generations. The State shall undertake and promote desirable economic and social goals through ecologically balanced sustainable development and shall take measures necessary to foster conservation, prevent pollution, the extinction of any species and ecological degradation from any such goals.”³⁴⁸

On the flip side, some countries impose a constitutional obligation on citizens to conserve biodiversity. Also in the **Maldives**, the Constitution places an obligation on citizens to, “to preserve and protect the

natural environment, biodiversity, resources and beauty of the country and to abstain from all forms of pollution and ecological degradation.”³⁴⁹ Similarly, the Constitution of **Kosovo** provides, “[n]ature and biodiversity, environment and national inheritance are everyone’s responsibility. Everyone should be provided an opportunity to be heard by public institutions and have their opinions considered on issues that impact the environment in which they live. The impact on the environment shall be considered by public institutions in their decision-making processes.”³⁵⁰ Similar provisions also observed in examples such as **Thailand**,³⁵¹ and **Viet Nam**,³⁵² among potentially others.

Likewise, several countries have included a constitutional provision making biodiversity itself under public ownership or part of the public domain. For example, the Constitution of the **Dominican Republic** provides that, “[n]onrenewable natural resources that are





found in the territory and in the marine areas under national jurisdiction, genetic resources, biodiversity, and the radio-electric spectrum are national patrimony.”³⁵³ Biodiversity is mainstreamed throughout the text of the Constitution of **Ecuador**, which also includes extensive dedicated provisions on the subject, including that, “[t]he State shall exercise sovereignty over biodiversity, whose administration and management shall be conducted on the basis of responsibility between generations. The conservation of biodiversity and all of its components are declared to be of public interest, especially agricultural and wildlife biodiversity and the country’s genetic assets. [...] The State shall not make commitments to cooperation agreements or accords that include clauses that undermine the conservation and sustainable management of biodiversity, human health, collective rights and rights of nature.”³⁵⁴

4.2 Introductory provisions

4.2.1 Definitions

Biodiversity legislation may include one or more provisions dedicated to defining the key words to be used in the legislation. Definitions provisions are very common overall, but their inclusion will depend primarily on each country’s legal tradition. In many countries, it is standard legislative drafting practice to include such a definition provision in all new pieces of legislation. A definitions section can be drafted with several underlying objectives in mind. Among them, it can be used to clarify the scope of what the legislation applies to by clarifying the meaning of key terms. It can also make legislation more accessible and understandable to stakeholders.

Many of the definitions typically included in biodiversity legislation may not directly address the protection of pollinators from pesticides. Rather, these definitions are typically broader in

scope, and may include, for example, definitions for biodiversity, in situ conservation, ex situ conservation, and so on. In some countries the definitions of these key terms may align closely with the definitions of those terms contained in Article 2 of the CBD.

However, in some countries, one key definition in relation to the protection of pollinators from pesticides is the definition of ecosystem services. For example, legislation in **Guyana** defines ecosystem services as “benefits provided by ecosystems which include provisioning services such as food, water, timber, fiber, and genetic resources; regulating services such as the regulation of climate, floods, disease, and water quality as well as waste treatment; cultural services such as recreation, aesthetic enjoyment and spiritual fulfillment; and supporting services such as soil formation, *pollination* and nutrient cycling.”³⁵⁵ Similarly, legislation in **Mexico** defines environmental services as, “the benefits of social interest derived from wildlife and its habitat, such as climate regulation, conservation of hydrological cycles, nitrogen fixation, soil formation, carbon capture, erosion control, *plant pollination*, biological pest control or degradation of organic waste.”³⁵⁶

4.2.2 Scope of application

Biodiversity legislation may include provisions which describe the scope of application of the legislation. The inclusion of such a provision will again depend heavily on the legal tradition of each country. Among the possible underlying objectives for including such a provision is to clarify for stakeholders whether biodiversity legislation will be relevant and applicable to their activities. In this context, that means it is important to clarify that biodiversity legislation will be applicable for the protection of pollinators from pesticides. Such provisions tend to be written broadly, where found. For example, biodiversity legislation in **Mozambique** provides that, “[t]he legal regime established in this

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Law applies to all existing values and natural resources in the national territory and in the waters under national jurisdiction. [...] This law covers all public or private entities that directly or indirectly may affect the national system of conservation areas in the country.”³⁵⁷ Similarly, biodiversity legislation in **Timor-Leste** provides that, “[t]he present legislation establishes the legal regime applicable to the conservation of biodiversity and the sustainable use of its components. [...] This legislation is applicable to biodiversity existing in the national territory and in waters under national jurisdiction, namely the territorial sea, exclusive economic zone and continental shelf. The present legislation applies to all processes and activities carried out under the jurisdiction and control of Timor-Leste with direct or indirect effects on biodiversity, regardless of where their effects manifest themselves.”³⁵⁸

4.2.3 Objectives

Biodiversity legislation may include preamble content or introductory provisions with objectives that in general or specific terms may be related to the protection of pollinator species from pesticides. One underlying drafting objective here is to help guide the interpretation and implementation of biodiversity legislation in practice.

Where present, such objectives in biodiversity legislation tend to be framed in broad terms that do not directly or specifically focus on the protection of pollinators from pesticides. For an example of such a general approach to drafting an objectives provision, biodiversity legislation in **Nicaragua** provides that, “[t]he purpose of this Law is to regulate the conservation and sustainable use of the biological diversity existing in the country, guaranteeing equitable participation and fair distribution of the benefits derived from its use, with special attention to indigenous and Afro-descendant communities, as well as respect and recognition of intellectual property rights and traditional and customary

forms of use of local communities. [...] The specific objectives of this Law are: 1. To establish mechanisms for the sustainable use of the components of biological diversity; 2. To establish procedures for access to and use of genetic resources; 3. To promote and prioritize research programs on ecosystems, species, races, and local varieties; 4. To promote fair and equitable participation in the benefits derived from the use of biological diversity; and 5. To regulate the conservation, preservation, recovery and regeneration of wild and domesticated biological diversity, considering traditional species, races and local varieties.”³⁵⁹ **Costa Rica** takes a similar approach and includes the following broad objectives in its biodiversity legislation:

- *“Integrate the conservation and sustainable use of biodiversity elements in the development of sociocultural, economic and environmental policies.*
- *Promote the active participation of all social sectors in the conservation and ecologically sustainable use of biodiversity, in order to ensure social, economic and cultural sustainability.*
- *Promote education and public awareness on the conservation and use of biodiversity.*
- *Regulate access and thereby enable equitable distribution of social, environmental and economic benefits for all sectors of society, with special attention to local communities and indigenous peoples.*
- *Improve administration for effective and efficient management of biodiversity elements.*
- *Recognize and compensate the knowledge, practices and innovations of indigenous peoples and local communities for the conservation and ecologically sustainable use of biodiversity elements.*
- *Recognize the rights that come from the contribution of scientific knowledge to the*



conservation and ecologically sustainable use of the elements of biodiversity.

- *Guarantee environmental safety for all citizens as a guarantee of social, economic and cultural sustainability.*
- *Not limiting the participation of all sectors in the sustainable use of biodiversity elements and the development of research and technology.*
- *Promote access to biodiversity elements and associated technology transfer.*
- *Promote international and regional cooperation to achieve conservation, ecologically sustainable use and distribution of benefits derived from biodiversity, especially in border areas or shared resources.*
- *Promote the adoption of incentives and the remuneration of environmental services for the conservation, sustainable use and elements of biodiversity.*
- *Establish a biodiversity conservation system that achieves coordination between the private sector, citizens and the State, to ensure the application of this law.”³⁶⁰*

However, a few jurisdictions have indeed included specific objectives in their biodiversity legislation which are focused on protecting pollinators from pesticides. Thus, for example, the introductory recitals for the **European Union’s Regulation 2024/1991 on Nature Restoration** explicitly recognize pesticide use as a driver of the decline of pollinators.³⁶¹ In terms of objectives provisions, for example, **Germany’s Law on Nature Conservation and Landscape Management** includes among its objectives the conservation of biodiversity and also specifically “to preserve wild animals and plants, their communities, biotopes and habitats, also with regard to their respective functions in the natural balance, including their material transformation and pollination services.”³⁶² Similarly, **Belize’s National Protected Areas System Act** includes

among its objectives “to ensure sustenance of the provision of ecosystem good and services important for national development, including [...] pollination.”³⁶³

4.2.4 Guiding principles

Biodiversity legislation may include a provision which lists basic principles which are meant to guide the interpretation and implementation of the legislation. Such provisions are closely related to objectives provisions and tend to be relatively common among those countries with specific pieces of legislation focused entirely on biodiversity. Different countries have established a range of different guiding principles to suit their own priorities and context.

In many countries, the guiding principles given in biodiversity legislation are general in nature and align with broader principles found across environmental legislation. For example, in its biodiversity legislation, **Uzbekistan** includes the following broad guiding principles: “maintaining the sustainability of the biosphere and its ecological systems as a human habitat and concern for the environmental safety of people, the human gene pool and its future generations; ensuring the rights of citizens to a favorable natural environment for life, mandatory environmental education in all types of educational institutions; scientifically based combination of environmental, economic and social interests of society; paid special and free general nature management; mandatory environmental assessment; stimulation of rational use of natural resources and environmental protection; the need to reproduce natural resources, preventing harmful, irreversible consequences for the environment and human health; transparency in solving environmental issues; combination of national, regional and international interests in the field of nature conservation; and liability for violation of environmental legislation requirements.”³⁶⁴

However, a few guiding principles which are commonly included in biodiversity legislation are

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particularly relevant for protecting pollinators from pesticides, including the precautionary principle and the preventive principle. For example, the legislation in the **Solomon Islands** specifically includes the precautionary principle among its guiding principles for decision making on protected areas, stating, “the precautionary approach should be applied where there is threat of serious or irreversible environmental harm even in the absence of full scientific certainty or evidence.”³⁶⁵ In addition to the precautionary principle, **Nicaragua** also includes the preventive principle, whereby “it is recognized that it is of vital importance to anticipate, prevent and attack the causes of the loss of biological diversity or its threats.”³⁶⁶

4.2.5 Public consultation and participation

In addition, biodiversity legislation may sometimes include dedicated provisions giving overarching principles or obligations around

support for public consultation and participation in decision-making, in line with Article 10 of the CBD. In relation to protecting pollinators from pesticides, such provisions could play an important role in ensuring the consultation and participation of multiple stakeholders, from pesticide users to beekeepers to impacted local communities. For example, biodiversity legislation in **Timor-Leste** provides extensive guiding principles regarding public consultation and participation:

“Duty of consultation: 1. The government entity responsible for the conservation of nature and biodiversity and the government entity responsible for the environment shall promote consultations with different State institutions at the central and local levels, whenever necessary for the implementation of this law and for informed decision making that takes into consideration all relevant sectoral aspects for the conservation of biodiversity and sustainable use of its



components. 2. Whenever a decision is to be made whose consequences directly or indirectly affect a specific administrative district, the consultation provided for in this article must, obligatorily, involve the municipalities and the unconnected governmental entities that exist therein. 3. Without prejudice to the provisions of the previous numbers, it is also mandatory to hold public consultations with civil society, universities, research centers, the private sector and local communities. 4. Public consultation organized within the scope of this article must obey the following rules: a) The relevant information must be made available to the public with sufficient minimum notice or posted in a public place that is easily accessible to the general population; b) The information must contain sufficient detail and data to enable the population to understand the scope and consequences that may be involved; c) A reasonable period of reflection and time must be given for the submission of oral or written comments. 5. The information and contributions arising from the consultation process must be given due consideration before a decision is made and made public.

*Participation in implementation: 1. The participation of municipalities, the private sector, non-governmental organizations, communities, and other public or private entities in the conservation of biodiversity and the sustainable use of its components must be promoted whenever appropriate for the implementation of the provisions of this statute. 2. Participation may be carried out by means of partnerships, agreements, management and concession contracts, or any other legally admissible contractual instrument.*³⁶⁷

Such provisions are also particularly relevant in the context of a One Health approach and ensuring legal support for coordination between institutions and involvement of stakeholders.

4.3 Administration

Biodiversity legislation may prescribe a specific mandate for the government to take steps to conserve biodiversity. From a drafter's perspective, this is a key intersection point with some of the constitutional provisions on state obligations with respect to biodiversity discussed earlier, where applicable. Most often, such mandates will be broad in nature and not specifically focused on the protection of pollinators from pesticides.

For those countries without dedicated legislation on biodiversity, the starting point is often a simple inclusion of the conservation of biodiversity among listed mandates for the institution responsible for environmental matters. For example, in **Jordan**, legislation assigns a mandate to the environment ministry to "protect biodiversity and identifying, monitoring and supervising sites and areas that require special environmental protection, special ecoregions and environmentally sensitive areas; and designating competent bodies to manage and monitor these areas and its performance."³⁶⁸ Legislation in **Tonga** provides that, "the functions of the Ministry in relation to the management of the environment shall include matters relating to – [...] the preservation of biological diversity, including management of living modified organisms."³⁶⁹ Similarly, in the **United Republic of Tanzania**, the Minister responsible for the environment is tasked with striving "to attain the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources."³⁷⁰

For those countries with dedicated legislation on biodiversity, administration provisions can be much more detailed. Depending on the size and organization of a country's government, it will also be important for such legal provisions to clarify the roles and responsibilities of one or more central government authorities, and

potentially, one or more levels of decentralized or local government. Where multiple institutions or levels in the hierarchy are involved, it is particularly important for legislation to include mechanisms for institutional coordination and avoid duplications in mandates.

In addition to the mandates discussed above, biodiversity legislation in some countries will also establish and provide functions for a separate biodiversity advisory council, tasked with advising the government on biodiversity conservation generally, or a subset of issues such as those related to protected areas. For example, legislation in the **Seychelles** creates an advisory committee with a very broad mandate that includes “(a) advising the Minister on matters covered under this Act; (b) considering any matter that may be referred to it by the Minister; (c) consulting such technical persons as it may consider appropriate to advise on any specific scientific and technical matter; (d) recommending to the Minister the areas that need to be designated as a protected area under this Act; and (e) performing such other functions as may be prescribed by regulations.”³⁷¹

In a few country cases, examples have been observed where biodiversity legislation assigns institutional mandates that are closely related to or explicitly focused on protecting pollinators from pesticides. For example, **Chile’s** biodiversity legislation creates a new dedicated authority responsible for biodiversity and protected areas in the country (the Biodiversity and Protected Areas Service).³⁷² Among the authority’s enumerated functions are two functions that are closely linked to protecting pollinators from pesticides. First, the authority is explicitly and specifically mandated to protect and promote the conservation of native pollinators.³⁷³ Second, the authority is explicitly and specifically mandated to propose to the relevant competent authority the criteria for the use and importation of pesticides, fertilizers and chemical substances in order to protect biodiversity.³⁷⁴

4.4 Planning and monitoring

4.4.1 Planning and target setting

Biodiversity legislation may include provisions that require the development of national strategies and action plans, in line with Article 6 of the CBD. These provisions on planning and target setting could be relevant as a means to ensure that the protection of pollinators from pesticides is included in general or specific plans and targets. Such provisions will typically identify which entities should prepare such documents, how often they should be updated, who must be included in the drafting process, and the contents of such documents. For example, biodiversity legislation in **Albania** requires: “[f]or the protection of biodiversity, a national strategy and a biodiversity action plan are drafted, the requirements of which are implemented by state bodies and natural and legal persons. This document is approved by decision of the Council of Ministers, upon the proposal of the minister. The requirements of the biodiversity strategy and action plan are harmonized with this law and other environmental protection laws, as well as assisting in their implementation. The biodiversity strategy is renewed every 10 years. The Ministry leads the work on drafting and updating the biodiversity strategy and action plan, ensuring the participation of all interested groups, state, central and local bodies, the scientific community and civil society. The priorities and requirements set out in the biodiversity strategy and action plan should be included in the strategies, plans, sectoral programs and decision-making of state bodies, at national and local levels.”³⁷⁵

In a few jurisdictions, examples have been observed where biodiversity legislation specifically requires competent authorities to set planning targets for the abundance and diversity of pollinator populations, and undertake planning and put in place measures to meet those targets. For example, the **European Union** now requires Member States to, by



2030, establish target levels for pollinator populations based on an open and effective process and scientific evidence.³⁷⁶ Based on those targets, Member States are required to take appropriate and effective measures to improve pollinator diversity and reverse the decline of pollinator populations, as measured at least every six years.³⁷⁷ However, even where countries do not have such legal provisions focused on pollinators, general planning and target setting requirements have served as the legal foundation for including the protection of pollinators from pesticides within national strategies and action plans. For example, this is the case in **Pakistan**,³⁷⁸ and **Malta**.³⁷⁹

4.4.2 Inventory and monitoring

Biodiversity legislation may require competent authorities to monitor the abundance and diversity of species and habitats, and/or to take an initial inventory of species and habitats, in line with Article 7 of the CBD. Such provisions are typically general in nature. But even when written in general terms, such inventory and monitoring requirements can serve as a legal foundation for efforts to provide the necessary data to understand the impacts of pesticides on pollinators over time, to inform better interventions.

For example, in general terms, both **Malawi** and **Kenya** require its competent authority to develop and maintain an inventory of biological diversity in the country, determine actual and potential threats to biodiversity, and devise measures for preventing, removing, or mitigating the effect of those threats, including for example delineating protected areas and buffer zones where certain activities are restricted.³⁸⁰ Similar provisions are found in **Zimbabwe**³⁸¹ and the **Republic of Congo**, where the competent authority is required to collaborate with other relevant national authorities to periodically conduct an inventory of biological diversity in the country.³⁸² **Viet Nam** requires the competent authority to

develop and maintain a national biodiversity database with monitoring data.³⁸³

In other cases, legislation may impose monitoring requirements that are more specifically focused on pollinators. For example, the **European Union** specifically requires Member States to collect annual monitoring data on the abundance and diversity of pollinator species across ecosystems, following a soon-to-be developed methodology for monitoring from the European Commission.³⁸⁴ In the course of monitoring, Member States must ensure the representativeness of monitoring data across their territories, and shall promote citizen participation in monitoring.³⁸⁵

4.5 Conservation measures

Biodiversity legislation may include several provisions which describe conservation measures to be taken, including *in situ* and *ex situ* conservation measures, in line with Articles 8 and 9 of the CBD. For a general example of how biodiversity can introduce such conservation measures, legislation in **Lesotho** provides that the competent authority shall prescribe measures to ensure the conservation of biological resources *in situ*; (b) issue guidelines for—(i) *land use methods that are compatible with the conservation of biological diversity*; (ii) the selection and management of protected areas so as to promote the conservation of the various terrestrial and aquatic ecosystems of Lesotho; (iii) the selection and management of buffer zones near protected areas; (iv) special measures for protection of species, ecosystems, and habitats faced with extinction; (v) prohibiting or controlling of the introduction of alien species; (vi) integrating traditional knowledge for the conservation of biological diversity with mainstream scientific knowledge.³⁸⁶

4.5.1 Area protection

As a primary mechanism for *in situ* conservation, biodiversity legislation may outline one or

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more categories of protected areas, in line with Article 8(a) of the CBD. For example, legislation in the **Maldives** creates seven distinct categories of protected areas, each with their own requirements, objectives, and applicable protection measures: (1) internationally recognized areas; (2) strict nature reserves; (3) wilderness areas; (4) national parks; (5) natural monuments; (6) habitat/species managed areas; and (7) protected areas with sustainable use.³⁸⁷ Then, for those categories of protected areas, biodiversity legislation will typically cover aspects related to the procedure for designation of new protected areas, expropriation matters, stakeholder involvement, area management arrangements, and rules for what may be done in or near these protected areas (see further discussion below under threats to biodiversity and its components). Such provisions could theoretically serve as the legal foundation for efforts to designate certain pollinator habitats as protected areas with additional restrictions (see below on threats to biodiversity and its components).

Note that this is an important area of intersection with beekeeping legislation in some countries. Thus, as mentioned in the section on beekeeping legislation, in some countries, beekeeping legislation's provisions on habitat protection may create special protected areas to support managed or wild pollinators. Such protected areas may entail the prohibition of pesticide use within the protected area or with a designated radius surrounding the protected area. This is the case under the **United Republic of Tanzania's** *Beekeeping Act*. The Act provides for a system of private bee reserves, national bee reserves, local authority bee reserves, and village bee reserves, wherein "[n]o person shall within a bee reserve use any plant-protection substances classified by an authorized research institute which is likely to cause harm to bees, beekeeping activities, bee fodder plants or apiary products."³⁸⁸

Zimbabwe's *Bees Act* contains similar provisions on the designation of specified areas to protect bees and beekeeping activities.³⁸⁹

4.5.2 Economic instruments

Biodiversity legislation may contain provisions that promote, or mandate, economic instruments designed to facilitate the conservation of biodiversity, in line with Article 11 of the CBD. One such instrument which could be potentially relevant for the protection of pollinators from pesticides is payment for ecosystem services. While such provisions are typically written in very general terms, they may apply directly or indirectly to pollination services via the definition of ecosystem services included in biodiversity legislation, where applicable (see above under definitions). For an example of such a general provision, **Uganda** provides that its competent authority shall identify activities and set up mechanisms for payment for ecosystem services that are critical for the environment and human well-being.³⁹⁰ **Cambodia** has introduced similar provisions calling for the competent authority to set up a system for payment for ecosystem services, and specifically mentions pollination as a type of ecosystem service.³⁹¹ Similarly, **Chile** provides, "[i]n order to conserve biodiversity, the [competent authority] will promote the incorporation of sustainable practices, including those for the conservation of biodiversity of local communities and indigenous peoples, in productive processes and activities, through: a) Certification and eco-labeling. b) The promotion of contracts for remuneration for ecosystem services. c) The proposal of environmental criteria to be incorporated into sectoral subsidies and grants. d) The promotion of clean production agreements [...] These practices will be promoted especially in priority sites, buffer zones, conservation landscapes, areas assigned to real conservation rights, important areas for bird conservation, and key areas for biodiversity and biosphere reserves."³⁹²



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4.5.3 Protected species listing and measures

Biodiversity legislation may provide extensive provisions covering the protection of threatened species, in line with Article 8(k). As a starting point, legislation will typically outline the criteria for determining which species should be subject to special protection measures. For example, **Nicaragua** provides that “The following components of biological diversity, among others, shall be subject to in situ conservation: [...] Species that play a key role in food chains and in the natural control of populations, indicator, flag or umbrella species.”³⁹³ Similarly, **Costa Rica**’s biodiversity legislation provides that the following species shall be prioritized for in situ conservation measures: species, populations, breeds or varieties with reduced populations or in danger of extinction; species whose populations are highly fragmented; dioecious flower species whose flowering is not always synchronous; species, races, varieties or populations of singular strategic, scientific, economic value, current or potential; species, populations, races or varieties of animals or plants with particular religious, cultural or cosmogonic significance; and wild species related to cultivated or domesticated species or strains, which can be used for genetic improvement.”³⁹⁴ From that starting point, biodiversity legislation will then typically also include provisions that require the creation and maintenance of a list of protected species, the measures to protect those species, protection of habitats for protected species, restrictions on the trade of protected species, and procedures that accompany the recovery of protected species. Such provisions may only become directly relevant for the protection of pollinators from pesticides if a country decides to list one or more pollinator species for special protection.

4.5.4 Restoration

Closely related to provisions on planning and target setting (see above), biodiversity legislation

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may include provisions that promote or guide the restoration of habitats, in line with Article 8(f) of the CBD. Such provisions may be relevant for the protection of pollinators from pesticides is used as the legal foundation for efforts to restore habitats that have been negatively affected by pesticide use. As an example of a provision that serves as a legal foundation for such restoration efforts, legislation in **Democratic Republic of the Congo** requires that, “the State, the province and the decentralized territorial entity shall adopt, within the limits of their respective powers, plans, management strategies and other measures necessary for the restoration of degraded ecosystems and to promote the recovery of endangered species.”³⁹⁵

Timor-Leste includes a similar provision in its biodiversity legislation: “The rehabilitation and restoration of damaged ecosystems falls within the competence of the government entity responsible for the conservation of nature and biodiversity, without prejudice to the involvement of other public institutions, private institutions, non-governmental organizations, the Sucos [local authorities] and citizens in general.”³⁹⁶ As another example, biodiversity legislation in **Mozambique** contains extensive, detailed provisions on habitat restoration, including criteria for restoration efforts, accountability, procedures for restoration efforts, restoration planning, and ongoing monitoring of restoration efforts.³⁹⁷

4.5.5 Ex-situ conservation

Biodiversity legislation may include provisions that govern the ex-situ conservation of protected species, in line with Article 9 of the CBD. Such provisions may become relevant in the context of protecting pollinators from pesticides if a country decides to prioritize one or more pollinator species for ex situ conservation. Such provisions tend to be general in nature. For example, legislation from **Afghanistan** included a basic foundation for ex situ conservation whereby, “the National Environmental Protection Agency, in coordination with academic institutions, relevant

ministries and international institutions, shall devise appropriate plans to establish facilities for ex-situ conservation of natural resources, on the basis of the requirements identified in the national biodiversity strategy to be prepared in accordance with Article 36 of this Act. Priority shall be given to ex-situ conservation of endemic species and to genetic resources for which Afghanistan is the country of origin.”³⁹⁸ As another example with a different approach, **Mozambique** has included very detailed, extensive provisions on ex situ conservation, including the overarching concept, the criteria for initiating ex situ conservation efforts, promotion of ex situ efforts, and rules for the carrying out of ex situ conservation efforts.³⁹⁹

4.6 Threats to biodiversity and its components

Biodiversity legislation may include provisions that focus on managing threats to biodiversity and its components, in line with Articles 8, 9, and 14 of the CBD. This may often include provisions on the management of invasive species, genetically modified organisms, living modified organisms, and other human activities that may pose a threat to biodiversity. This section will focus on two kinds of provisions of particular relevance to protecting pollinators from pesticides: restrictions on pesticide use, and environmental impact assessment.

4.6.1 Restrictions on pesticide use

Biodiversity legislation may include provisions that prohibit or restrict the application of pesticides because of potential impacts on biodiversity, under the general umbrella of in situ conservation measures in line with Article 9 of the CBD. Such restrictions or prohibitions may typically be framed in broad terms, but in a few cases such restrictions or prohibitions have been observed to focus specifically on pesticide use within or near protected areas. For example, **Cambodia** enumerates a list



of general activities which are prohibited in protected areas, including “chemical use.”⁴⁰⁰ **Trinidad and Tobago** specifically prohibits the use of pesticides, fungicides, insecticides, and other chemicals within one of its protected areas unless otherwise approved by the competent authority.⁴⁰¹ For example, **Germany** prohibits the application of certain enumerated pesticides outside of enclosed spaces within nature reserves, national parks, national natural monuments, core and conservation zones of biosphere reserves, natural monuments, and legally protected biotopes; note that Germany’s legislation allows for exceptions for individual cases deemed necessary to protect the health of humans and animals.⁴⁰²

Other such restrictions may not be limited to protected areas, and rather apply more broadly across the country’s territory. For example, **Egypt**’s environmental legislation includes a provision whereby it is “prohibited to spray or use pesticides or any other chemical compound for agriculture, public health or other purpose except after observing the conditions, regulations and safety measures laid down in the executive regulations of this Law and in a manner that will not expose humans, animals, plants, waterways and other components of the environment, directly or indirectly, now or in future, to the harmful effects of such pesticides or chemical compounds.”⁴⁰³

A similar example is observed in **Kosovo**, where legislation provides, “[p]esticides and mineral fertilizers may be used based on professional assessment and the results of verification of the general condition of protected species, in a manner acceptable to nature in accordance with the legislation in force. In case of reasonable suspicion that the use of pesticides or mineral fertilizers endangers biological diversity or the value of nature, or that the use is not acceptable from an ecological perspective, the Minister, after obtaining the prior opinion of the competent authority for agriculture and forestry, shall temporarily restrict or permanently

prohibit the use of pesticides or mineral fertilizers that endanger biological diversity or the value of nature. [...] In order to preserve the biological diversity of forests, the use of biological and biotechnical means for plant protection is permitted. If a cause appears that can cause major economic damage and there is no means biological or biotechnical means, chemical means may be used after obtaining the permission of the competent body for agricultural and forestry affairs and the consent of the Ministry.”⁴⁰⁴

4.6.2 Environmental impact assessment and environmental licensing

Biodiversity legislation may include provisions on environmental impact assessment and/or environmental licensing of activities that are likely to have impacts on biodiversity, in line with Article 14 of the CBD. This is an area where biodiversity legislation will likely intersect with broader provisions on environmental impact assessment within environmental legislation. Such provisions could be broadly or even specifically relevant for the protection of pollinators from pesticides when they impose an additional point of regulatory control over some uses of pesticides.

Such provisions may be drafted in general terms. For example, **Morocco** provides that “all actions likely to harm the natural environment, the conservation of fauna and flora, or to alter the character and elements of the ecosystem of the protected area” may only be conducted with prior environmental approval.⁴⁰⁵ Similarly, in broad terms, **Rwanda** prohibits the following activities in protected areas unless specifically authorized: “mining and quarrying; farming; excavation or prospecting, drilling, or construction; carrying out scientific research; camping and flying an aircraft over at low altitude; [and] any other activity that may be found destructive to a protected area.”⁴⁰⁶

Of relevance here, several countries explicitly subject some pesticide uses to either

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environmental impact assessment requirements or environmental licensing requirements. For example, **Kiribati** categorizes any commercial use of pesticides as an environmentally significant activity that requires getting an environmental license before undertaking it.⁴⁰⁷ **Niger** specifically includes ground and aerial applications of pesticides among the list of activities subject to the requirement to conduct an environmental impact assessment.⁴⁰⁸ Pesticide applications on over 500 hectares must complete a full environmental and social impact assessment and between 10 and 500 hectares must complete a simplified environmental and social impact assessment.⁴⁰⁹ Similar requirements are found in **Uganda**, which requires environmental and social impact assessments for “large scale application of agro-chemicals for disease and pest control.”⁴¹⁰ **Gambia, Lesotho, and Zambia** each require any project which includes a use of “new pesticides” to conduct an environmental impact assessment and obtain an environmental approval before commencement; notably, Lesotho and Zambia also impose such requirements on aerial spraying, but Gambia does not.⁴¹¹

4.7 Genetic resources, technology, traditional knowledge, and benefit sharing

While not included within the primary focus of the present document, it is important to note that a significant focus of biodiversity legislation is the conservation of genetic resources, traditional knowledge and access to benefits, in line with Articles 8(j), 10, and 15-19 of the CBD. Especially in countries with dedicated primary legislation on biodiversity, these provisions often form a substantial portion of the legislation. However, such provisions tend to be less directly relevant to issues around the protection of pollinators from pesticides.

4.8 Research and education

Biodiversity legislation may contain provisions that either promote or mandate carrying out research activities and/or data sharing related to the conservation of biodiversity, in line with Article 12 of the CBD. Where present, such provisions tend to be broad in nature, and not necessarily narrowly focused on protecting pollinators from pesticides. However, even in general terms, such provisions could serve as the legal foundation for research activities to better understand the effects of pesticides on pollinators and the effectiveness of measures to protect pollinators from pesticides.

On the topic of biodiversity research, biodiversity legislation in **Albania** provides that, “[r]esponsible state bodies shall support and encourage public and private scientific research institutions to design research programs that support the study, collection of genetic resources, preservation of biodiversity and the sustainable use of its components.”⁴¹² As another example that goes into slightly more detail, biodiversity legislation in **Peru** provides, “[s]cientific research is declared to be of national priority and interest on: a. Knowledge of the species of flora, fauna, microorganisms and ecosystems through the realization of inventories, biological studies and environmental monitoring. b. Management and conservation of ecosystems and wild species of economic, scientific, social or cultural importance. c. Knowledge, conservation and industrial and medicinal application of genetic resources through traditional and modern biotechnology. d. Diversified use of the most abundant biological diversity resources and substitution of the scarcest ones. e. Conservation and sustainable management of ecosystems, in particular forests, fragile lands, arid and semi-arid lands and wetlands. f. Restoration of degraded areas. g. Development of appropriate technology and the complementary use of traditional technologies with modern technologies.”⁴¹³



Biodiversity legislation may also contain provisions promoting or mandating education on biodiversity conservation, also in line with Article 12 and 13 of the CBD. Even when drafted in general terms, such provisions can serve as a legal foundation for efforts to educate key stakeholders on measures to protect pollinators from pesticides. For an example of an education provision written in general terms, **Democratic Republic of the Congo** has included provisions in its legislation whereby, “[t]he State guarantees each Congolese access to information and the right to environmental education in order to encourage national awareness of the importance of conserving biological diversity. The State, the province and the decentralized territorial entity shall establish, within the limits of their respective powers, scientific and technical education and training programs for the identification and conservation of biological diversity and the sustainable use of biological resources meeting the needs of national development.”⁴¹⁴

4.9 Compliance and enforcement

4.9.1 Inspection and enforcement procedures

Biodiversity legislation may include provisions on inspections and the procedures for enforcing legislation. These may typically cover the appointment of inspectors, their powers, and the procedures they must follow. In other cases, biodiversity legislation may rely on inspection and enforcement by inspectors governed by separate legislation. Inspection provisions can play a critical role in improving implementation, compliance, and enforcement of the provisions of biodiversity legislation so that they may have real impacts in practice for the protection of pollinators from pesticides.

For example, on the topic of inspections, biodiversity in **Mozambique** provides, “[t]he protection, conservation, preservation,

sustainable use, transportation and handling of the resources under this Law are subject to inspection. The inspection aims at the prevention of any activity which disturbs the harmony of nature, including that in buffer zones, and is carried out by sworn state, community and inspection agents. The defense forces and state security services engage in inspection activities in conservation areas.”⁴¹⁵ Similarly, biodiversity legislation in **Albania** provides, “[f]or the preservation of biodiversity and its components, in accordance with the requirements of this law, the responsible inspection structures in the field of the environment shall exercise control. [...] For the preservation of biodiversity and its components, in implementing the requirements of this law and in accordance with Law [...] “On Inspection in the Republic of Albania”, the relevant inspectors shall take urgent measures according to the needs of the case.”⁴¹⁶

On enforcement procedures, for example, biodiversity legislation in **Timor-Leste** provides: “Supervision of compliance with the present law obeys the precautionary principle and is the duty of the government body responsible for the conservation of nature and biodiversity and the government body responsible for the environment, without prejudice to the powers of other police authorities, namely maritime and port authorities, under the terms of the law. Anyone who witnesses or has knowledge of the planning or carrying out of activities that constitute a violation of this law must communicate this fact verbally or in writing to the competent authorities. [...] Disputes arising in the community relating to the conservation of biodiversity and the sustainable use of its components must be resolved preferably through recourse to alternative dispute resolution mechanisms, including traditional or community-based mechanisms, under the terms of the Constitution and the law. The provisions contained in the previous point shall depend on the agreement of the parties involved and shall not prejudice the right to resort to the courts,

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under the terms of the law. Alternative dispute resolution shall not be applicable to facts that could constitute a criminal offence."⁴¹⁷

4.9.2 Offenses and penalties

Biodiversity legislation may specify offenses and penalties for the violation of its provisions. The design of such provisions will be particularly dependent on the country's legal tradition, and the overall scope of which obligations have been included within the country's biodiversity legislation. Again, depending on country context and legal traditions, such provisions may be found within the biodiversity legislation itself, or separate legislation consolidating administrative and/or criminal offenses and penalties. Offense and penalty provisions are relevant to the protection of pollinators from pesticides because they help to deter violations of biodiversity legislation provisions which directly or indirectly contribute to the protection of pollinators from pesticides.

Of particular relevance here, in some cases, biodiversity legislation may include specific offenses and penalties related to the use or misuse of pesticides in or near protected areas. For example, **Germany** has included a specific penalty, whereby any person who intentionally or negligently uses a pesticide within a protected area commits an administrative offense subject

to a fine.⁴¹⁸ Similarly, in **Myanmar**, using a chemical within a protected area is subject to penalties including a monetary fine or imprisonment.⁴¹⁹ Framing things in broader terms, **Lebanon** provides that, "any activity that leads to disruption of the ecological system, or the natural balance, or to any pollution, or to harming the wealth of biological diversity, or to any distortion, in the nature reserve and the buffer zone whose scope is defined in the law or decree establishing it, exposes its perpetrator to paying a fine ranging between one million Lebanese pounds and twenty-five million Lebanese pounds and/or imprisonment from one month to one year, according to the seriousness of the criminal act."⁴²⁰ In **Uruguay**, it is classified as a serious offense to alter or damage ecosystems within or near protected areas through the use of chemical products or the discharge of waste, subject to monetary fines.⁴²¹

In other cases, biodiversity legislation may more broadly include specific offenses and penalties related to the use or misuse of pesticides that causes damage to biodiversity, whether or not occurring in or near a protected area. For example, biodiversity legislation in **Kosovo** imposes a monetary fine for the offense of using pesticides in a manner that endangers biodiversity or the value of nature.⁴²²



ENDNOTES

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- 3 See e.g., **Goulson, D., Nicholls, E., Botias, C. & Rotheray, E.L.** 2015. Bee Declines Driven by Combined Stress from Parasites, Pesticides, and Lack of Flowers. *Science*, 347(6229): 1–16. p. 5.
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- 5 **Afghanistan**, *Agricultural Pesticides Law*, 2016. Art. 2.
- 6 **Bhutan**. *Pesticides Act*, 2000. Art. 2.
- 7 **Canada**. *Pest Control Products Act*, 2002. Sec. 4.
- 8 **Maldives**. *Regulation No. 2021/R-12 on the Control of Pesticide used in Agriculture*, 2021. Art. 2.
- 9 **United Arab Emirates**. *Federal Law No. 10 on Pesticides*, 2020. Art. 2(1).
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- 14 **United Republic of Tanzania**. *Plant Protection Regulations*, 1998. Reg. 27.
- 15 **Rwanda**. *Law No. 30/2012 of 01/08/2012 on Governing of Agrochemicals*, 2012. Art. 13; **Rwanda**. *Ministerial Order No. 002/11.30 of 14/07/2016 Determining Regulations Governing Agrochemicals*, 2016. Art. 15.
- 16 **Kenya**. *Pest Control Products (Registration) Regulations*, 1984. Reg. 10.
- 17 **ECOWAS**. *Regulation C/REG.3/05/2008 on Harmonization of the Rules Governing Pesticides Registration in ECOWAS Region*, 2008. Art. 16.
- 18 **CILSS**. *Regulations Common to CILSS Member States on the Approval of Pesticides*, 1999. Art. 11-12.
- 19 **Dominica**. *Pesticides Control (Registration and Licensing) Regulations*, 1987. Reg. 6.
- 20 **Samoa**. *Pesticides Regulations*, 2011. Reg. 13.
- 21 **China**. *Administrative Measures for the Registration of Pesticides*, 2017. Art. 6, 21.
- 22 **Australia**. *Agricultural and Veterinary Chemicals Code Act*, 1994. Sec. 5A, 14.
- 23 **United States of America**. *Federal Insecticide, Fungicide, and Rodenticide Act*, 1947. Sec. 7 U.S.C. 136a(c)(5); **United States of America**. *Code of Federal Regulations*, Title 40, Chapter I, Subchapter E - Pesticide Programs, 1970. Reg. 40 C.F.R. 152.112.



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- 30 **Liberia.** *Plant Pesticide Regulatory Services Bureau Act*, 2019. Art. 18.
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- 35 **Gulf Cooperation Council.** *Implementing Regulation of Pesticides Law*, 2005. Art. 6, 20.
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- 37 **China.** *Ministry of Agriculture Announcement 2569 - Data Requirements on Pesticide Registration*, 2017. Chapters 3, 4, 6, and 7.
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- 42 **Rwanda.** *Law No. 30/2012 of 01/08/2012 on Governing of Agrochemicals, 2012. Art. 16; Rwanda. Ministerial Order No. 002/11.30 of 14/07/2016 Determining Regulations Governing Agrochemicals, 2016. Art. 4, Annex I.*
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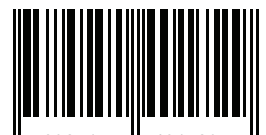
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