



COUNCIL ON ANIMAL AFFAIRS

ONE HEALTH:  
A POLICY ASSESSMENT FRAMEWORK

## Purpose and activities of the Council

The Council on Animal Affairs (Raad voor Dierenangelegenheden – RDA) is an independent council of experts that gives the Minister for Agriculture solicited and unsolicited advice on multidisciplinary issues in the field of animal welfare and health. The Council on Animal Affairs currently comprises around 40 members with very different backgrounds and expertise, who serve in a personal capacity and without interference or consultation.

The Council on Animal Affairs deals with issues across the spectrum of public policy on animals: about farmed and non-farmed, in other words animals that are ‘living in the wild,’ about hobby farm animals, about companion animals and about production and laboratory animals. The Council documents the outcome of its considerations in an advisory report. This gives details of the scientific and social background of an issue and gives advice on policy directions and solution directions for dilemmas. Consensus is not necessary: a Council advisory report can contain minority opinions.

## Preamble

The One Health concept, which emphasises the correlation between the health of humans, animals and the ecosystem, is gaining ground in the public debate. The ever more frequent occurrence of antimicrobial resistance and the increased attention for zoonoses play a role in this. There is now a broad acknowledgement of the need to choose an integrated approach to welfare, including the health of humans, animals and the ecosystem.

The Council on Animal Affairs has remarked on the need to be able to clarify policy decisions relating to One Health by using a structured and cohesive assessment framework. With the help of a framework that the Council introduced earlier, all considerations relating to the health of humans, animals, and the ecosystem have a place in the assessment, in a manner that everyone can understand. This advisory report gives an insight into the elements which, in the Council’s view, constitute the One Health assessment framework and into the values that have to be taken into account. The weight that is ultimately assigned to those values remains outside the set of criteria, checks and balances here because the choice has to be made

by those who are responsible for the policy. However, the advisory report shows what consequences the differences in assigning values can have. We cordially invite everyone to supplement the assessment framework presented here with information from their own area of expertise. We also welcome feedback from users of the assessment framework about how easy it is to use.

A sincere word of thanks is due here to several experts who have contributed in a personal capacity to this advisory report: J.H.T.C. van den Kerkhof of the National Institute for Public Health and the Environment (*Rijksinstituut voor Volksgezondheid en Milieu*) for the human domain, Dr W.F. de Boer of Wageningen University and Research centre for the ecosystem domain, and J.H.G. Goebbels, chair of the Dutch Meat Association (*Centrale Organisatie voor de Vleessector*) and of the Dutch Meat Manufacturers’ Association (*Vereniging voor de Nederlandse Vleeswarenindustrie*) for the BSE case study.

The Hague, December 2015

*Frauke Ohl, chair*

*Marc Schakenraad, secretary*

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RAAD VOOR DIERENAANGELEGENHEDEN

# One Health: an introduction

## Unsolicited advisory report

**Question:** How can a One Health approach help in evaluating the interests of humans, animals and the ecosystem as a whole in a transparent and balanced manner? What aspects of the welfare of animals have to be considered, how do they fit in alongside aspects of the human and ecosystem domains in an integral assessment framework and how can such a framework be applied in practice?

**Background:** A few years ago, an outbreak of Q fever needed an intensive approach that involved culling in-kid goats. Many humans became infected and some died. The debate still rages today as to whether the approach was appropriate. Before that, in the 1990s, the question arose as to whether it was necessary to slaughter 64,000 calves in the United Kingdom to combat mad cow disease (BSE), which could lead to Creutzfeldt-Jakob disease in humans. Even today, the link is regularly made between the use of antibiotics in animals and resistance to them among humans. To be able to tackle such issues in a transparent and cohesive fashion, the need arose for a cohesive assessment framework. Whenever appropriate, this could result in all the relevant aspects in the human, animal and ecosystem domains gaining a distinct place in the decision-making process.

Photo: Hans Roggen

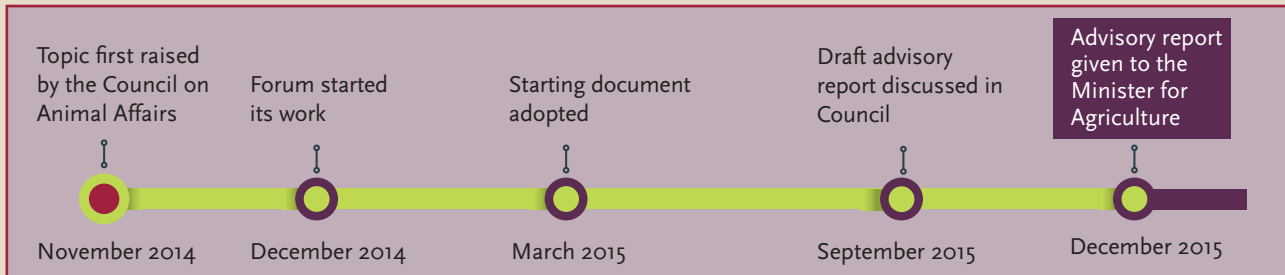


Arjan Stegeman

**Considerations:** In the development process, the issue was not what ought to result from an evaluation, according to Arjan Stegeman, chair of the forum that developed the advisory report. “We surveyed the factors that should play a role in a balanced evaluation and what relationship they have to each other. Users of the assessment framework that emerged from it can thereby see how they can reach meaningful conclusions, but not what those conclusions are.” Nor is that the intention, because the Council does not make policy choices. When the need arises, that is the task of the executive officer or the policymaker, by assigning a weight to each of the values in the framework. “If, as someone responsible for policy, you are challenged about a particular decision, you can show that you took

all the factors into consideration and how you did so,” says Stegeman, in everyday life Professor of Farm Animal Health at the Faculty of Veterinary Medicine in Utrecht. “For instance, you can show that the inherent dignity and worth of humans usually weighs more heavily than the intrinsic value of animals or the ecosystem.”

**Advice:** The advice consists of a diagram which shows the various elements that form part of an evaluation, and a list of points to which attention needs to be paid. How that can be done is demonstrated in two examples set out in an appendix: one of them, about BSE/Creutzfeldt-Jakob in the 1990s, taken from political history, the other on the basis of a fictitious case.



# One Health: a policy assessment framework

## 1 Introduction

Since the beginning of this century, more attention has been paid throughout the world to the One Health concept, which spotlights the health of humans, animals and the ecosystem. This is partly because of the increasingly frequent occurrence of antimicrobial resistance and the increased attention for zoonoses – infectious diseases that are transmitted between humans and animals. These zoonoses include mad cow disease (BSE), Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome Coronavirus (MERS-CoV) and Ebola. It is now generally recognised that an integrated approach to the health of humans and animals is needed to combat zoonoses and antimicrobial resistance.

In practice, however, it is not always clear which parts of that One Health trinity have to be evaluated. It often looks as if One Health means that special attention is paid to how the health of animals (and the ecosystem) affects that of humans. It is possible that such an approach, which sees humans as its core, also provides the best result for the health of all three, but that is not clear in advance. Examples are culling in-kid goats to combat Q fever and cutting back the use of antibiotics to reduce resistance. In the first case, vaccination might have been sufficient; in the second, the question arises as to what consequences avoiding antibiotics has on the welfare of animals if improvements are not made at the same time to the livestock farming system.

## Research question

In this advisory report, an assessment framework is presented that aims to help take clear and complete decisions using a One Health approach. The main question is: How can all the interests of humans, animals and the ecosystem be evaluated in a transparent and balanced manner, using a One Health approach?

The following subsidiary questions arise from this main question:

- *What are the interests of animals that need to be considered?*
- *How do they fit into an integral assessment framework alongside aspects of the human and ecosystem domains?*
- *How can such an integral assessment framework be used in practice?*

As developments will always take place in the field of knowledge and public opinion, the One Health assessment framework will also have to undergo continual development. The Council cordially invites others to use their expertise to supplement the assessment framework.

## 2 The assessment framework

The assessment framework that is presented here is based on a framework that was described in 2010 by the Council on Animal Affairs in the ‘Agenda for public policy on animals’. In 2012, that assessment framework was revised by Ohl and Meijboom in the publication ‘*De mens centraal?*’ (Humans centre stage?) and applied for the purposes of illustration to the issues surrounding more recreation areas and Q fever. For this advisory report, that assessment framework has been further developed so as to serve as an instrument for making policy decisions that aspire to a One Health approach. The Health Council also uses flow charts to support decision-making, as in the 2014 report ‘*Werknemers en infectieziekten: criteria voor vaccinatie*’ (Employees and infectious diseases: criteria for vaccination).

The figure on page 8 shows in diagram form how the assessment framework is composed of various components. To demonstrate how it works, we take the approach to Q fever as an example. The two chosen alternative treatments – vaccination and culling in-kid goats, a possible source of infection – are meant as examples and are not the only potential solutions.

The left column in the figure shows the concrete policy evaluation. For example, how should the Dutch Government approach an outbreak of Q fever? The relevant values from the three domains, which have to be considered in the final evaluation, are fleshed out (see the figure on page 9) on the basis of scientific knowledge and public and ethical opinions on vaccination or culling.

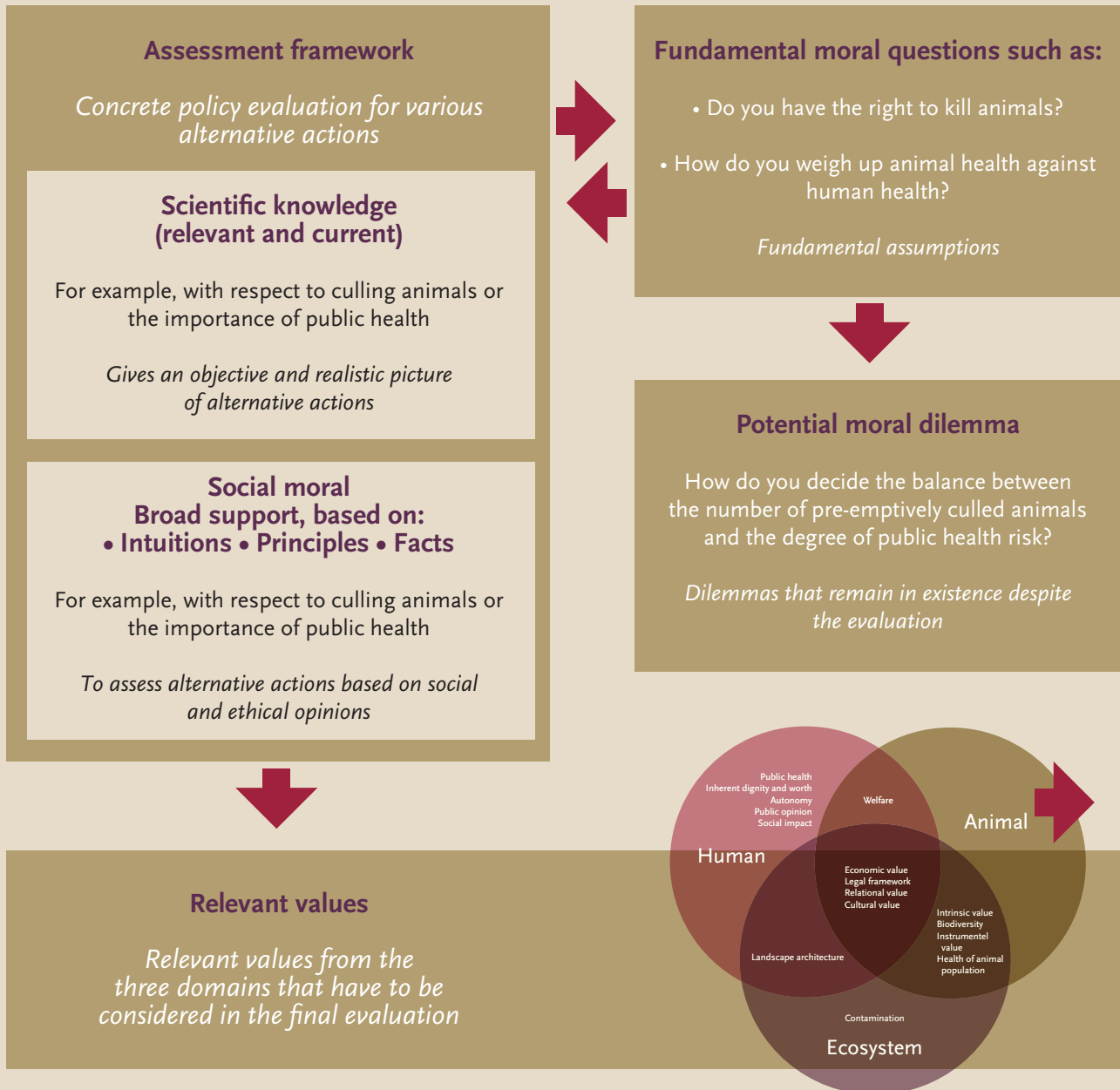
The right column in the figure on page 8 has two purposes. The first is to make the user aware of the fundamental

assumptions that drive the policy issue, by asking fundamental moral questions such as ‘Should you kill animals?’ and ‘How do you weigh up animal health against public health?’ The second purpose is to give a place to dilemmas that continue to exist despite careful evaluation. For example, ‘How do you determine the balance between a number of animals culled for preventative reasons and the degree of danger to public health?’



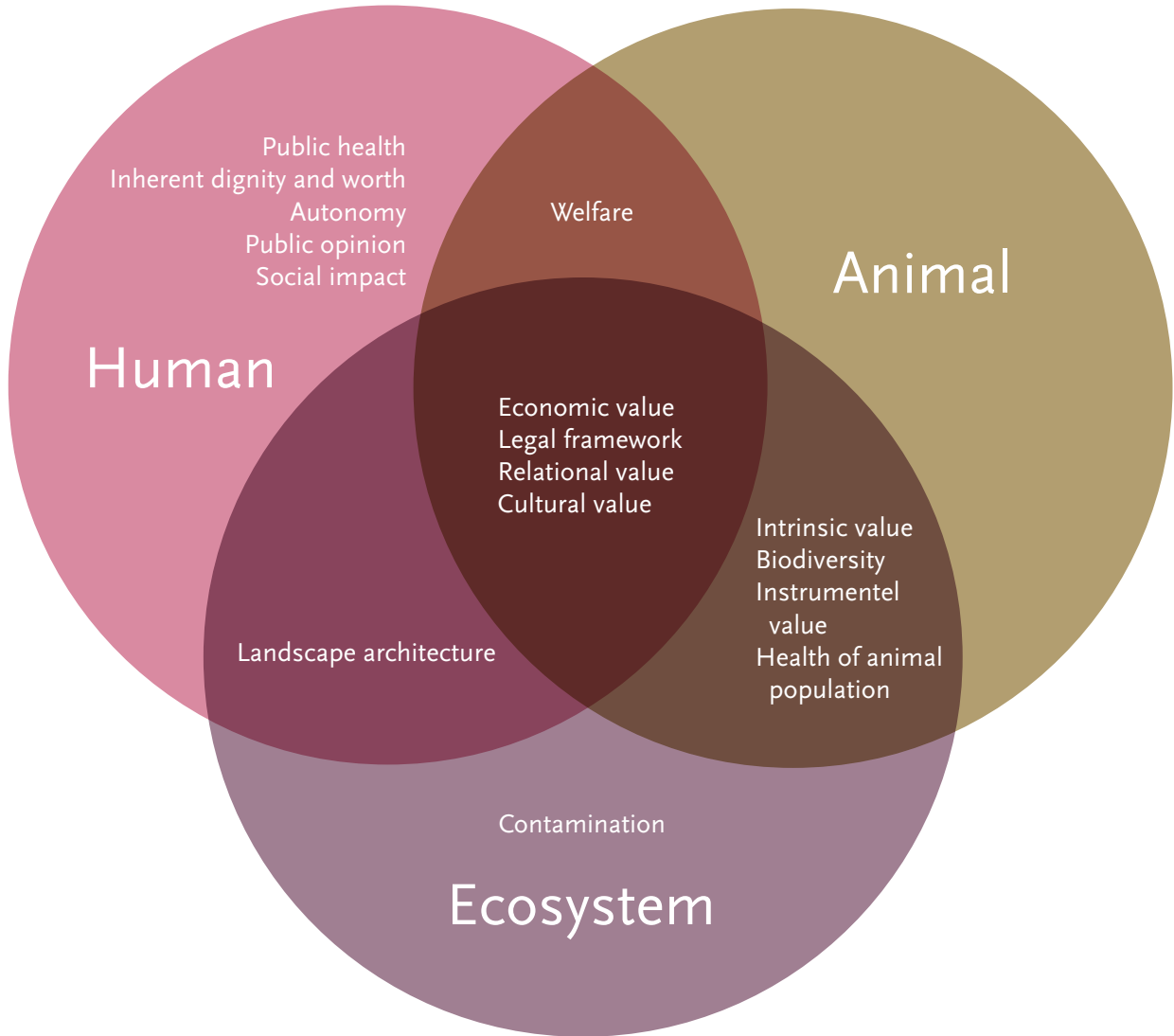
Photo: ANP Foto

# Diagram of the One Health assessment framework with Q fever as an example





# The relevant values for the final evaluation spread across the human, animal and ecosystem domains



To make the final evaluation, the relevant values listed below need to be considered, fleshed out and evaluated. These stem from the human, animal and ecosystem domains or from a combination of several domains.

- Legal framework
- Economic value
- Relational value
- Cultural value
- Public health
- Inherent dignity and worth
- Autonomy
- Public opinion
- Social impact
- Welfare (including health)
- Contamination
- Landscape architecture
- Intrinsic value
- Instrumental value
- Biodiversity
- Health of the animal population

Finally, it is important that the following three dimensions be considered when evaluating the relevant values:

- They must be assessed from both the individual and the collective perspective.
- The short-term and long-term effects of the measure considered must be examined.
- The positive aspects must be weighed up against the negative.

Sometimes, no information on certain values is available in a particular case. That does not make the framework unusable; it can equally well be used as a decision-making instrument. Subsequently, possible actions should be sought by looking at similar cases where information is available.

The content of the relevant values is examined in greater detail below.

Photo: ANP Foto



Pre-emptive culling at a cattle farm during the BSE crisis in 2008.

### 3 Values to be evaluated

The assessment framework provides a series of relevant values to be taken into consideration when making an evaluation according to the One Health principle. These are explained below and supplemented with some relevant questions to make everything more concrete. The legal framework is listed first because there are certain prohibitions under the law that can make a potential action impossible. The aspect ‘health of individual humans’ is classified under the value ‘welfare,’ in accordance with other advisory reports of the Council on Animal Affairs. The other values are arranged in alphabetical order.

#### Legal framework

Human, animal and ecosystem domains

Rights and obligations according to the laws and rules applicable in the Netherlands, as well as the implementation and enforcement of them. For the human, animal and ecosystem domains, the Public Health Act (*Wet publieke gezondheid*), the Animals Act (*Wet dieren*) and the Nature Conservation Act (*Wet natuurbescherming*) are of particular importance.

- *What legal framework is applicable to a particular issue?*
- *What room does the legal framework offer?*

#### Autonomy

Human domain

Autonomy refers to the fact that people can have their own possessions and take decisions independently. Sometimes this freedom is restricted by a government decision; for instance, when the transport of animals or goods is restricted in the event of a standstill or when a farm’s animals have to be culled.

- *What effect does taking a particular decision have on the autonomy of humans?*

#### Biodiversity

Animal and ecosystem domains

This concerns the variation within and between types of organisms in the ecosystem. For example, by deciding to cull rare or special animals, certain genes of that population of animals could be lost, resulting in less biodiversity. Contaminating an ecosystem could threaten the existence of a biological species, adversely affecting biodiversity.

- *What effect can taking a particular decision have on the biodiversity of animals?*
- *What effect can taking a particular decision have on biodiversity in the ecosystem?*

#### Cultural value

Human, animal and ecosystem domains

Cultural value relates to the habits and opinions of humans based on their cultural background. The value humans place on animals or the ecosystem is based partly on their cultural background, including their religion.

- *What role do animals play in different cultures?*
- *What role does the ecosystem play in different cultures?*
- *What effect can taking a particular decision have on cultural values?*

#### Economic value

Human, animal and ecosystem domains

Making a costs and benefits analysis forms part of the decision-making process. Negative image effects and damage play a role under ‘costs,’ as does possible loss of income caused by, for example, the loss of many years of genetic progress through culling. The equality or inequality of a commercial position and commercial interests in imports and exports can play a role too, along with the costs of medical treatment for animals or humans. There can also be ‘benefits’ under a particular alternative: costs

saved or direct revenue. In addition, costs and benefits can end up in different domains independently of one another: one domain is saddled with the costs while another domain benefits. Finally, the ecosystem has an economic value that has to be weighed up.

- *What decision is preferable from an economic viewpoint?*
- *What does a particular decision mean for the commercial position of the Netherlands?*
- *What decision is the most sustainable in the long term from an economic viewpoint?*
- *How can the economic value of the ecosystem be expressed?*

## Health of the animal population

### *Animal and ecosystem domains*

This value relates to the health of animals at population level and occurs in the overlap between the animal and ecosystem domains. There are several reasons for this classification: firstly it concerns both farmed and non-farmed animals, secondly the health of these different populations can influence one another (with respect to infectious contagious diseases such as avian flu or swine fever) and thirdly they both have an effect on the ecosystem and vice versa. Factors that have an effect on the health of a population of farmed animals include vaccination, housing and habitat, food and veterinary care. In the case of infectious animal diseases, the way in which they are transmitted, the morbidity, the mortality, the risk, the severity and the duration of the disease play a role in the health of the population. Here, risk means the likelihood of a particular situation arising multiplied by the consequences of such a situation. The health of a population of animals is sometimes directly related to public health, in terms of zoonoses – and their epidemiology – and of food safety. Animal health can also have implications for commerce and commercial interests. In specific cases, the Dutch Government will have to decide whether or not to

take action, and in the former case alternatives will have to be weighed up against each other.

- *What is the epidemiology (means of transmission, morbidity, mortality, risk, severity and duration) of an infectious animal disease?*
- *How great is the risk to the health of animal populations on the basis of this epidemiology?*

## Inherent dignity and worth

### *Human domain*

This relates to human dignity and worth as set out in the fundamental principle of the Universal Declaration of Human Rights.

- *What impact does a particular decision have on human dignity, worth and autonomy?*
- *What influence does a particular disorder have on the way people function?*

## Instrumental value

### *Animal and ecosystem domains*

The value of an animal or the ecosystem in the service of human goals. People can assign different instrumental values to the same animal or ecosystem. For instance, the instrumental value of a pair of animals is different for a cattle farmer than for the rest of society.

- *What instrumental value does an animal or a group of animals have, and for whom?*
- *What instrumental value does the ecosystem have, and for whom?*

## Intrinsic value

### *Animal and ecosystem domains*

This is the value that an animal has ‘in itself,’ apart from the functional value that it has to humans. Both farmed and non-farmed animals have an intrinsic value. The intrinsic value of the ecosystem covers the green and



the grey environment, in other words nature and flora & fauna as well as air and water quality. The health of an individual tree or even an entire forest comes under intrinsic value too.

- *What effect does a particular decision have on the intrinsic value of an animal?*
- *What effect does a particular decision have on the intrinsic value of the ecosystem?*

## Landscape architecture

### *Human and ecosystem domains*

The architecture of the landscape affects both humans and the ecosystem: ecoducts, urban ecology and designing areas according to the use of the soil, for example.

Landscape architecture affects the health of animals and humans through the role and transmission patterns of non-farmed animals and possibly of other vectors in the case of infectious diseases.

- *What effect does a particular landscape architecture have on humans?*
- *What effect does a particular landscape architecture have on the ecosystem?*

## Social impact

### *Human domain*

The consequences of a particular occurrence or decision on society and the extent to which they correspond to perceived moral values in society. Social impact is closely

Photo: ANP Foto



connected to cultural value and public opinion, but is not identical to them. Taking a decision in accordance with the One Health approach can have a particular impact on a person, a group of people or the whole of the Dutch population.

- *What social impact is likely to be produced by a particular decision?*

## Public opinion

### *Human domain*

Public opinion is a prevailing widely-held opinion that is based on perceived social values. Out of respect for the autonomy of private individuals, the government acknowledges that public opinion should be seen and taken into account as a relevant factor in the decision-making process, various parties, including the media, play a role in disseminating as well as in influencing public opinion. There is a close correlation with cultural value: the value that people assign subjectively to a particular animal or animal species or to the ecosystem influences public opinion.

- *What is the public opinion on the topic on which a decision is to be taken?*
- *What role do parties such as the media play in influencing public opinion?*
- *How great is the perception of a particular risk to public health?*

## Relational value

### *Human, animal and ecosystem domains*

Here, relationship means the emotional ties of an individual with other people, with an animal or animals or with the ecosystem. An owner can be attached to his animals or to a particular place, such as a wood. Interactions between people count here too, for example social interaction when walking with a pet, or interactions between

cattle farmers (and their family) and the rest of society.

- *What effect does a particular decision have on the relationship between people?*
- *What effect does a particular decision have on the relationship between a livestock owner and his animals?*
- *What relational value do people attach to the ecosystem or part of it?*

## Contamination

### *Ecosystem domain*

Contamination of the ecosystem by hazardous substances. Examples of this are greenhouse gases, CO<sub>2</sub> footprint and contamination of soil or soil water. Both the short-term and the long-term effects of a decision form part of the evaluation.

- *Does taking a particular decision lead to contamination of the ecosystem?*
- *What are the short-term and the long-term effects of a decision on contamination of the ecosystem?*

## Public health

### *Human domain*

This relates to all the aspects of the health of the population of the Netherlands at a higher aggregation level, including the social aggregation level. Many factors influence it, such as food security and food safety, as well as the possibility of taking part in sport or relaxing in a recreation area or an area of high ecological value. An infectious animal disease that can be transmitted to humans forms a risk to public health. In assessing that risk, the morbidity, mortality, prevalence, severity and duration of the disease for both humans and animals are important. Risk also means the likelihood of occurrence multiplied by the consequences of such a situation. The movement of persons and goods has an influence on public health because it can contribute to spreading vectors or diseases.

People who come into contact with animals professionally run a high risk, but are in principle aware of it: butchers, cattle farmers and vets for instance. There are also people who are not aware of the risk or run an involuntary risk of infection, such as local residents, passers-by and persons involved by chance, as well as people who run a risk – involuntarily or otherwise – by taking particular actions or buying particular products. Within all those groups there are people with a weakened immune system, including children, the elderly, pregnant women and people who are being treated for a chronic illness.

- *What is the epidemiology (means of transmission, morbidity, mortality, risk, severity and duration) of a particular zoonosis?*
- *How great is the risk to public health on the basis of this epidemiology?*
- *How do farmed and non-farmed animals affect public health?*
- *How does the ecosystem affect public health?*

## **Welfare (including health)**

### *Human and animal domains*

The Council on Animal Affairs believes that animals have their own intrinsic value and therefore that animals, as feeling creatures, are entitled to their own welfare. In the Netherlands, the intrinsic value of an animal is regulated by law. According to the definition employed by the Council on Animal Affairs, an individual – human or animal – is in a state of welfare when it can actively adapt its living conditions and thereby achieve a situation that it considers positive.

- *What significance does a particular decision have for the welfare of the humans concerned?*
- *What significance does a particular decision have for the welfare of the animals concerned?*

The Council sees health as part of welfare. At an individual level, health relates to how humans or animals function within their normal biological limits. They should be in “a state of complete physical, mental and social well-being,” according to the definition of the World Health Organization (WHO). The health of humans and animals may be closely connected. In a negative sense, that is the case with a zoonosis, an infectious disease in the animal domain that can also cause problems for humans. Keeping an animal can also have a positive influence on the development of children or on human health (for instance because they get more exercise by walking a pet).

- *What effect does a decision have on the health of individual humans?*
- *What effect does a decision have on the health of individual animals?*
- *How and to what extent do the health and welfare of an individual human and an individual animal influence each other?*





## 4 Conclusion

In this advisory report, an assessment framework is presented that aims to help take clear and complete decisions using a One Health approach. The main question is: How can all the interests of humans, animals and the ecosystem be evaluated in a transparent and balanced manner, using a One Health approach? The answer to this is given by using the assessment framework described here and in particular by the relevant values. By identifying and evaluating the values from the human, animal and ecosystem domains, all the interests are considered, so that balanced and transparent decisions are taken. Consequently, the assessment framework contributes to an integrated approach to all the interests of humans, animals and the ecosystem – One Health – and in a balanced and transparent manner, as formulated in the main question.

The first subsidiary question is ‘What aspects of the health and welfare of animals are relevant when weighing up a One Health decision, both empirical and normative?’ The answer to this can be found in the relevant values that correspond with the animal domain: legal framework, economic value, relational value, cultural value, welfare (including health), health of the animal population, intrinsic value, instrumental value and biodiversity.

The second subsidiary question is ‘How do these aspects fit into an integral assessment framework, alongside the aspects from the human and ecosystem domains?’ The answer to this can be found in the images on pages 8 and 9, which depict the relevant values within the entire assessment framework.

The final subsidiary question is ‘How can such an integral assessment framework be applied in practice?’ The framework can be applied in practice by making evaluations that require a One Health approach. The case study about mad cow disease (BSE) in the appendix shows that decisions can be declared retroactively through elements from the assessment framework. In the future, the aim ought to be to apply the framework visibly so that decisions are transparent and the policy is demonstrably consistent. The framework presented here says nothing about the results or the ultimate decision-making. The responsible policymaker assigns weight to all the relevant values, so there is no single unique outcome of the evaluation. The strength of the framework is that it involves giving consideration to all the values so that decisions requiring a One Health approach are taken in a transparent and clear manner. Ultimately, at the end of the process the practicability – finances, time frame and enforceability – of the decision to be taken are considered.

The Council on Animal Affairs cordially invites others to supplement the assessment framework with information from their own area of expertise.

## Appendices

### Appendix 1 Two case studies

To clarify the procedure and significance of the various parts of the assessment framework, it is applied in this advisory report to two examples:

- *the case of BSE involving culling calves imported from the United Kingdom in the period when infection of cattle with Bovine Spongiform Encephalopathy and of humans with the related Creutzfeldt-Jakob disease was common (1985-1995) and*
- *the fictitious case of a non-existent infection that appears to be transmitted to children by imported guinea pigs.*

### Case BSE/mad cow disease

Starting in 1985, cattle in the United Kingdom were faced with an outbreak of an unknown disease, later known as Bovine Spongiform Encephalopathy (BSE) or mad cow disease. In the course of time, it turned out that humans who had eaten meat products from infected cattle could contract a new variant of the deadly Creutzfeldt-Jakob disease. The first fatality occurred on 21 May 1995. In 1996, the Dutch Government took a decision based on this suspicion of a transmissible disease about which little was known. All 64,000 head of beef cattle that had previously been imported from the United Kingdom had to be destroyed, along with all the meat and meat products imported from the United Kingdom. That decision was a response to the debate about the possible dangers to public health and consumer confidence in beef.

In this case study, relevant values from the assessment framework have been considered, to see how they played a role. It is not clear whether or how each of the values were evaluated in the decision-making process.

### Legal framework

In 1996, a lot of uncertainty about BSE existed within the Dutch Government. Because of the suspicion that the disease might be transmissible to humans, the precautionary principle was used: an unwritten rule that is used by governments and policymakers. Nowadays this principle can be found in for example the ‘Communication from the Commission on the precautionary principle’ of the European Commission in the year 2000.

The procedures for transporting and culling calves and destroying blood, corpses and meat so as to destroy hazardous prion proteins relied on Dutch legislation. This is currently enshrined in the Animals Act (Wet dieren), the Animal Health and Welfare Act (Gezondheids- en welzijnswet voor dieren) and Council Regulation (EC) no. 1069/2009 of the European Parliament and the European Council.

### Autonomy

It is conceivable that both the effect of Creutzfeldt-Jakob on the way humans function and the autonomy of cattle farmers in relation to reporting on their calves played a part. However, we do not know precisely whether and how these issues were considered when the decision was taken.

### Biodiversity

This value is not relevant to this case.

### Cultural value

We do not know what people of different cultural backgrounds think about beef calves and the ecosystem, or what role this value played in the decision.



## Economic value

Consumer confidence played a significant part in the decision-making process. By ensuring that British beef disappeared from the shelves, ‘safe’ Dutch beef could stay on the market, so the price did not fall as sharply as in the UK. The cattle farmers concerned got compensation from the government. The decision to ban all British meat benefited the export position of the Netherlands. Reputational damage, a drop in demand and price reductions could therefore be prevented.

The destruction of beef calves did not save any human medical costs. Because of their age when the decision was made and at the time of culling in relation to the incubation time, the animals could not have formed a risk to public health. However, the destruction of imported meat products from the UK did save medical costs for humans and animals.

## Health of the animal population

The health of the cattle population is influenced by the prevalence of the disease, the way in which it spreads, the likelihood of infection and the severity and duration of the disease. Many of these factors were still unknown when the decision had to be taken.

## Inherent dignity and worth

The decision has to do with people’s self-esteem in the sense that it is undesirable for people to contract Creutzfeldt-Jakob disease by consuming certain meat products. This is related to the inhabitants of the Netherlands’ right to health and health care.

## Instrumental value

The instrumental value of the calves to the cattle farmer is expressed in the compensation that was paid. We do not know whether and how the instrumental value of the ecosystem played a role in the decision.

### **Intrinsic value**

We do not know whether the intrinsic value of the calves – the value that the animals derive solely from themselves – was taken into consideration when making the decision. The decision itself suggests that this intrinsic value was secondary to the potential risk to public health and consumer confidence.

### **Landscape architecture**

This value is not relevant to this case.

### **Social impact**

It is unclear whether, at the time the decision was taken, a picture existed of the social impact and its reliability. We do know, however, that there was an impact, because of the protests against the culling of the calves.

### **Public opinion**

It is not entirely clear whether and how public opinion was considered during the decision-making process. It is hard to say whether the media and consumer confidence played a role in 1996 and how big that role was.

### **Relational value**

We do not know precisely whether Creutzfeldt-Jakob disease had an effect on the relationship between people and what effect that might have been. It is conceivable that the status as potential infectors affected the social position of the cattle farmers. It is also conceivable that Creutzfeldt-Jakob disease can have considerable consequences for patients and people close to them.

### **Contamination**

We do not know whether and how the effect of the decision on the ecosystem, via the destruction process, was

taken into account. Potentially infected meat and bone meal was collected for destruction, but because of the limited destruction capacity it remained in storage for a while. That could have been a hazard for the ecosystem, for instance in the form of soil water pollution if it was washed away by rainwater.

### **Public health**

At the time of the decision, the risk to public health was difficult to assess because of a lack of information about BSE and the relationship with Creutzfeldt-Jakob disease. The Netherlands therefore took a decision based on the precautionary principle. The debate about public health and food safety played an important part in this.

### **Welfare (including health)**

The decision was taken to alleviate society's fears over potential public health risks. After all, being ill affects people's welfare, because in principle a person's welfare is eroded when he or she is ill. The welfare of the calves in the process after the decision was taken, was protected by statutory regulations on the transportation and culling of the animals. The health of each of the calves destroyed played no apparent role in the decision relevant to this case. An effort was made to protect the health of individual people through the use of the precautionary principle.

### **Conclusion**

In this case, the policy decision was taken to cull 64,000 head of beef cattle imported from the United Kingdom and to destroy British meat products in the Netherlands. That decision was taken more on the basis of public opinion and economic value – in particular the commercial and export position of the Netherlands – than on the basis of scientific arguments. Nevertheless, the lack of clarity with respect to particular values does not necessarily mean

that the wrong decision was taken. One of the purposes of the assessment framework is to make the user aware of the values that play a role in the evaluation so that, hopefully, in the future clarity can be given on matters that are now unclear. The destruction of British meat products helped to protect public health because potentially infected material was made unavailable to consumers. The decision to cull the beef calves made no difference to public health, since the animals did not represent a danger to public health because of their age. From that point of view, the assessment framework can be used in the future as an instrument for such policy decisions. It shows what interests from the three domains ought to get a place in the evaluation, so the model makes the decision-making process transparent and clear.

In the assessment framework, fundamental moral questions and moral dilemmas come to the fore, as well as the values and policy decision that are to be weighed up. In the present case, a possible fundamental moral question is ‘To what extent should we influence the welfare and integrity of animals so as to protect the health of humans, animals and the ecosystem?’ A moral dilemma that comes to the fore in this case is at what price the welfare and integrity of animals should be manipulated so as to call a halt to the debate on potential public health risks and to retain consumer confidence in beef? This moral dilemma still exists, despite the evaluation and the decision that was taken.

## Case study – outbreak of infectious animal disease

The second case study relates to a fictitious outbreak of an infectious disease among children. The flu-like symptoms lead to panic in the Netherlands. A child has

been admitted to hospital with a severe lung infection. The local health authority suspects this may be linked to guinea pigs that were purchased from a well-known garden centre and that probably came from a breeder in Romania, but the supply line is hard to trace. Meanwhile, more children have become ill and the first child admitted to hospital has died.

Broadly, the Dutch Government has the following possibilities:

- 1) Take no action
- 2) Pre-emptive culling of the guinea pigs in question
- 3) Have the guinea pigs in question examined/treated by a vet
- 4) Dissuade children from interacting with the guinea pigs in question, as a precautionary measure

By making an evaluation in which the relevant values shown below play a role the Dutch Government can arrive at a transparent and clear decision.

### Legal framework

The prevailing laws and rules of the Netherlands must be observed when evaluating whether or not to take action. Prescribed procedures with respect to particular action also have to be taken into consideration. In this case the Animals Act (*Wet dieren*), the Animal Health and Welfare Act (*Gezondheids- en welzijnswet voor dieren*) and the Public Health Act (*Wet publieke gezondheid*) play a role.

### Autonomy

The guinea pigs are damaging public health. Children who have become ill are unable to function normally. The effect on the autonomy of humans must be weighed up for the various action perspectives.

## **Biodiversity**

The guinea pigs are domesticated animals. Taking action or not would therefore not have an effect on biodiversity, but the rarity of the guinea pigs concerned does play a role. If they are of a special breed and the loss of their genes would have a very negative or positive effect on the population, it is essential for this to be taken into account. Medicines used for children or guinea pigs can influence the ecosystem and thereby threaten biodiversity.

## **Cultural value**

The question here is what the different cultures involved think about issues such as guinea pigs as pets and killing animals.

## **Economic value**

There is a need for a costs and benefits analysis of whether or not to take action, and in the first case also of the various action perspectives. The financial value of the guinea pigs and the loss suffered by the owner from government actions must be estimated. The owner of the garden centre might lose income, his competitiveness might decline, and he might be faced with claims for damages from parents of infected children. The medical costs of the sick children and, potentially, sick guinea pigs need to be included in the evaluation, as well as the costs that would arise if the government took action.

## **Health of the animal population**

We do not know whether the guinea pigs will become ill from the infection. If they do, the way in which the disease is spread, the degree of infection, the risk, the severity and the duration of the disease for the guinea pigs themselves play a role. If people were to dump infectious guinea pigs in surrounding areas or in the wild, that could affect the health of other animals (farmed or non-farmed). That could form a public health risk.

## **Inherent dignity and worth**

It is not desirable for children to be unable to function normally because they have caught a disease from the guinea pigs. Sick children in the Netherlands have a right to health and health care.

## **Instrumental value**

Guinea pigs kept as pets have entertainment value for their owners. The guinea pigs also have financial value for the owner of the garden centre.

## **Intrinsic value**

The value that the animals derive solely from themselves must play a role in the evaluation. This applies if, for example, pre-emptive culling of the guinea pigs is considered.

## **Landscape architecture**

The decision to be taken does not appear to have a direct influence on the landscape architecture. That would be different if people were to dump guinea pigs in surrounding areas or in the wild, thereby possibly infecting other farmed and non-farmed animals. That could again form a public health risk.

## **Social impact**

The evaluation must take account of the impact that various action perspectives could have on society.

## **Public opinion**

An estimate must be made of public opinion on the situation and on the fate of the guinea pigs. For example, society as a whole might develop an aversion to guinea pigs, with all that that entails. The media play a role in influencing public opinion.

## Relational value

The relationship of the owner – both the garden centre operator and the pet owner – with his guinea pigs must be considered in the evaluation, as well as the social impact on the owner because people see him as partly responsible.

## Contamination

The possibility of contamination of the ecosystem by particular courses of action must be taken into consideration in the evaluation.

## Public health

If the government does nothing, more children could fall ill. Taking measures could limit the spread of the disease. A distinction must be made in the evaluation between three groups: humans who come into contact with guinea pigs in the course of their work, such as vets; humans who could be infected unknowingly, via the air for instance; and humans who voluntarily take a particular risk, for example by shopping in the garden centre concerned despite the risks. As nothing is yet known about the infection the government has to take a decision without adequate knowledge about the way in which the disease is spread, the degree of infection, the risk, the severity and the duration of the disease.

## Welfare (including health)

The effects on the welfare of the infected children and of people close to them must be considered. Steps must be taken to prevent more children from becoming ill. To assess the seriousness for children, account needs to be taken of the way in which the disease is spread, the duration, degree of infection and severity of the disease and the mortality risk from the disease. In this case study, we do not know whether the guinea pigs themselves will become ill. If this is the case, the severity of the disease

for the guinea pigs must also be assessed and considered on the basis of the factors mentioned above.

The interaction of the children with the guinea pigs and the effect that has on the welfare and health of the children and on their emotions plays a role here as well. At the same time, the welfare of the animals must be considered in the evaluation. Would it be affected if the government does not take action and how would it be affected if the government does take action?

## Conclusion

The purpose of this fictitious case is to give an insight into how the assessment framework works, as well as the relevant values from the three domains that have to be identified and weighed up against each other. The latter step – the evaluation itself – has not been included here. In this fictitious case, fundamental moral questions and moral dilemmas also come to the fore. An example of a fundamental moral question with respect to this case is ‘To what extent do we have the right to influence the freedom and autonomy of humans to foster the health of humans, animals and the ecosystem?’ A moral dilemma that emerges in this case is when and to what extent the Dutch Government should intervene in a business or private setting with a view to potential public health risks. This moral dilemma still exists, despite the evaluation and the decision taken. The ultimate decision in this case has not been mentioned. The decision would ultimately be taken on the basis of the evaluation of the relevant values according to the point of view of the policymaker responsible.





Photo: Dierenbeeldbank

## Appendix 2 People involved in this advisory report

### Members of the forum that prepared this advisory report

This advisory report is a product of the entire Council on Animal Affairs. It was prepared by a forum chaired by Prof. J.A. Stegeman; the other members were Prof. L.J. Hellebrekers, Prof. M.C.M. de Jong, Prof. F. van Knapen, Dr F.L.B. Meijboom and P.J. Vingerling. The forum secretary was F. van Kaam BSc.

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