








Review

Addressing Animal Welfare through Collaborative Stakeholder Networks

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Abstract: In this review, we discuss animal welfare as a complex and contested issue facing society and outline why collaborative, multi-stakeholder approaches are critical for effective policy development. Using the lens of “wicked problems” and drawing upon governance literature on policy networks, we identify important factors for working with the inherent complexity of animal welfare through the inclusion of various stakeholder perspectives. We present two case studies that illustrate policy network approaches to animal welfare and highlight the value of fostering collaboration among various stakeholder groups from the industry, community, research, and government sectors. We suggest that the influence of stakeholder networks will likely increase in coming years as newer forms of participatory governance become common. By understanding how collaborative stakeholder networks establish participatory governance, productive communication, and collective priorities, leaders in the field of animal welfare can more productively engage with stakeholders and achieve long-lasting improvements in animal welfare.

Keywords: animal welfare; collaboration; stakeholder networks; policy networks; wicked problems; participatory governance

1. Animal Welfare: A ‘Wicked Problem’

Over the last half century, the production of animals has increased substantially to meet the growing demands of society [1]. Since 1961, the global human population has increased by a factor of 2.4, but our meat consumption has increased by a factor of 4.7. Relative to the 1960s, twice as many cattle, four times as many pigs, and more than 10 times as many chickens are now raised in production systems [2], with the animals weighing 20–30% more on average [3]. These dramatic increases in animal production have prompted many to question the environmental sustainability of the food system, as well as the welfare of the animals that we use [4]. Both consumers and non-consumers of animal products have driven the public discussion of animal welfare in the context of production, with a marked rise in public concern over the last two decades [5]. Many country members of the Organization for Economic Cooperation and Development (OECD) have responded by reviewing their animal welfare standards and guidelines. Efforts by governments to reach a consensus for animal

welfare standards have been particularly challenging, given that the value sets of specific individual stakeholders and interested parties tend to dominate the discourse [6].

One of the policy challenges in defining animal welfare standards is that the term “animal welfare” is used in a variety of contexts with different meanings [7]. Some of the conceptual frameworks used to describe animal welfare include the “five freedoms” [8], the “five domains” [9], and “a life worth living” [10]. According to Broom (1986), the welfare of an animal relates to its state regarding its attempts to cope with its environment [11]. Animals use many coping mechanisms, including physiological responses, behavioral responses, responses to pathology (health), and adaptive brain systems, including feelings such as pain, fear, and pleasure [12]. Decades of research have explored sentience in animals—that is, the extent to which they are aware of themselves and their environment and their ability to experience pleasurable and aversive states [13–15]. Anatomical, pharmacological, and behavioral data suggest that pain, fear, and stress are likely to be experienced by at least the vertebrate species, and even by cephalopods and decapods, but sentience in fish has been debated [14,16–18]. Many people point to the science on sentience to inform ethical debates over whether animals should be used and the extent to which society is obligated to protect animals. It is important to distinguish between the biological concept of animal welfare, which is a characteristic of an individual animal, and the societal issue of animal welfare (or animal protection), which encompasses human activity to ensure the good welfare of animals [12]. Although they are different concepts, there are interdependencies between the two, and both are relevant to policymaking.

Due to the value-laden nature of societal questions related to animal welfare, the measures designed to protect the welfare of animals are continuously being debated and reviewed. The European Union has incorporated the concept of animal sentience into legislation [19,20], but other regions of the world have yet to follow [21]. Legislation often stipulates only the minimum standards for the protection of animals, and its effectiveness depends on the level of enforcement, such as the ability to carry out inspections on farms, transport vehicles, sale yards, and processors [13]. Improvements to animal welfare can also be market driven, but historically there has been lack of economic incentive to accompany the ethical argument to improve animal welfare. Some animal producers may think it is too risky to implement costly changes to infrastructure, practices, or personnel to improve animal welfare when there is no guarantee that the costs will be outweighed by the economic value gained [22]. The majority of consumers do not consider welfare at the point of purchase [23], so producers are unlikely to receive a significant premium if they improve their welfare standards. However, some industries have recognized that the loss of business reputation with the public (“social license”) if animal welfare is not improved represents a major financial risk [24]. Public sentiment toward industry practices can manifest as voter pressure on elected politicians to make changes to legislation, which, in the most extreme cases, can shut down industries overnight [13,25]. Accordingly, we suggest that the various incentives to protect animal welfare in the animal production industries are changing. Clearly, the development of legislative and industry standards for animal welfare is a highly complex problem with potentially large adjustment costs and with the burden of responsibility falling to many sectors of society [26]. Therefore, one of the greatest challenges in the complex societal issue of animal welfare is the policy question: “how *can* we achieve change?”

Technocratic approaches to policymaking may be useful for addressing problems that are clear, bounded, and relevant only to a small number of actors [27], but what about problems that are fuzzy and complex and involve a great variety of actors? Animal welfare is a complex social issue involving multiple factors, interdependencies, value perspectives, and interests [7], making it ‘messy’. For such issues, policy change cannot be achieved through a straightforward administrative or technocratic approach to problem solving, because clarity and consensus are lacking [28]. It is arguable that in order to develop effective policies for animal welfare, we will need a more nuanced approach that accounts for the complexity of the issue in modern society. Along these lines, it may be useful to view the issue of animal welfare through the framework of ‘wicked problems’, which was proposed in 1973 by Rittel and Webber [29]. Wicked problems are issues for which the nature of the problem

and the preferred solution are both highly contested. They are societal problems for which the causal relationships are highly complex, there is great uncertainty in relation to risks and consequences, and there is a high degree of divergence in viewpoints and values [26]. Although the term ‘wicked problem’ is sometimes overused and may overlap with the concepts of ‘complex’, ‘enduring’, and ‘intractable’ problems [30], we argue that applying the framework of wicked problems to the societal issue of animal welfare may be helpful for clarifying appropriate policy options.

By using the lens of wicked problems for policy analysis, we can learn from approaches that have been developed for other wicked problems, including poverty and inequality, drug control, and terrorism [31]. Wicked problems such as these do not respond well to top–down, technical solutions. The differences in attitudes and values of the multiple social groups that are interested in a wicked problem make finding a clear solution difficult [26]. For instance, those who oppose meat consumption altogether may never find gradual improvements to the welfare of animals in production to be an acceptable solution. Likewise, some farmers may find it impossible to change the values and attitudes that have been bestowed on them by past generations. Given the intractability of views around animal welfare, further empirical evidence is unlikely to change the major differences among social groups. Therefore, appropriate strategies must acknowledge the need to adaptively ‘address’, ‘manage’, or ‘deal with’ the issue of animal welfare, rather than ‘solve’ it [32].

The most effective approaches to wicked problems are those that recognize and work *with* the inherent intractability of the issues rather than attempting to simplify or consolidate them [32], and by necessity these are adaptive, participatory, and transdisciplinary (APT) approaches [33]. By taking an APT approach to the societal issue of animal welfare, we suggest that decision makers may be able to achieve much greater progress in policy development than with classical, top–down regulatory approaches [32]. The APT approach is often realized through stakeholder networks, which foster inclusive discussion among a wide variety of stakeholders [29,31,33], including interested parties and communities. The strength of including various stakeholders is that they possess different assumptions, values, interests, and capacities that affect the problem definition and the ways in which it is addressed [31]. A collaborative approach to knowledge sharing among stakeholders and decision makers can build shared perspectives about the problems and help determine the next steps [33]. Such an approach has been advocated for climate change policy, emphasizing that it would provide more opportunities for policy learning and build mutual trust and cooperation among stakeholders [34]. The process of building trust among stakeholders through collaborative arrangements can often lead to more innovative and effective policy solutions [35]. In the following two sections, we suggest APT strategies for stakeholder networks in animal welfare, including recruiting various stakeholders from across the value chain and establishing productive mechanisms for collective action.

2. Recruiting Stakeholders from Across the Value Chain

It is important to involve stakeholders from various sectors in the societal discussion of animal welfare, as they can provide different types of policy-relevant knowledge and form a more complete framework for addressing multiple objectives. The relevant knowledge could include the know-how and judgment of political actors (political knowledge), the knowledge gathered systematically on current and past conditions and their causes (scientific knowledge), and the organizational knowledge associated with implementing programs (practical implementation knowledge) [27]. Below, we briefly outline a few sectors that are critical to the success of stakeholder networks in animal welfare.

2.1. Industry Sector

The industry sector is probably the broadest sector that is represented in stakeholder networks in animal welfare. The composition of stakeholders representing this sector depends on whether all animals are meant to be addressed by the stakeholder network or if the focus is on a particular use case, such as animals used for production. With regard to animals used for production, there are multiple stakeholders involved, including industry associations, research and development

fundings, industry consultants, veterinarians, agribusinesses, animal producers and transporters, meat processors, exporters, and retailers. We cannot overstate the importance of having industry *collaboration* in stakeholder networks in animal welfare (and not just *cooperation*, as we will discuss later). Simply put, any attempt to change animal welfare standards without a high level of industry support is doomed to fail from the start. Industry actors are those who will actually implement the reforms that might be proposed by the stakeholder network; therefore, it is critical that they actively participate in the deliberation and take ownership of the outcomes. Many regulatory programs and innovations in farming practice have met resistance from animal producers because they have sought input from industry *after* the structure and details have already been decided, and as a result, there are low levels of ‘adoption’ across the animal production industries [36,37]. In our view, adoption would increase if, from the beginning, meaningful participation and responsibility in the decision-making process were given to the industry associations, direct producers, processors, transporters, etc., who are expected to implement the solutions [38–40]. Retailers such as supermarkets should also be active participants in stakeholder networks, given the enormous power that they hold to shape the agri-food system [41]. Retailers have the closest connection to consumer perceptions and demands, and can therefore inform market-based solutions. With regard to industry participation in general, care must be taken with the power dynamics in the stakeholder network, especially if financial contributions are expected of members. If contributing industry stakeholders gain too much influence (whether that be real or perceived) over the decisions of the network, the legitimacy of the stakeholder network will be compromised, as it will be seen as an industry ‘front group’, and public trust will be lost.

2.2. Community Sector

The community sector has traditionally been difficult to define due to the existence of multiple ‘publics’ in any society [42]. As such, the community sector is often underrepresented in animal welfare policy forums. Animal protection organizations commonly act as representatives of the community in animal welfare discussions, although they may hold more definitive views on animal welfare issues than the average citizen. Several animal protection organizations and animal rights advocates have a strong public voice on issues related to cruelty to animals [25]. Given their influential role, we would suggest that organizations representing a variety of views on animal use be invited to participate in stakeholder networks. It is increasingly being recognized that stakeholder networks need to incorporate multiple community representatives with different perspectives, such as the media, consumer advocacy groups, school associations, and rural community associations, as well as animal protection and animal rights organizations.

2.3. Research Sector

Academic institutions and policy think tanks can contribute to collaborative stakeholder networks in animal welfare in two ways. The first is through the provision of knowledge, which is arguably their most important role. Animal welfare is a multifaceted issue spanning several academic disciplines, including animal science, environmental science, political science, psychology, neuroscience, and economics. However, the scientific knowledge may be locked away in scholarly journals and written in a way that is inaccessible to many other sectors of society. Therefore, one role for researchers in a collaborative stakeholder network could be to act as ‘honest brokers’ of knowledge by clarifying and sometimes expanding the scope of options for evidence-based action [43]. To do so, researchers would need to have additional skills in science communication and the aptitude for working with partners outside of academia. In this regard, think tanks are sometimes seen as delivering more practical and timely options to decision makers than traditional academic institutions. A risk is that the advice of think tanks could be perceived as supporting a particular view [44], which may not be ideal for informing discussions in ideologically diverse stakeholder networks. The other contribution that the research sector can make is particularly relevant to animal welfare networks—credibility and independence from political and financial interests in the eyes of the public. Although some would

highlight that researchers receive grants from government and industry bodies, they are still widely regarded as ‘independent’ (or as independent as one can be) in terms of political and ideological persuasion. The perceived independence of researchers from other sectors can be very useful within a stakeholder network, because they can gain the trust of multiple stakeholder groups, assume leadership roles when called upon, and act as mediators when conflicts arise.

2.4. Government Sector

Government bodies are often involved in cross-sectoral stakeholder networks, and sometimes they even initiate and sponsor these networks. The benefits of government involvement include legitimacy in the eyes of the public and the ability to leverage resources and influence [45]. Stakeholder networks in animal welfare rely heavily on government involvement, because legislation is one of the most commonly used policy tools for implementing animal welfare standards. Differences among states and territories in their legislation and capacity to enforce animal welfare standards continue to be major barriers to the improvement of animal welfare [46], so progress can be greatly accelerated by having the sustained commitment of public servants within the departments of agriculture at the federal and regional levels. While it is beneficial to involve government stakeholders, state-sponsored stakeholder networks can often involve slow processes of deliberation, detailed reporting obligations, and inflexibility in the face of the evolving experience of the network. With state-sponsored networks, there is always the threat that the network could be suddenly defunded and dismantled when there is a change of government or public agencies do not see quick, tangible wins [45]. Therefore, in our view, it is preferable that stakeholder networks in animal welfare not be solely state-sponsored. By maintaining a degree of autonomy, networks are more likely to weather changes in political sentiment and achieve long-term gains.

Given the wide variety of stakeholders in animal welfare, the question of how stakeholder networks in animal welfare can meaningfully involve all stakeholders while preserving their ideological autonomy merits close consideration. Prudence must be exercised when establishing the funding and governance models for a stakeholder network lest one sector dominate and compromise the independence of the network. The moment that a stakeholder network is thought to be ‘bought’, it loses all legitimacy, and in doing so loses its reason for existence. On the other hand, an under-resourced stakeholder network will have limited power to execute its objectives. The choice of a financial model will depend on the budgetary demands of the network and the willingness of the various stakeholders, including the public, to contribute.

3. Getting the Most out of Stakeholder Participation—The ‘Five Rs’

The question of ‘what works’ for addressing wicked problems has been explored extensively [47]. Termeer et al. identified four capabilities for dealing wisely with wicked problems: reflexivity, revitalizing, resilience, and responsiveness [48]. In addition, we suggest that a fifth element is essential if stakeholder networks in animal welfare are to work collaboratively: namely, building relational capital.

Reflexivity includes appreciating the plurality of perspectives to the problem and continuously re-evaluating the problem definition and the proposed solutions through these perspectives [48]. The appreciation that multiple views can coexist should be at the core of stakeholder networks in animal welfare, given the contentious nature of the issue. It is critical that each stakeholder who is involved be aware that his or her own way of portraying the situation is only one of many ways that it can be portrayed, and that each stakeholder attempt to consider multiple frames of reference when proposing solutions. Failure to do so can result in destructive misunderstandings and open conflict among stakeholders. The primary purpose of a stakeholder network in animal welfare should not be to change the existing values or views of the participants, but rather to find common interests and pursue action toward a common goal, i.e., improving the welfare of animals.

Revitalizing recognizes that conflicts and counterproductive patterns are likely to emerge within the stakeholder network, and the stakeholders involved must be able to recognize these patterns and

reanimate members of the network to pursue the collective goals [48]. As illustrated above, the issue of animal welfare is ‘messy’, so for stakeholder networks in animal welfare to be most effective, they must plan for disagreements. Strong leadership is critical for bringing parties to the table and mediating conflict [49]. A good leader will intervene in a conflict among stakeholders, not to take decisive action, but rather to ensure the integrity of the collaborative process and rekindle enthusiasm for the goals [50]. For conflict resolution to be successful, the facilitator must take a directive role in enforcing the rules of interaction and ensuring that the conflicting parties offer constructive solutions rather than make hostile demands [51]. For stakeholder networks in animal welfare, it may be useful to establish a standard conflict mediation process from the beginning so that when conflict arises, as it inevitably will, it is handled in a way that is perceived by all as fair and productive.

Resilience refers to the ability to adapt to the inherent unpredictability of wicked problems. To be resilient, a stakeholder network must be flexible enough to adapt its course of action to changing circumstances without losing its identity or purpose [48]. To the largest extent possible, stakeholder networks in animal welfare should try to foresee potential disturbances to their plans of action, including changes in societal expectations, sensational media releases, and natural disasters such as drought that compromise animal welfare. The more linkages that exist across boundaries, for instance among industry, consumer, media, and animal welfare groups, the more likely the network as a whole will be able to learn, adapt to disturbances, and minimize uncertainty.

Responsiveness is the ability of the stakeholder network to respond wisely to continuously changing demands of the different stakeholders without losing their trust or making promises that are beyond the stakeholder network’s ability to deliver [48]. Crises in animal welfare are often highly publicized, and it is likely that key stakeholders in the field will be asked to comment. To preserve the integrity of the stakeholder network, one option is for stakeholders to decline to comment at all. Another option is to agree beforehand that a joint statement will be made by the relevant stakeholders in response to the crisis regarding how they will work together to respond. The purpose of this approach is twofold: it will serve to subdue societal tension soon after the event, and it will maintain the reputation of unity of the stakeholder network by emphasizing that “we are all on the same team”. It is also important that stakeholder networks plan strategically for these dramatic events and the associated surge in public concern, as they represent “policy windows” during which substantial change can be achieved relatively quickly. Having an action plan already in place will ensure that any response by the stakeholder network to the crisis will have the effect of advancing the overall goals of the network.

Relational capital is the ability to establish and nurture collaborative relationships among stakeholders and build trust, and thus it can make or break stakeholder networks. Although the significance of building relationships is often overlooked, it is the most crucial ingredient for stakeholder networks, because it is what drives collective action [52]. More than formal arrangements or contracts delineating roles of the stakeholders, trust built through social relations is the most powerful factor in determining whether a collaboration endures [53]. Accordingly, effective stakeholder networks provide multiple opportunities for trust building and exchange [33,50]. In addition to the quantity of interactions, the quality of interactions among stakeholders contributes to building relational capital—many have argued that face-to-face dialogue among stakeholders is essential for breaking down stereotypes, building shared understanding, and fostering commitment [50,52,54]. According to Falk and Kilpatrick, there must be many opportunities for stakeholders to interact and share informal knowledge (i.e., “Who knows what about whom and what?”), create shared purposes and values, and establish trust [55].

The issue of trust is particularly challenging in the domain of animal welfare, as stakeholders may enter the network with biases and historical grudges that are based on perceived or real wrongdoings of other parties. For a collaborative network to be effective, stakeholders must commit to “owning the process”, so the question is no longer *whether* to trust but *how*. Frequent, high-quality interactions are most certainly the starting point. Some also suggest that “small wins”—early tangible outcomes that demonstrate the value of the collaborative network—can contribute to building trust among

stakeholders [47,50]. Recently, there has been some confusion in farming industry discussions around the concept of trust, with the assumption that the industries can gain public trust merely by improving transparency. While transparency may enhance the credibility or *trustworthiness* of the industries, building trust goes beyond enhancing trustworthiness and requires greater attention to social capital than the other dimensions [56,57]. In addition to perceived trustworthiness, the history of social interactions over time and the existence of a shared vision both contribute to trust [58].

The ‘five Rs’ highlighted above are critical to achieving productive collaborative arrangements (Figure 1). Head explained the different levels of participation in networks [47]. Most stakeholder networks can be described as *cooperative*; namely, networks where participants maintain their separate organizational identities and are never forced to merge goals and objectives. *Coordinated* stakeholder networks take participation a step further by involving some form of joint planning and/or a medium-term work plan. *Collaborative* stakeholder networks, on the other hand, involve much longer-term multi-stakeholder commitments, close connections, an extension of participants beyond their traditional roles, genuine interdependence, and sharing of power, risk, and reward [47]. In our view, collaboration should be the goal for stakeholder networks in animal welfare if they are to be effective.

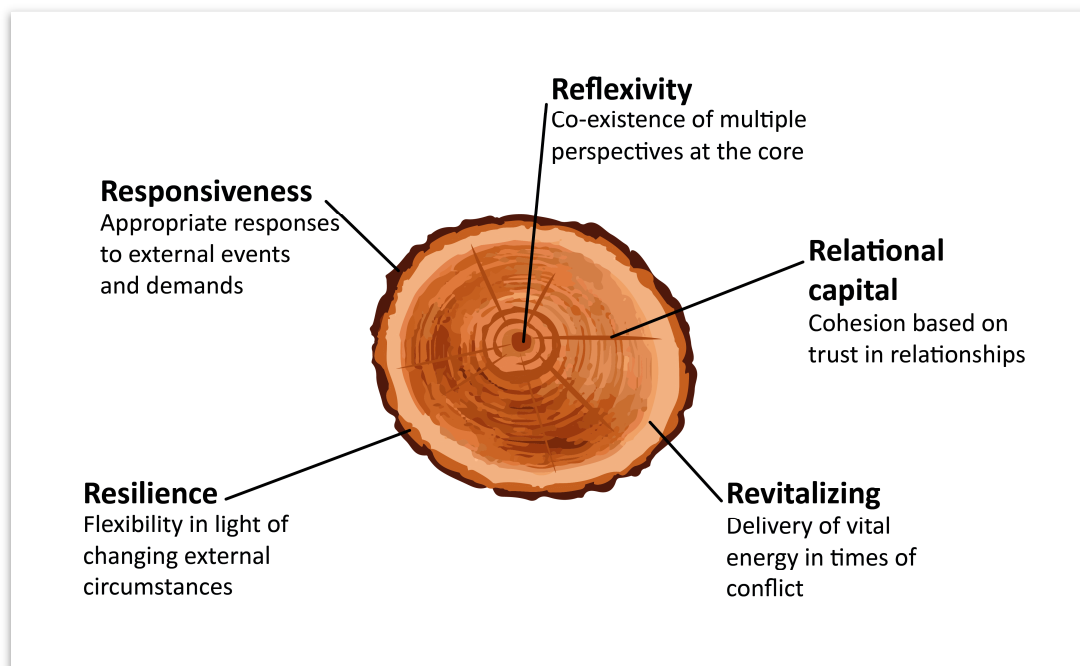


Figure 1. The ‘five Rs’: Guiding principles for collaborative stakeholder networks.

4. Stakeholder Networks in Animal Welfare: Case Studies

A small number of stakeholder networks in different regions have attempted to address animal welfare. The two case studies that follow demonstrate instances of productive stakeholder collaboration but also the vulnerability of such networks. We analyze their effectiveness by assessing both their processes (e.g., leadership, rules for decision making, bridging across sectors, capacity building, learning, and trust) and outcomes (e.g., innovation, achievement of stated goals, benefits to participants, benefits to society, etc.), as summarized in Table 1 [47]. We believe that lessons can be taken from the strategies employed by these networks concerning how they engage with stakeholders and align their efforts toward achieving better outcomes for animal welfare.

Table 1. Comparison of stakeholder networks in animal welfare. EU: European Union.

	The Australian Animal Welfare Strategy, 2004–2013	The EU Platform on Animal Welfare, 2017–Present
Purpose	Deliver sustainable improvements in the welfare of all animals	Improve dialogue among stakeholders in animal welfare and share experience, expertise, and views
Composition	<ul style="list-style-type: none"> ■ 20 government departments and councils ■ 45 animal industry groups ■ 15 community organizations ■ 15 universities/research institutes ■ Seven private companies 	<ul style="list-style-type: none"> ■ 27 EU Member States ■ European Economic Area countries ■ European Food Safety Authority ■ Food and Agriculture Organization (FAO) of the United Nations ■ The World Bank ■ World Organization for Animal Health (OIE) ■ The European Forum for Animal Welfare Councils ■ International Society for Applied Ethology ■ 15 animal production industry groups ■ 10 civil society organizations ■ Three veterinary organizations ■ Nine independent experts
Processes	<ul style="list-style-type: none"> ■ Skills-based advisory committee ■ Six technical working groups ■ Cross-sectoral working groups ■ Quarterly face-to-face meetings 	<ul style="list-style-type: none"> ■ Member adoption of reports or conclusions by consensus or by a simple majority vote ■ Two sub-groups created to examine specific issues ■ Written declaration of conflicts of interest ■ Semiannual face-to-face meetings ■ Collaboration on joint activities
Outcomes	<ul style="list-style-type: none"> ■ Model Codes of Practice for the Welfare of Animals (MCOP) for land transport of livestock ■ ‘Fit to Load’ guide (2013) endorsed by multiple stakeholder organizations ■ The Australian Code for the Care and Use of Animals for Scientific Purposes 8th Edition (2013) 	<ul style="list-style-type: none"> ■ Guide to good animal welfare practices for the keeping, care, training, and use of horses ■ Discussion paper on the health and welfare of dogs in trade ■ Guidelines for the transport of cattle, horses, pigs, poultry, and sheep

4.1. Case 1: The Australian Animal Welfare Strategy (AAWS), 2004–2013

The AAWS was an Australia-wide policy and a collaborative network in animal welfare established in 2004 by the Australian Government Department of Agriculture, Fisheries, and Forestry (DAFF) on behalf of the Primary Industries Standing Committee. A broad profile of stakeholders from across the value chain was involved in the creation and implementation of the AAWS, with the collective mission of delivering sustainable improvements in the welfare of all animals. The Australian Government provided funding of approximately \$1 million per year to the AAWS and dedicated more than 30 staff members of the Animal Welfare Unit of DAFF to support the initiative. Implementation of the AAWS was overseen by the Animal Welfare Advisory Council, which was a skills-based advisory committee with 17 members, who included public servants, academics, industry representatives, a representative from the Royal Society for the Prevention of Cruelty to Animals (RSPCA), and a representative from the Australian Veterinary Association (AVA). The Australian Government funded the travel and accommodation costs of the members of the Advisory Council to attend quarterly face-to-face meetings and paid non-governmental members a per diem sitting fee. The Advisory Council was supported by six technical working groups (one for each category of animal use), which served as discussion forums for the specific needs of animals and generated technical advice and action plans for each sector. Each technical working group consisted of representatives from the government, industry, and sector-specialist organizations, as well as animal protection organizations. Three cross-sectoral working groups were also established to focus on the general issues of communication, research and development, and education and training [59].

The AAWS aimed to be a focal point and coordinator of collective action for the more than 400 organizations with a direct interest in animal welfare in Australia [59]. The various stakeholders

involved included people in charge of animals, animal users, veterinarians, animal producers, processors and transporters, sports and recreational organizations, educational facilities, consumers, government agencies, primary producers and harvesters, researchers, and teachers [60]. In the second implementation phase of the Australian Animal Welfare Strategy (2010–14), key activities of the AAWS included the following:

- (1) Analyzing Australia’s animal welfare system and capacity;
- (2) Establishing benchmarking measures to assess progress in animal welfare;
- (3) Putting in place informed strategies for sectors to secure resources for their work;
- (4) Establishing education and extension networks;
- (5) Encouraging governments to determine and implement a range of national standards and guidelines;
- (6) Encouraging industries to adopt codes of best practice;
- (7) Revising the Australian code for the care and use of animals for scientific purposes; and
- (8) Developing improved arrangements for dealing with animals in natural disasters [59].

Despite having made preliminary progress, activities of the AAWS were discontinued in late 2013 following the federal election of the Coalition Government in Australia, when funding for the Animal Welfare Advisory Council was withdrawn and the committee was disbanded [61]. Several stakeholders expressed their dismay at the decision, claiming that the AAWS was “able to bring animal advocates, veterinarians, government welfare people, and livestock industry leaders around the table to have progressive discussions” [62].

An attempt to re-establish the collaborative essence of the AAWS was made in October 2015, when a roundtable discussion among relevant stakeholders was held (Animal Welfare Roundtable, the AVA and RSPCA Australia, 2015, unpublished). However, the initiative later lost momentum. Another round of discussions is currently in progress to determine future possibilities for the stakeholder network.

4.2. Case 2: The European Union (EU) Platform on Animal Welfare, 2017–present

The European Union established its Platform on Animal Welfare in 2017 in response to requests by the European Parliament and the Council of the European Union for a “union platform on animal welfare in order to improve dialogue among stakeholders as to share experience, expertise, and views” [63]. The seeds of a European stakeholder network in animal welfare were sown in the early 1990s, when public concerns around the welfare of calves prompted the European Commission to order an independent review of the scientific basis of existing EU legislation (e.g., Council Directive 91/629/EEC) to be carried out by the EU Scientific Veterinary Committee [13]. The independent scientific review led to Council Directive 97/2/EC, which phased out veal crates and inadequate diets [13]. Since 2003, the European Food and Safety Authority (EFSA) Panel on Animal Health and Welfare (AHAW) has carried out independent reviews of the scientific basis of existing EU legislation on animal welfare. The scientific activities of the AHAW panel are supported by the EFSA Scientific Network for Risk Assessment in Animal Health and Welfare, which is a network that seeks to facilitate the harmonization of animal health and welfare assessment practices and methodologies; enhance the exchange of information and data between EFSA and 27 EU Member States; and achieve synergies in animal health and welfare risk assessment activities [64]. The EU Platform on Animal Welfare or ‘the Platform’ intends to take the collaboration regarding animal welfare a step further by holding regular dialogue among a variety of stakeholders on EU matters directly related to animal welfare, such as the enforcement of legislation, the exchange of scientific knowledge, the discussion of innovations and good animal welfare practices, and the exploration of animal welfare initiatives around the world [63].

The Platform is composed of a broad range of stakeholders, including representatives from all EU Member States, business organizations involved in animal production at the EU level, civil society or community organizations involved in animal welfare at the EU level, and academic and

research institutes working in animal welfare science [65]. The stakeholder network is charged with the following tasks:

- (1) Developing coordinated actions that will contribute to EU legislation on animal welfare;
- (2) Understanding EU legislation and international standards on animal welfare;
- (3) Encouraging voluntary commitments of businesses to improve animal welfare;
- (4) Promoting EU standards on animal welfare to improve the market value of EU products at the global level;
- (5) Encouraging dialogue among relevant authorities, businesses, community organizations, academics, scientists, and international intergovernmental organizations on topics related to animal welfare;
- (6) Promoting the exchange of experiences and good practices, scientific knowledge, and innovations related to animal welfare relevant for the union; and
- (7) Sharing information on policy development in animal welfare [63].

Early in the Platform's existence, rules of procedure were established to guide the network's processes. The rules stipulate that members of the Platform are obligated to declare any conflicts, which must be reported in writing. For the purpose of transparency, the names of members of the Platform and its sub-groups are disclosed on a register of expert groups [66].

Although the Platform has only been operational for two years, there are already a few early outcomes. For instance, together the countries of Belgium, Germany, the Netherlands, Sweden, and Denmark produced a "guide to good animal welfare practices for the keeping, care, training, and use of horses" and a "discussion paper on the health and welfare of dogs in trade" [67]. The EU Platform on Animal Welfare has also been involved in the development of guidelines for the transport of cattle, horses, pigs, poultry, and sheep [67]. In the November 2018 meeting of the Platform, EU Commissioner for Health and Food Safety, Vytenis Andriukaitis, highlighted the important contribution of the Platform's sub-groups to the successful enforcement of EU legislation. He also mentioned that the Platform is in the process of building a digital communication tool [68].

4.3. Key lessons

Three key lessons can be extracted from the case studies of stakeholder networks presented in Table 1. First, a broad representation of stakeholders from across governmental bodies, industry groups, non-governmental community organizations, and research providers such as universities and research institutes is needed to achieve outcomes that will contribute to improving animal welfare. The AAWS was able to achieve policy influence through the involvement of multiple stakeholders in the development of Model Codes of Practice for the Welfare of Animals (MCOP) for the land transport of livestock and through the revision of other standards. Similarly, the EU Platform on Animal Welfare was able to develop a guide for the welfare of horses and a discussion paper on the health and welfare of dogs in trade, as well as contribute to guidelines for the transport of cattle, horses, pigs, poultry, and sheep. Second, regular communication among stakeholders is critical. In both the AAWS and the EU Platform, regular communication was made possible through relatively frequent face-to-face meetings. Finally, although the state sponsorship of stakeholder networks can bring a healthy operational budget, it also poses the threat that the network may be suddenly dismantled after a shift in political interests (as seen in the case of the AAWS). This scenario is not ideal for animal welfare standards that could take many years, if not decades, to negotiate. Therefore, it is recommended that alternative funding models, such as member-based contributions or crowdfunding, be considered for future stakeholder networks in animal welfare.

5. Embracing Participatory Governance in Animal Welfare

Wicked problems such as the societal issue of animal welfare cannot ever really be 'solved'. Therefore, we believe that the objective for decision makers should be to demonstrate that the issues

in animal welfare are being addressed through the coherent action of stakeholders across the value chain [69]. As suggested above, the best way to achieve coherent action is through collaborative networks where a broad representation of stakeholders can develop shared understanding and shared meaning about animal welfare and its possible solutions. The growing influence of stakeholder networks in animal welfare is likely representative of a larger movement toward more participatory strategies in governance and problem solving. The challenge for governments and stakeholders will be to embrace this growing trend and harness its capacity, rather than resist it.

In their book, *New Power*, Heimans and Timms argued that society is undergoing a complex transformation driven by a growing tension between the forces of “old power” and “new power” [70]. While old power is closed, inaccessible, and leader driven, new power is open, participatory, and peer driven [71]. The authors described a public “participation scale” for institutions and social enterprises that builds up from the public’s passive consumption of ideas to the sharing of other people’s ideas, shaping these ideas with the addition of a new message or slant, funding ideas, producing novel ideas, and co-owning solutions [71]. Others have described a similar “ladder” of participatory forms, ranging from information sharing, to formal consultation on proposals, to partnership, delegated power, and public control [72]. Heimans and Timms emphasized that for institutions and movements to embrace new power, they must not only profess new power values (collaboration, transparency, etc.); they must also change their operational models to allow for the co-production of ideas and co-ownership of solutions [70]. In other words, public participation cannot simply be a marketing exercise.

In light of the societal concerns around animal welfare and the loss of public trust or social license for the production and sale of animal products, we propose that “new power” models be embraced by collaborative stakeholder networks in animal welfare with greater transparency and strong governance. We expect an emergence of further scholarly literature and policy strategies that discuss the best ways to achieve forms of public participation in animal welfare that are higher on the participation “ladder”, such as the co-production and co-ownership of ideas. We suggest that by following the principles that we have outlined in this review and learning to embrace participatory processes, collaborative stakeholder networks in animal welfare will achieve changes in policy and practice in shorter time frames than is possible with the classical top–down approaches.

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