



### QUESTIONNAIRE FOR THE FOOD INDUSTRY (SECTOR-RELATED QUESTIONS)

The completion of this questionnaire is voluntary. However, replying to the relevant questions as completely as possible will facilitate and speed up the assessment of the environmental, social and human rights impacts of the project for which the German export supplies or services offered for cover are intended. This – together with the questionnaire not related to a particular sector, the completion and submission of which should also be considered in order to speed up the assessment procedure – can replace the description of the environmental, social and human rights impacts in the memorandum.

The questionnaire provides guidance on what information may be important for this sector. It is based on the World Bank/IFC General Environmental Health and Safety (EHS) Guidelines, the EHS Guidelines for Mammalian Livestock Production, the EHS Guidelines for Meat Processing, the EHS Guidelines for Poultry Production, the EHS Guidelines for Poultry Processing, the EHS Guidelines for Breweries and the EHS Guidelines for Food and Beverage Processing. Additional information on the applicable standards can be found at the [AGA Portal](#).

This is a list of possible questions. Depending on the individual case only some of them, or perhaps also additional information, may become relevant in the course of the application procedure. Because of the specific features of each project further clarification may be required.

### CONTENT

- A. Animal husbandry/livestock farming (page 2)**
- B. Breweries/food and beverage production (page 13)**
- C. Additional information (page 17)**

## A. Animal husbandry/livestock farming

### A.1. Mammals

#### A.1.1. Waste

- What relevant waste products are generated on site?
- What measures are taken to reuse, treat and dispose of the waste generated (e.g. waste feed, animal waste, animal carcasses) and where and how is it deposited?
- How is waste treated which may contain pathogens (BSE, Creutzfeldt-Jakob disease, etc.)?
- Please give also details on possible waste incineration processes (type and quantity of waste, incineration temperature, etc.).
- Please give in particular details on the storage and disposal of manure, slurry, etc. and describe the measures taken to avoid any contamination of surface water and groundwater.
- If meat is processed, please state the amount of waste generated in accordance with the table below.

Waste Generation			
Outputs per unit of product	Mass load unit	Industry benchmark	Project Value
Solid organic waste	kg/ head cattle	58 <sup>a</sup>	
By-products for rendering	kg/ head cattle	110 <sup>a</sup>	
Solid organic waste	kg/ head pig	2.2 <sup>a</sup>	
By-products for rendering	kg/ head pig	20.8 <sup>a</sup>	
Blood collection	kg/ head cattle	10-20 <sup>b</sup>	
Blood collection	kg/ head pig	2-4 <sup>b</sup>	
<b>Notes:</b>			
<sup>a</sup> From Nordic Council of Ministers (2001).			
<sup>b</sup> European Commission (2005).			
Source: WORLD BANK/IFC EHS Guidelines for MEAT PROCESSING 2007, page 11			

#### A.1.2. Fresh water and effluents

- How much (fresh) water is used? How and where is the water withdrawn?
- If meat is processed, please state the resources and energy consumption after the project's completion in accordance with the table below.

Resource and energy consumption			
Outputs per unit of product	Mass load unit	Industry benchmark <sup>a</sup>	Project Value
Energy (fuel and electricity) consumption	kWh/t cattle carcass	90 - 1094 (cattle)	
	kWh/t pig carcass	110 - 760 (pig)	
	kW/t raw materials	400 - 650 (dry rendering)	
		570 (wet rendering)	
Water consumption	m <sup>3</sup> /t carcass	1.62 - 9 (cattle)	
		1.6 - 8.3 (pig)	
	m <sup>3</sup> /t raw materials	0.5 - 1 (rendering)	
Materials	Detergent consumption kg/t cattle carcass	0.2	
Source: European Commission 2005			
<sup>a</sup> Water consumption m <sup>3</sup> /t of slaughtered animal: 1.74 registered in case study in Bolivia (CPTS, 2005)			
Source: WORLD BANK/IFC EHS Guidelines for MEAT PROCESSING 2007, page 11			

- What wastewater streams are generated?
- What measures are taken to avoid a contamination of surface water bodies and groundwater with nitrogen, phosphor, hormones, antibiotics, heavy metals, bacteria or pathogens?
- How are effluents treated before they are discharged? Please also state whether effluents are discharged into a public sewage treatment system or into surface water bodies (river, lake, sea). If there are discharges, please provide information on the quantities of the wastewater streams (e.g. m<sup>3</sup>/h or l/s).
- If wastewater is discharged directly into a surface water body, please state the maximum values of the pollution levels in mg/l (table "Effluent levels"). Occasionally, not all pollutants listed in the table are emitted or others specific to the project have to be added. Please inform us if that is the case.

Effluent levels for mammalian livestock production / meat processing			
Parameter	Units	Guideline Value	Project Value
pH	pH	6-9	
BOD <sub>5</sub>	mg/L	50	
COD	mg/L	250	
Total nitrogen	mg/L	10	
Total phosphorus	mg/L	2	
Oil and grease	mg/L	10	
Total suspended solids	mg/L	50	
Temperature increase	°C	<3 <sup>b</sup>	

<b>Total coliform bacteria</b>	MPN <sup>a</sup> / 100 ml	400	
<b>Active Ingredients / Antibiotics</b>	To be determined on a case specific basis		
Notes: <sup>a</sup> MPN = Most Probable Number <sup>b</sup> At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity			
Source: WORLD BANK/IFC EHS Guidelines for MAMMALIAN LIVESTOCK PRODUCTION 2008, page 14			

- How and where are the effluents discharged? Please explicitly comment on a temperature rise at the point of discharge, describe possible effects of the discharge on the ecology of the water bodies and provide information on the condition and size of the water body (e.g. flow values, flow rate). Please give also details on protection measures.
- What national standards are applicable in the buyer's country for the discharge of sanitary sewage? How is sewage treated before it is discharged? Please state the expected maximum values of the pollution levels in the sewage. If there are no national limit values, please use the table below.

<b>Indicative Values for Treated Sanitary Sewage Discharges<sup>1</sup></b>			
<b>Pollutants</b>	<b>Units</b>	<b>Guideline Value</b>	<b>Project Value</b>
<b>pH</b>	pH	6-9	
<b>BOD</b>	mg/l	30	
<b>COD</b>	mg/l	125	
<b>Total nitrogen</b>	mg/l	10	
<b>Total phosphorus</b>	mg/l	2	
<b>Oil and grease</b>	mg/l	10	
<b>Total suspended solids (TSS)</b>	mg/l	50	
<b>Total coliform bacteria</b>	MPN <sup>(b)</sup> /100 ml	400 <sup>(a)</sup>	
Notes: (a) Not applicable to centralized, municipal, wastewater treatment systems which are included in EHS Guidelines for Water and Sanitation. (b) MPN = Most Probable Number			
Source: WORLD BANK/IFC GENERAL EHS GUIDELINES 2007, page 30			

### A.1.3. Air emissions and odours

- Please describe the measures taken to reduce the effects of ammonia emissions and odours.
- What measures are taken to reduce methane emissions?
- What measures are taken to reduce dust emissions?

### A.1.4. Hazardous materials

- What safety measures and/or control systems are planned to prevent accidents with hazardous substances/dangerous materials (disinfectants, antibiotics, hormonal products, pesticides)?
- Does an Integrated Pest Management (IPM) exist? If so, please describe it.

- Are measures for the handling of pesticides documented in a Pesticide Management Plan (PMP)?
- Are any pesticides used that are placed in hazard classes 1a and 1b by the WHO? If so, what pesticides?
- Are any pesticides used that are placed in hazard class II by the WHO? If so, what pesticides?
- Are any pesticides used that are listed in the Annexes A and B of the Stockholm Convention? If so, what pesticides?
- Are the guidelines of the International Code of Conduct on the Distribution and Use of Pesticides and the Revised Guidelines for Good Labelling Practice for Pesticides of the Food and Agricultural Organisation (FAO) adhered to?
- Please provide information on the handling of pesticides.
  - How is a secure storage, etc. guaranteed?
  - Is the personnel properly trained?

#### A.1.5. Biodiversity and environmental impact

- What measures are taken to avoid environmental impacts (water contamination, erosion, destruction of riparian habitats, etc.) and to maintain biodiversity?

#### A.1.6. Animal health/animal welfare

- What measures are taken to prevent animal diseases/epidemics from spreading?
- How are sick and injured animals treated?
- Are “The Five Freedoms of Animal Welfare” from the IFC Good Practice Note “Improving Animal Welfare in Livestock Operations” guaranteed at the site?
- Do the conditions in which the animals are kept meet EU standards?
- Is it planned to export any products to the EU?
- If animals are slaughtered, is the slaughtering carried out in accordance with EU standards?

#### A.1.7. Noise

- Are noise mitigation measures necessary or planned? If so, what measures?
- Please state the noise impact (existing background noise level and additional noise emissions of the project) on the nearest receptors (industrial estates and residential areas) in dB(A) for day and night after completion of the project in accordance with the table below.

Noise Level Guidelines <sup>1</sup>				
Receptor	One Hour LA <sub>eq</sub> (dBA)			
	Guideline Value Daytime (07:00-22:00)	Project Value Daytime (07:00-22:00)	Guideline Value Nighttime (22:00-07:00)	Project Value Nighttime (22:00-07:00)
Residential; institutional; educational <sup>2</sup>	55		45	
Industrial; commercial	70		70	
<b>Notes:</b> <sup>1</sup> Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, WHO, 1999. <sup>2</sup> For acceptable indoor noise levels for residential, institutional, and educational settings refer to WHO (1999). Source: WORLD BANK/IFC GENERAL EHS GUIDELINES 2007, page 53				

- Do the project's noise emissions lead to an increase of the background noise level at the nearest receptors by more than 3 dB(A)?
- How far is the nearest residential area away?

#### **A.1.8. Occupational health and safety**

- What safety measures and/or control systems are planned to prevent accidents?
- How are safety and health (in particular with regard to safety of machinery, handling of toxic and hazardous materials, dust emissions, biological agents and confined spaces) guaranteed at the workplace?
- What average and maximum noise exposure is to be expected at workplaces? What safety measures are taken at workplaces where the noise exposure exceeds 85 dB(A)?
- How are subcontractors integrated into the health and safety measures on site?
- Please make accident statistics for the past two years available to us.

#### **A.1.9. Health and safety of the population**

- What measures are taken to minimise impacts and possible risks for adjacent communities in particular with regard to the storage and transport of chemicals, noise, odours, dust, traffic, the spreading of animal diseases and food safety issues?
- Are the standards set by the Hazard Analysis and Critical Control Points as well as the Codex Alimentarius met to guarantee food safety?

### **A.2. Poultry**

#### **A.2.1. Waste**

- What measures are taken to treat and dispose of the waste generated (e.g. waste feed, animal waste, animal carcasses, sludge from water treatment) and where and how is it deposited?
- How is waste treated which may contain pathogens (Newcastle disease, avian influenza, etc.)?
- Please give in particular details on the storage and disposal of the manure and describe the measures taken to avoid any contamination of surface water and groundwater.
- Has a Nutrition Management Plan been implemented?
- Please give also details on possible waste incineration processes (type and quantity of waste, incineration temperature, etc.).
- If poultry is processed, please state the amount of waste generated in accordance with the table below.

Byproduct and Waste Generation				
Outputs per Unit of Product	Unit	Industry <sup>a</sup>	Denmark <sup>b</sup>	Project Value
Waste				
Solid organic waste	g/head	--	3-8*	
Byproduct for rendering		--	510	
Packaging waste		--	15	
Yield Process Figures				
Blood	% of whole bird live weight	3	3.5	
Feathers		5.5	8.8	
Head		3	3	
Feet		3	3.9	
Hocks		5	--	
Shank		2	--	
Intestine		6	8 **	
Neck skin		1.5	--	
Neck		2	--	
Gizzard		1.5	--	
Liver		2	--	
Heart		0.5	--	
Other offal <sup>c</sup>		2	--	
<sup>a</sup> Meyn Poultry Processing Solutions. 2004. Yield Process Figures. Percentages are based on a live weight of 2000 gr. Percentages are indicative and can vary depending on age, race, feed etc. Meyn Food Processing Technology B.V., Oostzaan: Meyn. The Netherlands <sup>b</sup> Danish EPA. 2000. Miljøprojekt Nr. 573 Renere teknologi på fjerkræslageterier – Projekt rapport. Ole Pontoppidan and Poul-Ivar Hansen, Slagteriernes Forskningsinstitut. P. 13-14. Data derived from a survey of 10 poultry slaughterhouses with an average capacity of 12 million chickens per year <sup>c</sup> (lungs, gall bladder, wind pipe, gizzard content, pro-stomach) * Less flocculation sludge (15-30 g dry matter per chicken) ** Intestines and other material				
Source: WORLD BANK/IFC EHS Guidelines for POULTRY PROCESSING, page 10				

### A.2.2. Effluents

- How much (fresh) water is used? How and where is the water withdrawn?
- What wastewater streams are generated?
- What measures are taken to avoid a contamination of surface water bodies and groundwater with nitrogen, phosphorus, hormones, antibiotics, heavy metals, bacteria or pathogens?

- How are effluents treated before they are discharged? Please also state whether effluents are discharged into a public sewage treatment system or into surface water bodies (river, lake, sea). If there are discharges, please provide information on the quantities of the wastewater streams (e.g. m<sup>3</sup>/h or l/s).
- If wastewater is discharged directly into a surface water body, please state the maximum values of the pollution levels in mg/l (table "Effluent levels"). Occasionally, not all pollutants listed in the table are emitted or others specific to the project have to be added. Please inform us if that is the case.

Effluent levels for poultry production and poultry processing			
Parameter	Units	Guideline Value	Project Value
pH	S.U.	6-9	
BOD <sub>5</sub>	mg/L	50	
COD	mg/L	250	
Total nitrogen	mg/L	10	
Total phosphorus	mg/L	2	
Oil and grease	mg/L	10	
Total suspended solids	mg/L	50	
Temperature increase	°C	<3 <sup>b</sup>	
Total coliform bacteria	MPN <sup>a</sup> / 100 ml	400	
Active Ingredients / Antibiotics	To be determined on a case specific basis		
Notes:			
<sup>a</sup> MPN = Most Probable Number			
<sup>b</sup> At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity			
Source: WORLD BANK/IFC EHS Guidelines for POULTRY PRODUCTION 2007, page 13			

- How and where are the effluents discharged? Please explicitly comment on a temperature rise at the point of discharge, describe possible effects of the discharge on the ecology of the water bodies and provide information on the condition and size of the water body (e.g. flow values, flow rate). Please give also details on protection measures.
- What national standards are applicable in the buyer's country for the discharge of sanitary sewage? How is sewage treated before it is discharged? Please state the expected maximum values of the pollution levels in the sewage. If there are no national limit values, please use the table below.



Indicative Values for Treated Sanitary Sewage Discharges <sup>1</sup>			
Pollutants	Units	Guideline Value	Project Value
pH	pH	6-9	
BOD	mg/l	30	
COD	mg/l	125	
Total nitrogen	mg/l	10	
Total phosphorus	mg/l	2	
Oil and grease	mg/l	10	
Total suspended solids (TSS)	mg/l	50	
Total coliform bacteria	MPN <sup>(b)</sup> /100 ml	400 <sup>(a)</sup>	
Notes: (a) Not applicable to centralized, municipal, wastewater treatment systems which are included in EHS Guidelines for Water and Sanitation. (b) MPN = Most Probable Number			
Source: WORLD BANK/IFC GENERAL EHS GUIDELINES 2007, page 30			

### A.2.3. Air emissions and odours

- Please describe the measures taken to reduce the effects of ammonia emissions and odours.
- What measures are taken to reduce dust emissions?
- Please state the ammonia emissions in the table below according to the housing type:

Ammonia emissions from poultry production systems <sup>a</sup>			
Housing Type	Units	Guideline Value	Project Value
Laying hens in cages with deep pits underneath for gathering and storing manure	g NH3 LU-1 h-1	6.9	
Laying hens in cages with belt cleaning once weekly	g NH3 LU-1 h-1	2.9	
All birds kept on litter	g NH3 LU-1 h-1	5.5	
Notes: <sup>a</sup> adapted from: DEFRA (2002) <sup>b</sup> The weight of ammonia emitted per unit of time and per liveweight housed (liveweight means the weight of the bird).			
Source: WORLD BANK/IFC EHS Guidelines for POULTRY PRODUCTION 2007, page 14			

- Please state the nitrogen losses in the table below:

Nitrogen losses from poultry manure management												
Guideline Value							Project Value					
Manure Management system	N ex-creted	Losses from			Total losses to air	Total available for crops	N ex-creted	Losses from			Total losses to air	Total available for crops
		Building	Storage	Field				Building	Storage	Field		
Pounds nitrogen / head / year							Pounds nitrogen / head / year					
Surface application	0.9	0.18	0.03	0.17	0.38	0.51						
Incorporate	0.9	0.18	0.03	0.04	0.25	0.65						
Alum, incorporate	0.9	0.03	0.04	0.21	0.28	0.62						
Source: Marcel Aillery, et al., USDA Economic Research Service, Managing Manure to Improve Air and Water Quality, Economic Research report No. (ERR)) 65 pp, September 2005. <a href="http://www.ers.usda.gov/publications/ERR9/">http://www.ers.usda.gov/publications/ERR9/</a>												
Source: WORLD BANK/IFC EHS Guidelines for POULTRY PRODUCTION 2007, page 15												

#### A.2.4. Energy and water consumption

- Please state the energy consumption for the various activities in the table below (depending on whether broilers or laying hens are kept).

Energy consumption in poultry production				
Activity	Estimated energy consumption <sup>a</sup>		Project Value	
	Broilers	Laying hens	Broilers	Laying hens
Local heating	13-20	--		
Feeding	0.4-0.6	0.5-0.8		
Ventilation	0.10-0.14	0.13-0.45		
Lighting	--	0.15-0.40		
Egg preservation <sup>b</sup>	--	0.30-0.35		
Notes:				
<sup>a</sup> Wh per bird per day				
<sup>b</sup> Wh per egg per day				
Source: EC (2003)				
Source: WORLD BANK/IFC EHS Guidelines for POULTRY PRODUCTION 2007, page 14				

- Please state the average water consumption in the table below (depending on whether broilers or laying hens are kept).

Water consumption in poultry production								
Type	Guideline Value				Project Value			
	Water consumption of poultry			Annual water consumption for cleaning of areas <sup>d</sup>	Water consumption of poultry			Annual water consumption for cleaning of areas <sup>d</sup>
	Average ratio water/feed <sup>a</sup>	Water consumption per cycle <sup>b</sup>	Annual water consumption <sup>c</sup>		Average ratio water/feed <sup>a</sup>	Water consumption per cycle <sup>b</sup>	Annual water consumption <sup>c</sup>	
Broiler	1.7-1.9	4.5-11	40-70	0.012-0.120				
Laying hen	1.8-2.0	10	83-120	Layers (cages): 0.01 Layers (deep litter): >0.025				
<b>Notes:</b> Adapted from: EC (2003). Integrated Pollution Prevention and Control (IPPC). Reference Document on Best Available Techniques for Intensive Rearing of Poultry and Pigs. July 2003. Tables 3.11-12. p. 104-5 a Liters/kg b Liters/head/cycle c Liters/bird place/year d Use in m <sup>3</sup> per m <sup>2</sup> per year								
Source: WORLD BANK/IFC EHS Guidelines for POULTRY PRODUCTION 2007, page 15								

- If poultry is processed, please state the resources and energy consumption in accordance with the table below.

Resource and Energy Consumption			
Outputs per Unit of Product	Units	Benchmark Value	Project Value
Energy / Fuel			
Electricity	kWh/head	0.37-0.93	
	kWh/kg slaughtered animal	0.16-0.86	
Heat	kWh/head	0.69-0.97	
	kWh/kg slaughtered animal	0.03-0.50	
Total energy consumption	kWh/head	0.59-1.87	
	kWh/kg slaughtered animal	0.15-0.86	
Water Consumption			
	l/head	16.1-43	
	l/kg slaughtered animal	5.1-67.4	
Source: WORLD BANK/IFC EHS Guidelines for POULTRY PROCESSING, page 11			

### A.2.5. Hazardous materials

- What safety measures and/or control systems are planned to prevent accidents with hazardous substances/dangerous materials (disinfectants, antibiotics, hormonal products, pesticides)?
- Does an Integrated Pest Management (IPM) exist? If so, please describe it.
- Are measures for the handling of pesticides documented in a Pesticide Management Plan (PMP)?
- Are any pesticides used that are placed in hazard classes 1a and 1b by the WHO? If so, what pesticides?
- Are any pesticides used that are placed in hazard class II by the WHO? If so, what pesticides?
- Are any pesticides used that are listed in the Annexes A and B of the Stockholm Convention? If so, what pesticides?
- Are the guidelines of the International Code of Conduct on the Distribution and Use of Pesticides and the Revised Guidelines for Good Labelling Practice for Pesticides of the Food and Agricultural Organisation (FAO) adhered to?
- Please provide information on the handling of pesticides.
  - How is a secure storage, etc. guaranteed?
  - Is the personnel properly trained?

### A.2.6. Animal health/animal welfare

- Please provide specific information on the housing type (cages, enriched cages, barns, free range systems, etc.) as well as on aspects such as minimum cage size, number of animals per cage, stocking density (kg/m<sup>2</sup>) and other housing conditions (provision of litter, etc.).
- What measures are taken to prevent animal diseases/epidemics from spreading?
- How are sick and injured animals treated?
- Are “The Five Freedoms of Animal Welfare” from the IFC Good Practice Note “Improving Animal Welfare in Livestock Operations” guaranteed at the site?
- Do the conditions in which the animals are kept meet EU standards?
- Is it planned to export any products to the EU?
- If animals are slaughtered, is the slaughtering carried out in accordance with EU standards?

### A.2.7. Noise

- Are noise mitigation measures necessary or planned? If so, what measures?
- Please state the noise impact (existing background noise level and additional noise emissions of the project) on the nearest receptors (industrial estates and residential areas) in dB(A) for day and night after completion of the project in accordance with the table below.

Noise Level Guidelines <sup>1</sup>				
Receptor	One Hour LA <sub>eq</sub> (dBA)			
	Guideline Value Daytime (07:00-22:00)	Project Value Daytime (07:00-22:00)	Guideline Value Nighttime (22:00-07:00)	Project Value Nighttime (22:00-07:00)
Residential; institutional; educational <sup>2</sup>	55		45	
Industrial; commercial	70		70	
<b>Notes:</b> <sup>1</sup> Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, WHO, 1999. <sup>2</sup> For acceptable indoor noise levels for residential, institutional, and educational settings refer to WHO (1999). Source: WORLD BANK/IFC GENERAL EHS GUIDELINES 2007, page 53				

- Do the project's noise emissions lead to an increase of the background noise level at the nearest receptors by more than 3 dB(A)?

- How far is the nearest residential area away?

#### A.2.8. Occupational health and safety

- What safety measures and/or control systems are planned to prevent accidents?
- How are safety and health (in particular with regard to physical hazards, handling of toxic and hazardous materials, dust emissions, biological agents and confined spaces) guaranteed at the workplace?
- What average and maximum noise exposure is to be expected in the production? What safety measures are taken at workplaces where the noise exposure exceeds 85 dB(A)?
- How are subcontractors integrated into the health and safety measures on site?
- Please make accident statistics for the past two years available to us.

#### A.2.9. Health and safety of the population

- What measures are taken to minimise impacts and possible risks for adjacent communities in particular with regard to the storage and transport of chemicals, noise, odours, dust, traffic, the spreading of animal diseases and food safety issues?
- Are the standards set by the Hazard Analysis and Critical Control Points as well as the Codex Alimentarius met to guarantee food safety?

### B. Breweries/food and beverage production

- What brewing process will be used? Please give a technical description of the individual process steps and state the fuel used. What capacity will the plant have?

#### B.1. Energy and water consumption

- If breweries are concerned, please provide information on the water and energy consumption in accordance with the table below.

Energy and Water Consumption			
Outputs per Unit of Product	Unit	Benchmark Value	Project Value
<b>Energy<sup>a</sup></b>			
Heat	MJ/hl	85-120	
Electricity	kWh/hl	7.5-11.5	
Total Energy	MJ/hl	100-160	
<b>Water</b>			
Water consumption	hl/hl beer	4-7	
<b>Notes:</b> <sup>a</sup> Input and Output Figures for Large German breweries (capacity over 1 million hl beer) EC (2006) Source: WORLD BANK/IFC EHS GUIDELINES for BREWERIES 2007, page 10			

- What measures are taken to reduce the energy consumption?
- What measures are taken to reduce the water consumption?
- Does a study on the long-term and sufficient availability of groundwater and spring water exist and has a corresponding water balance been prepared where required?
- Is the project area an area where water is scarce?
- Please describe to what extent the water consumption (fresh and groundwater) affects the ecology of the environment and/or the water supply to the local population.

## B.2. Fresh water and effluents

- How much (fresh) water is used for cooling and production? Is the water recirculated?
- How and where is the water withdrawn?
- What waste water streams are generated?
- How are process, drainage and cooling water treated before they are discharged? Please also state whether effluents are discharged into a public sewage treatment system or into surface water bodies (river, lake, sea). If there are discharges, please provide information on the quantities of the wastewater streams (e.g. m<sup>3</sup>/h or l/s).
- If wastewater is discharged directly into a surface water body, please state the maximum values of the pollution levels in mg/l (table "Effluent Levels"). Occasionally, not all pollutants listed in the table are emitted or others specific to the project have to be added. Please inform us if that is the case.

Effluent levels for breweries/ food and beverage processing			
Parameter	Units	Guideline Value	Project Value
pH	S.U.	6-9	
BOD <sub>5</sub>	mg/L	25	
COD	mg/L	125	
Total nitrogen	mg/L	10	
Total phosphorus	mg/L	2	
Oil and grease	mg/L	10	
Total suspended solids	mg/L	50	
Temperature increase	°C	<3 <sup>b</sup>	
Total coliform bacteria	MPN <sup>a</sup> / 100 ml	400	
Active Ingredients / Antibiotics	To be determined on a case specific basis		
Notes:			
<sup>a</sup> MPN = Most Probable Number			
<sup>b</sup> At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity			
Source: WORLD BANK/IFC EHS GUIDELINES for BREWERIES 2007, page 9; WORLD BANK/IFC EHS GUIDELINES for FOOD AND BEVERAGE PROCESSING 2007. page 10			

- How and where are the effluents discharged? Please explicitly comment on a temperature rise at the point of discharge, describe possible effects of the discharge on the ecology of the water bodies and provide information on the condition and size of the water body (e.g. flow values, flow rate). Please give also details on protection measures.
- What national standards are applicable in the buyer's country for the discharge of sanitary sewage? How is sewage treated before it is discharged? Please state the expected maximum values of the pollution levels in the sewage. If there are no national limit values, please use the table below.

Indicative Values for Treated Sanitary Sewage Discharges <sup>1</sup>			
Pollutants	Units	Guideline Value	Project Value
pH	pH	6-9	
BOD	mg/l	30	
COD	mg/l	125	
Total nitrogen	mg/l	10	
Total phosphorus	mg/l	2	
Oil and grease	mg/l	10	
Total suspended solids (TSS)	mg/l	50	
Total coliform bacteria	MPN <sup>(b)</sup> /100 ml	400 <sup>(a)</sup>	
Notes: (a) Not applicable to centralized, municipal, wastewater treatment systems which are included in EHS Guidelines for Water and Sanitation. (b) MPN = Most Probable Number			
Source: WORLD BANK/IFC GENERAL EHS GUIDELINES 2007, page 30			

### B.3. Waste

- What relevant waste products are generated on site?
- What measures are taken to avoid, treat and dispose of the waste generated (solid/liquid) and where/how is it deposited?
- In the case of breweries please complete the following table.

By-products and Waste Generation			
Outputs per Unit of Product	Unit	Benchmark Value	Project Value
By-products <sup>a</sup>			
Spent Grains	Kg/hl beer	16-19	
Yeast & Lees		1.7-2.9	
Kieselguhr		0.4-0.7	
Liquid Wastes			
Liquid Effluents	hl/hl beer	3-6	
Beer Loss	%	1-5	
Notes:			
<sup>a</sup> Input and Output Figures for Large German breweries (capacity over 1 million hl beer) EC (2006)			
Source: WORLD BANK/IFC EHS GUIDELINES for BREWERIES 2007, page 9			

- In the case of food and beverages production please complete the following table.

Waste Generation in the Food and Beverage Processing Sector			
Solid Waste produced per tonne of product	Unit	Benchmark Value	Project Value
Maize	Kg	40	
Peas	Kg	40	
Potatoes	Kg	40	
Broccoli	Kg	200	
Carrots	Kg	200	
Strawberries	Kg	60	
Apples	Kg	90	
Peaches	Kg	180	
Source: WORLD BANK/IFC EHS GUIDELINES for FOOD AND BEVERAGE PROCESSING 2007, page 10			

#### B.4. Air emissions and odours

- What measures are taken to avoid/reduce air emissions (in particular dust) and odours?

#### B.5. Noise

- Are noise mitigation measures necessary or planned? If so, what measures?
- Please state the noise impact (existing background noise level and additional noise emissions of the project) on the nearest receptors (industrial estates and residential areas) in dB(A) for day and night after completion of the project in accordance with the table below.

Noise Level Guidelines <sup>1</sup>				
Receptor	One Hour LA <sub>eq</sub> (dBA)			
	Guideline Value Daytime (07:00-22:00)	Project Value Daytime (07:00-22:00)	Guideline Value Nighttime (22:00-07:00)	Project Value Nighttime (22:00-07:00)
Residential; institutional; educational <sup>2</sup>	55		45	
Industrial; commercial	70		70	
<b>Notes:</b> <sup>1</sup> Guidelines values are for noise levels measured out of doors. Source: Guidelines for Community Noise, WHO, 1999. <sup>2</sup> For acceptable indoor noise levels for residential, institutional, and educational settings refer to WHO (1999). Source: WORLD BANK/IFC GENERAL EHS GUIDELINES 2007, page 53				

- Do the project's noise emissions lead to an increase of the background noise level at the nearest receptors by more than 3 dB(A)?
- How far is the nearest residential area away?



## B.6. Occupational health and safety

- What safety measures and/or control systems are planned to prevent accidents?
- How are safety and health (in particular with regard to physical hazards, explosion risks, handling of toxic and hazardous materials, noise and vibrations, dust emissions, differences in temperature and pressurised gas systems) guaranteed at the workplace?
- What average and maximum noise exposure is to be expected at workplaces? What safety measures are taken at workplaces where the noise exposure exceeds 85 dB(A)?
- How are subcontractors integrated into the health and safety measures on site?
- Please make accident statistics for the past two years available to us.

## B.7. Health and safety of the population

- What measures are taken to minimise impacts and possible risks for adjacent communities in particular with regard to product safety issues?
- Are the standards set by the Hazard Analysis and Critical Control Points as well as the Codex Alimentarius met to guarantee food safety?

## C. Additional information

Additional information on the **Common Approaches**, our **environmental, social and human rights due diligence** and the **applicable standards** can be found at:

<https://agaportal.de/en/main-navigation/schnellzugriff-aga-konsortium/verantwortung>

The **World Bank/IFC EHS Guidelines** can be found on the website:

[http://www.ifc.org/wps/wcm/connect/topics\\_ext\\_content/ifc\\_external\\_corporate\\_site/ifc+sustainability/our+approach/risk+management/ehsguidelines](http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+approach/risk+management/ehsguidelines).