Nithin Varghese[*], Rebekah Humphreys[**]

# ‘The Trio-Model’: a new, transformative framework for an old, broken system


## SUMMARY

In the light of the United Nations’ aim to achieve the Sustainable Development Goals (SDGs) by 2030 and recognizing that the international community is nowhere near to achieving this aim, this paper argues for a change in practice and perspective regarding animals used for food, particularly those animals used in the industrial animal agriculture industry, and consequently calls for a transformative change in human-animal relationships. Using the global practice of factory farming as a case study, the paper aims to show that the interests of humans, nonhumans and the environment overlap considerably, and that the current anthropocentric stance, that provides the ethical framework for the SDGs, undermines itself in its attempt to meet the needs of present and future human beings whilst considering human interests only as of direct moral concern. Drawing on the concepts of “one health” and “doughnut economics”, the paper concludes with an urgent call for a more inclusive biocentric approach to global environmental problems, health and disease. Such an approach should recognize the good of other than human beings in and of itself, and be guided by relevant anti-speciesist egalitarian principles and practices. This framework of biocentrism, doughnut economics and one health the authors term the ‘trio-model’, for short.


**Keywords**: Animal-human relations, factory farming, intensive rearing, COVID-19, SDGs, ethics, one health, zoonotic disease, well-being, interests, doughnut economics, biocentrism.

[*] Department of English, St. Berchmans College, Changanacherry, Kottayam, Kerala, India. ORCID: 0000-0002-9622-5356.
[**] Humanities and Social Sciences, University of Wales Trinity Saint David, Lampeter, UK. ORCID: 0000-0001-8965-055X.
*Correspondence Address*: Dr Rebekah Humphreys, Humanities and Social Sciences, University of Wales Trinity Saint David, Lampeter, UK. E-mail: r.humphreys@uwtsd.ac.uk

## INTRODUCTION

Currently, the climate emergency and biodiversity crisis are threatening our very existence, and yet, with just six years to go until 2030, we are nowhere near achieving the United Nations' (UN) 17 Sustainable Development Goals (SDGs). As stated in the most recent SDGs Progress Report (UN, 2023a), 'many of the SDGs are moderately to severely off track' (UN, 2023b, p. 1); 'it's time to sound the alarm' (UN, 2023a, p. 2). These goals create an international platform for change for the better. They are meant to be integrated, recognizing that issues in certain areas, such as human health and wellbeing, are intimately connected to other areas, such as our food production systems.

However, admirable and significant as these goals are, they may be seen as undermining themselves in terms of being actionable in a sustainable way due to their anthropocentric slant. This human-centered bias means that, at their core, they do not challenge the very values that have led to the crisis in the first place, and fail to recognize the interlinking interests of beings other than humans. Moreover, they do not acknowledge the inherent interests of nonhuman beings themselves. Recognizing such interests is necessary to fulfill our obligations in relation to the climate and biodiversity crisis. It is also required to challenge the reinforcing structures that continue to threaten the world's most vulnerable beings, humans and nonhumans included.

This paper aims to provide a new framework to address systematic challenges and consider the diversity of interests related to the climate emergency and biodiversity crisis. This framework, referred to here as 'the trio module', combines biocentrism, doughnut economics, and one health. The objective of the paper is to explain why biocentrism, as an environmental stance, is more suitable than the current anthropocentric ethic. It also emphasizes the importance of an economic model that aligns with this stance, as well as the coherence of a non-anthropocentric conception of world health within this framework.

The paper will specifically focus on responsible consumption and production, one of the Sustainable Development Goals. Achieving this goal by 2030 will require a transformation of the global food system, moving away from the practice of intensive animal farming for meat. This practice inflicts significant suffering on billions of animals worldwide each year and is supported through the systemic exploitation of animals. Additionally, these animals require a large amount of grain for their feed, which in turn requires significant land mass for cultivation. As a practice, factory farming exemplifies the overlapping interests of humans, nonhumans, and the environment, making it a suitable topic for discussing the trio-model and linking theory

to practice in this paper. Driven by the Western demand for cheap meat, it is not only an environmentally wasteful and destructive practice but also conflicts with the goal of ending hunger, promoting food security, and fostering sustainable agriculture, which are also part of the SDGs. Due to these reasons alone, a shift to more responsible farming practices urgently needs to be prioritized in relation to food production.

## INTERCONNECTING ISSUES

The climate emergency crisis and the biodiversity crisis are not two separate issues; they need to be addressed together as a 'global double emergency,' as claimed by WWF in their latest Living Planet Report (2022, p. 12). This report provides a sobering perspective, emphasizing that without transformational changes in our technology, consumption patterns, food production systems, and economic and financial systems, we will not be able to achieve the SDGs by 2030. The report highlights the need to shift from focusing solely on goals and targets to values and rights in policy-making and everyday life (Living Planet Report, 2022, p. 5). Furthermore, it stresses the importance of recognizing the interconnectedness of issues related to equity (Humphreys 2023, ch. 3; Kemmerer, 2011, pp. 25-28; Living Planet Report, 2002, p. 11).

Rapidly declining habitats resulting from our land use continue to pose the most significant threat to plants and animals, as indicated by the Living Planet Index (LPI) in 2023 (ZSL and WWF, 2023, n.p.). According to WWF (2022, p. 4), there has already been 'an average 69% decline in the relative abundance of monitored wildlife populations around the world between 1970 and 2018'. To address this emergency, 'new lenses', 'unprecedented action', 'transformational change', 'game-changing shifts', and 'system-wide changes' are necessary 'to put theory into practice' (WWF, 2022, p. 4). It is crucial to take immediate and decisive measures to tackle the challenges we currently face.

Certainly, these actions are necessary for the well-being of human beings, particularly for those living in the world's poorest regions who bear a disproportionate burden of the environmental crisis. According to the World Bank, it is estimated that by 2050, over 200 million individuals could become environmental refugees, displaced by the climate and biodiversity crisis (Boudreau et al., 2023, n.p). Interconnected issues such as food insecurity resulting from droughts and disruptions in food production systems, as well as land use and rising sea levels,

contribute to this crisis. These issues, exacerbated by diminishing resources, give rise to conflicts between humans and conflicts between different species, as a growing number of individuals, both human and non-human, migrate in search of habitable land (climate refugia). (Attfield, 2023, pp. 135-36).

While the SDGs focus on human interests as a direct moral and practical consideration in relation to the climate and biodiversity crisis and they recognize the links between various areas of concern (including forest management, food production and security, water use, land use, and clean energy), the goals are specified from within an anthropocentric ethical framework. Anthropocentrism, being the normative stance that considers all and only human beings to be deserving of moral standing, holds that all and only human beings are considered to have interests that are due direct moral consideration (for a critique of anthropocentrism, see Attfield, 2023, pp. 122-25, 2020, pp. 63-74; Katz, 2020, pp. 23-32).

This framework raises significant concerns for several reasons, primarily because all sentient nonhuman beings, along with human beings, possess interests that not only warrant direct moral consideration but also hold moral significance when they come into conflict with the interests of other beings, whether human or nonhuman (for further discussion on conflicts interests, see Humphreys, forthcoming, 2024, ch. 5; Kiley-Worthington, 2022, pp. 95-101; see also section below, 'Nonsentient creatures and biocentrism'). Indeed, sentient animals possess, at the very least, interests in avoiding suffering, as well as interests in freedom, functioning, and well-being (DeGrazia, 1996, pp. 268-72; Heeger and Brom, 2001, pp. 241-42; Humphreys, 2010, pp. 52-65). These fundamental interests often carry significant weight in cases of conflict. However, they are regrettably and unjustifiably overridden in many instances by more peripheral interests of human beings, such as the preference for purchasing cheap meat or having access to specific consumer products (Attfield and Humphreys, 2017, pp. 44-77, 2016, pp. 1-11).

## FACTORY FARMING: OVERLAPPING INTERESTS

Furthermore, concerning the intensive meat production system, the use of sentient animals in intensive rearing remains one of the cruelest practices on our planet. Approximately two-thirds of the world's farm animals are raised using intensive rearing methods, totaling around 50 billion individual animals annually (Compassion in World Farming, 2023, n.p). These animals are often confined in filthy, overcrowded conditions that prevent them from engaging in their

natural behaviours. They also endure immense suffering during transportation, especially in the live export trade. Animal ethicists have been drawing attention to this appalling treatment of farm animals since the 1960s, with the publication of Ruth Harrison's *Animal Machines* in 1964 (Harrison, 1964; see further Singer, 1975; Kirchhelle, 2021).

Many argue that the principle of equal consideration of interests should apply not only to human beings but also to nonhuman animals. They contend that our current treatment of animals in certain practices reflects blatant speciesism, analogous to the systemic and institutional racism and sexism of the past (Ryder, 1975; Singer, 1995). It is important to note that this does not imply that racism or sexism no longer exists. Recognizing the applicability of the principle of equal consideration of interests to animals entails giving equal consideration to the like interests of both humans and nonhumans. Such consideration does not necessitate equal treatment but, similar to intra-human cases, requires equal consideration of similar interests when conflicts arise (Humphreys, 2023, ch. 6).

This argument has been extensively discussed and can be explored in the existing literature (Dunayer, 2004, chs. 5-7; Francione, 2008, pp. 148-69). However, for the purposes of this paper, it is sufficient to acknowledge that the proper recognition and application of this principle regarding animals would necessitate a significant overhaul of our global food production industry, particularly concerning intensive rearing. This change would be a matter of justice rather than just compassion (Attfield and Humphreys, 2016, pp. 1-11, 2017, pp. 44-77; Nussbaum, 2022, ch. 1;). It would also require transformative shifts in our consumer habits and land use practices; the latter practices are intricately connected to our food production systems, thereby impacting the interests of both sentient nonhuman beings and human beings.

Indeed, in the context of a growing global population, the use of intensive methods for mass-produced meat is an unjust food production practice, particularly considering the significant food inequalities that exist worldwide. Animals raised for meat consume substantial quantities of grain and require large amounts of clean water throughout their lives. The conversion of grain into meat protein is highly inefficient, as it diverts valuable resources that could otherwise be used to alleviate hunger among the less fortunate, despite potential challenges in distribution. Furthermore, while individuals in Western countries have access to diverse food options, many people in poorer nations rely on small-scale farming for their well-being and sustenance. However, the expansion of global intensive farming poses a threat to these livelihoods, as conglomerates clear more forested areas to cultivate soy and cereal feed to sustain the vast

numbers of factory-farmed animals each year (CIWF, 2023, n.p). Consequently, the interests of impoverished communities directly clash with the powerful economic interests of the global meat industry (Wasley, 2009, n.p).

Meanwhile, intensive animal agriculture emerges as a significant contributor to greenhouse gas emissions, with the energy needed for cultivating and producing high-quality animal feed being the primary energy factor (Woods et al., 2010, p. 2994). Moreover, it generates substantial amounts of waste pollutants and necessitates the extensive use of pesticides for growing animal feed (Woods et al., 2010, pp. 2995-2997), both of which pose toxic risks to the environment. Additionally, the extensive land requirements for crop cultivation and cattle grazing further endanger biodiversity and natural habitats.

## NONSENTIENT CREATURES AND BIOCENTRISM: A MORE INCLUSIVE FRAMEWORK

These natural habitats are home to numerous land and water animals, as well as diverse plant life. Many of these creatures include nonsentient ones whose interests are currently being threatened and undermined by the ongoing crisis. Regarding biodiversity, while it is impossible to predict all the risks climate change poses to nonhuman life (both sentient and nonsentient), some can be anticipated (Humphreys, 2020, pp. 49 and 59-60). Research presented in *Climatic Change* (Warren et al., 2018, pp. 395-409) examines the risks to 'priority places' under different future scenarios. This research indicates that in an unmitigated case with no emissions cuts, up to half of the plant and animal species in these areas of significant diversity could face extinction by 2100. Even in a mitigated case where emissions are restricted to no more than 2 degrees Celsius above pre-industrial levels (which is still considered insufficient), a 25% species loss is projected. Therefore, even if the emission levels proposed by the Paris Agreement are met, there would still be a substantial loss of biodiversity. We can already observe the impacts of climate change on certain species (Colwell et al., 2008, pp. 258-261; Xu et al., 2009, pp. 250-230; Parmesan, 2006, pp. 637-669; Root et al., 2003, pp. 75-60; see further Humphreys, 2020, p. 49).

When examining the term 'species' in this context, there is a tendency to overlook the individual animals and their well-being that are affected by the crisis. The discussion differs significantly regarding human beings, as their interests appear to be prioritized above those of our species as

a whole. The fulfillment or hindrance of human interests related to climate change seems to take precedence over the considerations associated with the survival of our species, Homo sapiens. Furthermore, as highlighted by Clare Palmer, there is a greater emphasis on discussing the impacts of the crisis on human beings (Palmer, 2016, p. 132). But nonhuman beings, as **individual** creatures with their own lived experiences, have often been excluded from much of the discourse surrounding the impacts of the climate and biodiversity crisis (Fernandez, 2020, pp. 33-48).

In the context of climate change concerns, nonhuman creatures, especially nonsentient ones, are often perceived as 'belonging to a species' rather than being recognized as individual beings with their own interests that can be advanced or hindered by human actions (or inactions). Their interests are typically seen as 'belonging to us', indirectly related to conservation, education, and preserving ecosystems that are crucial for human survival. Alternatively, their interests are understood only in relation to how their thwarting can have negative impacts on the well-being of ecosystems and species (Humphreys, 2020, pp. 47-48).

However, all nonsentient creatures have interests of their own, regardless of their ability to consciously take an interest in their own well-being (Rodogno, 2010, pp. 84-85). Many of these creatures are currently facing the threat of extinction due to the ongoing crisis. Nonsentient creatures also have interests in flourishing and thriving within their own species (see Attfield, 1995, Ch. 4). Unfortunately, the interests of both sentient and nonsentient creatures are often not adequately considered by human beings.

Regarding the ethics of climate change mitigation concerning sentient and nonsentient nonhuman beings, even if we fail to meet the goals of the Paris Agreement and do not significantly reduce greenhouse gas emissions to sustainable levels, it is likely that some nonhuman sentient and nonsentient creatures will survive and potentially outlive human beings. If these creatures have value in their own right and if a world with diverse living creatures holds independent value even without human presence, then we have a responsibility to mitigate the devastating impacts of climate change for the sake of present and future sentient and nonsentient creatures. These obligations extend directly to the well-being of these creatures and are not merely indirect considerations for the benefit of human beings alone (Attfield, 2023, p. 124).

In addition, the principle of equal consideration of interests is applicable to nonsentient creatures as well, as they also have interests and can be affected positively or negatively by our actions or inactions. While they do not have interests in not suffering, they do possess analogous

interests to sentient creatures. These interests pertain to their capacities for self-repair, growth, and self-preservation (Attfield, 2014, Ch. 2, 2023, Ch. 4, Ch. 7; Humphreys, 2011, p. 74). Consequently, they have their own intrinsic good, which, as Attfield (1995, p. 20) argues, 'is in many ways distinctive and peculiar to the capacities with which their own kind is endowed'. Similarly to the proper application of the principle of equal consideration (of interests) in human cases, the application of the principle in cases involving creatures other than humans or in inter-species cases, whether they involve sentient or nonsentient beings, does not necessitate treating all creatures the same. However, it does require giving due consideration to their interests when conflicts arise.

Such considerations alone make biocentric egalitarianism an appropriate environmental normative stance for providing an ethical framework that could effectively account for the entire range of interests threatened by the biodiversity and climate crisis. This framework considers the interconnectedness of these interests, particularly in relation to the system-wide changes needed in food production and economic institutions. One example of such interconnectedness has been highlighted in the form of intensive rearing, which negatively impacts not only human beings but also sentient nonhuman beings (including free-living animals and animals in factory farms) as well as nonsentient living things, such as plant life and trees.

In practice, biocentrism (the stance that all and only living things have moral standing) would necessitate that the interests of all creatures, at risk of being affected, be directly considered in cases of conflict. This means that the interests of plants or trees should not be disregarded simply because plants and trees are not sentient or human. It would also imply the urgent need to address the treatment of animals in factory farms by establishing a framework that prioritizes the interests of these sentient animals, including genuine and serious consideration of their interests in not suffering. Alternative models, such as free-range models, yet divorced from slaughterhouse and transportation systems set up under factory farming models, would be preferable. Additionally, transitioning towards a plant-based diet should be seriously considered, especially for individuals in the Western world who are the main consumers of factory-farmed meat yet do not require such meat for their survival. Farming practices in the Western world that profess to be 'nature-based' cannot plausibly make such claims if the interests of the animals being used is not a main concern in their practices – these animals being sentient ones who certainly do have significant interests at stake, and often overriding ones at that.

Meanwhile, sustainable farming methods that consider the interests of animals, such as those small-scale, non-caged-based, or free-range farms that support local livelihoods for some of the world's poorest people, could be continued as these are essential for the survival of certain communities worldwide (CIWF, 2024a). At the same time, the high-demand for meat in the Western world needs to be reduced, and this involves consumer changes on a large scale. This approach aims to be equitable by prioritizing basic needs over non-basic ones, regardless of whether they are human or nonhuman, and by giving equal consideration to like interests across species. Moreover, what is also needed, in practice, is an end to factory farming, which continues to undermine the interests of humans, animals and the environment. For this, a global agreement on food and agriculture is very much needed, as argued by Compassion in World Farming (CIWF, 2024b).

And, in relation to sustainability, integrated policies and practices need to be considered (Attfield, 2023, chs. 6-7). Integrated, in this sense, means that specific issues –including animal welfare ones – are not considered in isolation from issues that are systemically linked, such as those pertaining to human health, environmental protection and climate mitigation. As Attfield (2023, p. 106) recognizes, indigenous local knowledge is essential for finding sustainable solutions to meeting SDGs, whilst accepting, as Paul Ekins (1993, p. 100) also does, that achieving these goals also requires a 'radical restructuring' and global reform, including 'fairer trading relationships' and 'debt cancellation'. This restructuring aims to create a more level playing field, supported by large-scale investment and local participation in sustainable development initiatives (Ekins, 1993, pp. 97-99). Moreover, Ekins (1993, p. 96) advocates for 'different pathways to sustainable development'. Thus, a global perspective is needed, along with particular more local ones.

In addition to this, innovative solutions are needed that reframe debates in a way that genuinely considers the interests of, for example, sentient animals, whether 'domesticated' or free living, and allows for humans and nonhumans to coexist in a way that allows for at least the basic needs of both to be met. Examples of such solutions might, in some cases, include wildlife 'bridges' over or under highways, small scale green habitats and city roof-top or balcony gardens that can act as a form of vital climate wildlife refugia for city-dwelling wildlife, as well as small-scale farming practices that properly consider the welfare of the animals in question in unison with interests related to human health.

Marthe Kiley-Worthington, in her article 'Conflicts between Wildlife Conservation, Animal Welfare and Human Interests, and Ways Forward' (2022), outlines plausible — and workable — solutions. She draws attention to the fact that many clashes between, for example, the interests of humans (in protecting their food crops) and those of larger wild animals, such as elephants (who also have interests in not starving), are largely due to declining habitats, decreasing food sources and vegetation, and land pressures. She suggests as follows:

> First everyone must improve their sustainable agricultural techniques (which are well known), put them into practice and understand that there may be solutions that do not require killing of individuals. The farmers and all of us, need to understand both the intrinsic and the instrumental value of having elephants around, and also use up to date regenerative agriculture to bring them higher net yields where they already cultivate. They must employ Agro-forestry to ensure they have sustainable wood and the ecology that goes with it, and the number and type of stock that they graze must be controlled so there stock thrives without causing species to disappear (Kiley-Worthington, 2022, p. 100).

In Kiley-Worthington's work, there is a recognition that many solutions already exist and are known about, albeit not implemented. Regarding more immediate solutions in relation to elephants, 'The elephants must be discouraged from going onto the farms. This can be by electric fencing; by giving them unpleasant experiences with chillis and/or have bees hives strategically placed' (Kiley-Worthington, 2022, p.100). With land under increasing pressure from human activity, we need to consider how large mammals, such as elephants, can have a quality of life in some form of wild or semi-wild environment, acknowledging that this environment will need to be a "managed" one (Kiley-Worthington, 2022, p.100).

This further points to the importance of integrated policies. In areas where conflicts between elephants and humans occur, some of the other drivers include increasing population levels and lack of employment. The latter results in 'many people remain[ing] farmers in the country. Since they have to feed themselves from what they grow and there are more of them, they believe they need more land, and so they move into wildlife areas to cultivate, cut trees or graze their animals' (Kiley-Worthington, 2022, p. 100). Thus, population policies need to be viewed in the context of sustainable development issues, land use, and employment factors, considering social and economic obstacles related to the lack of sufficient jobs for growing populations.

It may be objected that, in a world in which a large proposition of the interests of human beings are not currently met, we should focus on the needs of present humans, and discount the needs of future humans and of nonhuman animals (both current and future ones). However, this objection misunderstands the systemic nature of the issues at stake. In addition, as Attfield plausibly claims, such an objection mistakenly assumes that meeting the basic needs of humans involves focusing on present humans only. Indeed, alleviating, for example, the future suffering of human beings means taking measures to alleviate human suffering in the present; addressing poverty or the lack of access to clean water in the future means tackling these issues in the here and now. As Attfield (2023, p. 38) claims, there is 'continuity between meeting the interests of the present and those of the future'.

Further, in the case of animal welfare as it relates to sustainability, sustainable solutions to human problems necessitate a consideration of the unsustainability of many large-scale commercial practices that exploit animals for our own benefit. This consideration goes beyond practical aspects to encompass value judgments underlying the supposed justifications for such exploitations. Indeed, such judgments are unsustainable if they continue to prioritize the peripheral interests of humans over and above the significant interests of not just nonhumans, but also some of the world's most vulnerable humans who are most negatively impacted by the consequences of such practices (for example, see Clark, 2023, pp. 509-11, for the impact of animal farming on water resources). The above considerations suggest that theory itself should not stand as an immovable framework to consider ethical issues. Indeed, as Attfield (2023, p. 182) claims 'thinking about ethics often moulds our thinking about ethical theory; the direction of influence is not always from theory to applications, and often flows in the opposite direction'.

## A NEW ECONOMIC MODEL FOR A NEW VALUE SYSTEM

Intensive farming practices are globally enforced and maintained through the influence of conglomerates, advertisements, and consumer habits. These practices are supported by institutions with powerful political and economic interests at stake. Political interests are closely tied to institutions that are inherently anthropocentric, prioritizing human concerns over those of other beings. Robert Garner (2016, p. 464) highlights the shortcomings of the current 'strong' anthropocentric approach within political systems, 'which holds that only human preferences regarding animals ought to be promoted'. Drawing on the well-established all-affected principle (Warren, 2017, pp. 1-15), Garner argues that 'animals themselves have a democratic right to

have their interests represented in the political process' (Garner, 2016, p. 460), irrespective of whether humans desire or would prefer to have better protections afforded to animals (Garner, 2016, pp. 459-77). He advocates the potential of genuine deliberative justice in relation to animals and their interests (Garner 2019, pp. 309-29).

This would create an essential political platform for change for farm animals and other animals. Without political reform, they will continue to be exploited and treated as free resources, rather than as sentient and feeling beings with their own lived experiences:

> Industries that harm animals, such as intensive farming and animal experimentation, have come to dominate the UK government to the exclusion of animal protection and public opinion. This set-up is perpetuated by a government structure that prioritises 'competitiveness' and deregulation, including the various agencies and departments that sponsor the commercial interests of animal harm industries. Conversely, there are no laws or institutions to promote animal welfare protection and ensure it is a meaningful consideration for government. Our research shows that this situation of institutionalised government bias against animal welfare is the fundamental reason for weak animal welfare laws, feeble enforcement and, consequently, levels of animal harm that go way beyond public acceptability. This also explains why current animal advocacy campaigns aimed at government are generally unsuccessful. Therefore, establishing a governmental animal protection body is the key to a paradigm shift towards genuine respect for animals (CASJ, 2023).

Interestingly and perhaps pragmatically, arguments for political reform are often made outside of traditional animal ethics theory, thereby avoiding debates regarding the moral status of animals and the various conclusions drawn from those debates, including abolitionist perspectives (Garner, 2016, pp. 461-63, and 471-72). For further discussion on deliberative justice and animals, one can refer to The Centre for Animals and Social Justice (CASJ).

It is not only political institutions that tend to be human-centered, but economic institutions as well. As Steven McMullen (2016, pp. 18-19) argues in his book *Animals and the Economy*:

> [T]he dominant practice in economics has been to use an anthropocentric approach to all analyses. In environmental and natural resources economics, where one might expect scholars to break out of the traditional human-centred models, it is extremely uncommon for scholars to engage in cost-benefit analyses that include any non-human inherent worth, even in scholarship that explicitly considers animals, economists often assume that animal welfare has value only insomuch as humans care about it.

The World Trade Organization (WTO) rules also play a role in maintaining certain practices, primarily focused as they are on trade and commerce rather than environmental issues. However, these rules can undermine environmental policies and policies aimed at promoting the welfare of both humans and nonhuman beings. Countries may face limitations in restricting imports, and even in cases where restrictions are allowed, they must comply with WTO nondiscriminatory rules. As a result, countries attempting to implement sustainable agricultural practices or policies for the protection of animals could be susceptible to WTO challenges (Raven, 1999, p. 217). However, the issue is complex, and there is evidence suggesting that the WTO rules may not be as restrictive as commonly assumed, particularly in terms of providing greater protections for factory-farmed animals. Some argue that 'governments are taking too cautious a view… and using them as an excuse for not making more meaningful changes to benefit the welfare of animals' (Stevenson, 2015, p. 19). The detailed analysis of these rules falls beyond the scope of this paper. Nevertheless, it is worth noting that trade liberalization, as an aspect of the global economic system, tends to marginalize welfare interests and measures growth primarily through Gross National Product (GNP).

Indeed, not all growth should be regarded as inherently negative. When it comes to implementing equitable policies to address climate change, certain types of growth are necessary, particularly in the areas of sustainable agriculture, renewable energy resources, and clean water supplies (Attfield, 2014, p. 20). It is important to acknowledge that some countries may not be able to limit their carbon emissions at present because they are still struggling to meet the basic needs of their citizens. In such cases, generating electricity using carbon resources may be necessary to fulfill these needs, as long as alternative energy sources are not readily available. In fact, the generation of electricity might need to increase to ensure these basic needs are met. Conversely, richer countries, given their historically high emissions rates and their capacity to shoulder the burden, should prioritize investments in renewable energy and actively work towards reducing their energy consumption (Attfield, 2014, p. 210).

Certainly, it is important to distinguish between growth and a meaningful or just understanding of development. While certain notions of development derived from American hegemony are problematic, the concept itself can be helpful, particularly when considering the Sustainable Development Goals (SDGs) and their objectives. It is crucial to reject problematic notions of development while still retaining a notion of development as a process that moves away from undesirable states of affairs, such as poverty, malnutrition, low life expectancy, and lack of access to healthcare. Instead, development should aim for improvements in life expectancy,

health, education, and autonomy, while also striving for social justice within the specific society in question (Attfield, 2014, p. 139, 2023, pp. 95-99).

Such development as a process is undermined by growth as measured by GNP. This economic conception of growth focuses on economic activity that is not conducive to development and even includes non-monetary transactions. Therefore, enacting change and achieving the SDGs will require a radical shift away from our current liberalistic economic system. In fact, tangible changes are likely to necessitate the establishment of a new global economic model that prioritizes the well-being of humans, nonhumans, and the health of the environment. This model should, at the very least, enable, if not actively promote, such considerations.

## DOUGHNUT ECONOMICS

One promising economic model for sustainable development is Doughnut economics, as proposed by Kate Raworth (2017). Raworth's influential book, *Doughnut Economics: Seven Ways to Think Like a 21st Century Economist*, presents a visual economic framework resembling a doughnut. This framework merges the concepts of planetary boundaries and social boundaries (Raworth, 2017, p. 9). Raworth (2017) describes the Doughnut as a transformative tool, providing a 'radically new compass for guiding humanity this century' (p. 39). It envisions a future 'that can provide for every person's needs while safeguarding the living world on which we all depend' (Raworth, 2017, p. 39).

The Doughnut framework comprises two essential elements: the social foundation and the ecological ceiling. The social foundation establishes the basic elements necessary for a dignified life, including 'sufficient food; clean water and decent sanitation; access to energy and clean cooking facilities; access to education and to healthcare; decent housing; a minimum income and decent work; and access to networks of information and to networks of social support' (Raworth, 2017, p. 39). Achieving these provisions must be accompanied by principles such as 'gender equality, social equity, political voice, and peace and justice' (Raworth, 2017, p. 39). On the other hand, the ecological ceiling represents the limits of planetary pressure, addressing issues such as 'climate change, ocean acidification and chemical pollution' (Raworth, 2017, p. 39).

The Doughnut framework establishes the inner and outer boundaries by integrating the social foundation and the ecological ceiling. These boundaries are intricately interconnected,

emphasizing the inseparable relationship between human well-being and environmental sustainability (Raworth, 2017, p. 42). The social foundation ensures universal access to basic needs, while the ecological ceiling sets limits on human activities to protect essential ecosystems (Raworth, 2017, p. 42). The primary objective of the Doughnut framework is to achieve a harmonious balance between societal needs and environmental preservation. This balance ensures the fulfillment of basic human needs while simultaneously avoiding the exceeding of planetary boundaries and safeguarding ecosystems. The framework envisions a path of sustainable development that places equal emphasis on human well-being and environmental sustainability.

However, according to Janice Cox and Peter Stevenson (2022), there is a flaw in the Doughnut economics model. They argue that although the model presents a more comprehensive view of growth compared to the current model, it overlooks the well-being of animals. The social aspect of the Doughnut economics model is based on the SDGs, which primarily focus on humans. However, it is crucial to recognize and address animal welfare, not only for ethical reasons but also because the neglect of animal welfare contributes to human health issues such as zoonotic diseases and antibiotic resistance. Cox and Stevenson (2022, p. 5) propose that: '[T]here should be a new segment of the inner ring to represent animal welfare. This is necessary because providing for animal welfare is a fundamental requirement for society, not a luxury, but a baseline for a safe and ethical operating space'.

This suggests that the inner part of the doughnut, which represents the 'hole' in the Doughnut economics model, should consider the well-being of 'humans, animals, and nature'. It should strive to create a 'safe and just space' for not only humans but also animals and the environment as a whole (Cox and Stevenson, 2022, p. 5). Just like the principle of the 3Rs (reduction, refinement, and replacement: first proposed by Russell and Burch, 1959; see further Herrmann et al, 2019) is applied in animal experimentation to prioritize the welfare of animals, there is no reason why this principle should not be applicable to other commercial practices (Cox and Stevenson, 2022, p. 7) involving animals, including our food production systems. In simpler terms, it means that we should ensure the safety and fair treatment of animals in all areas where we use them, just as we do in animal experimentation, and this includes how we produce our food.

To promote the well-being of animals, humans, and the environment, it is suggested that we adopt ''heath-oriented' systems for rearing animals' (CIWF, 2020, p. 14). Such systems, as

argued by Compassion in World Farming (2020, p. 14) in relation to zoonotic disease and sustainability, would promote the health of nonhumans, humans, and the environment by:

- 'Avoiding overcrowding',
- 'Reducing stress',
- 'Enabling animals to perform natural behaviour',
- 'Ending the early weaning of pigs',
- 'Avoiding excessive group size',
- 'Maintain good air quality',
- 'Encourage a move away from genetic selection for high production levels'.

In their informative policy report titled 'Is the next Pandemic on our Plate?', CIWF highlights the connections between animal welfare and human and ecological health. They argue that '[m]aintaining and further embedding a flawed food system based on the over production and consumption of animal products will lead to further pandemics, dangerous levels of climate change, undermine antibiotics and degrade soil fertility' (CIWF, 2020, p. 21). They also support Doughnut economics as a model that, if revised to incorporate animal welfare, could be instrumental in enabling us to change from intensive farming systems to more holistic ones that respect the good of all creatures.

The core similarity between Raworth's Doughnut economics (2017) and the report 'Is the next Pandemic on our Plate?' by Compassion in World Farming (CIWF, 2020) lies in their shared emphasis on sustainable practices and their impact on human well-being and the environment. Raworth's Doughnut economics framework aims to establish a balance between fulfilling people's needs and preserving the environment. In contrast, the CIWF report (2020) focuses on the risks posed by intensive animal farming to public health and proposes a transition to sustainable and compassionate farming methods to prevent future pandemics. The report highlights the interconnections among animal welfare, environmental sustainability, and human health, advocating for responsible farming approaches that benefit both animals and humans.

However, both doughnut economics and the CIWF report are committed to sustainable practices and acknowledge the interconnectedness of human well-being, environmental preservation, and responsible farming. They endorse a shift towards systems that prioritize a harmonious relationship between nature, fairness, and public health. These approaches strive to create a more robust and sustainable future by promoting sustainable development and

recognizing the interdependencies between society and the environment (for an eco-critical perspective on such interdependencies, see Varghese and Puthenkalam, 2021, pp. 1-11).

According to Cox and Stevenson (2022, p. 1), 'Doughnut Economics is a ground-breaking system developed to change an outdated development paradigm based on endless economic growth, as measured by Gross Domestic Product (GDP), replacing this by a new paradigm that is fit for the 21st-century context and challenges, and which meets the needs of all people within the means of the living planet'. This model offers a promising economic approach that prioritizes people's basic needs and health over exploiting vulnerable populations and degrading the environment for monetary gains. Incorporating farm animals' interests is essential, for they are 'sentient beings and their welfare is an issue worthy of consideration and respect by all international organisations, Regional Economic Communities (RECSs), and countries' (Cox and Stevenson, 2022, p. 4). Moreover, such incorporation would provide an approach that better protects the welfare interests of animals compared to the current liberalistic, free-trade model that often views animals as mere machines rather than sentient beings with their own intrinsic value.

## A NON-ANTHROPOCENTRIC CONCEPTION OF ONE HEALTH

The idea of 'One Health' has gained significant attention over the last decade, particularly with the emergence of the COVID-19 pandemic in late 2019 (Braverman, 2023, p. 1). This concept aligns well with a collaborative and cross-disciplinary approach to health and disease, as discussed by Cox and Stevenson (2022, p. 3) in their work. One Health is endorsed by organizations focusing on health, especially in relation to zoonotic and emerging infectious diseases. As a concept it recognizes the interconnected well-being of humans, animals, plants, and the environment. Neglecting these connections can pose risks to food safety and security (Centre for Disease Control and Prevention 2022; Sellars et al. 2021, p. 35-36).

The American Veterinary Medical Association provides a commonly used definition for One Health, stating that it 'calls for the collaborative efforts of multiple disciplines working locally, nationally, and globally to attain optimal health for people, animals, and our environment' (King et al., pp. 260-61). However, One Health covers a wide array of areas, making it challenging to pin down a single comprehensive definition. The lack of consensus in defining One Health actually allows for flexibility in its application.

However, the concept of One Health signifies a collaborative and cross-disciplinary approach, aiming to promote health through interdisciplinary study and action across all animal species (Gibbs, 2014, p. 86; Woods, 2023, p. 27). The core idea behind One Health is that humans, animals, plants, and the environment are interconnected and depend on each other. It emphasizes the importance of considering all these factors together (Braverman, 2023, p. 1).

Supporters of One Health highlight its significance due to the rise in new infectious diseases and the resurgence of older ones. Many of these diseases can move from animals to humans, and some are linked to the environment or carried by factors like food and insects (Braverman, 2023, p. 4). Understanding the links between people, animals, plants, and the environment is fundamental to one health. The focus is on their interdependence for overall well-being. This shared understanding of One Health is crucial in addressing diseases globally, extending beyond just human health to encompass the health of the planet and all its living beings (Braverman, 2023, p. 2). Since the current global meat industry of industrial animal agriculture poses inter-linked health and welfare issues for humans and for nonhumans, contributes significantly to environmental problems, and continues to undermine food security efforts globally, One Health has the promise of being able to form part of the conceptual framework for a 'nature-positive' (WWF's Living Planet Report, 2022) understanding what is at stake with regards to food system transformation and enacting changes for sustainable development in the interests of humans, nonhumans, and the environment.

## CONCLUSION

It is the central claim of this paper that biocentrism as a normative stance, together with doughnut economics and the concept of one health (vague as the latter may sometimes be) could stand as a plausible theoretical framework for transformative change. This trio-model (for short) is capable of taking into account local contexts, while recognising that, as Attfield argues, actions (and omissions), policies, and practices that are locally sustainable, are not necessarily globally sustainable (Attfield, 2014, p. 139) and that we have international, collective obligations in relation to SDGs. Therefore, the model does imply a cosmopolitan approach to responsibilities to humans and nonhumans, including the present and future ones.

While some conceptions of One Health and Doughnut Economics may be presented in the literature with an anthropocentric (human-centred) bias, they need not be interpreted as such in

theory or practice. Instead, they should best be approached as part of a biocentric framework guided by relevant anti-speciesist egalitarian principles and practices. Such an approach would endorse justice across species (so that the **like** suffering of humans and animals is given equal consideration to prevent the infliction of atrocious suffering on animals; suffering that we would not be prepared to inflict on humans) (Attfield and Humphreys, 2016, pp. 1-11, 2017, pp. 44-77; see also Nussbaum, 2022, for more on justice and nonhuman beings, chs. 1-12). Additionally, it would support intergenerational equity concerning the conservation of environmental resources and the creation of sustainable livelihoods (Attfield, 2023, ch. 3, 2014, chs. 4 and 6), as well as international equity regarding integrated food production policies and practices. Here, 'integrated' implies giving direct moral consideration to the good of nonhumans, the environment, and human beings. It recognises that interests must be weighted accordingly, prioritizing basic interests (whether human or nonhuman, sentient or nonsentient) over the less weighty interests (and preferences) of human beings and/or corporations.

## REFERENCES


Attfield, R. (2023). *Applied Ethics: An Introduction*. Cambridge, Hoboken: Polity.

Attfield, R. (2020). 'Biocentrism, Climate Change, and the Spatial and Temporal Scope of Ethics'. In Brian G. Henning and Zack Walsh (eds.), *Climate Change, Ethics and the Nonhuman World*. New York; and Oxon, UK: Routledge (pp. 63-74).

Attfield, R. (2014 [ 2003]). *Environmental Ethics: An Overview for the Twenty-First Century*. Cambridge: Polity.

Attfield, R. (1995). *Value, Obligation and Meta-Ethics.* Amsterdam: Rodopi.

Attfield, R. (2023). *Applied Ethics: An Introduction*. Cambridge, Hoboken: Polity Press.

Attfield, R. & Humphreys, R. (2017). Justice and Non-Human Beings, Part II. *Bangladesh Journal of Bioethics*, *8*(1), 44-77.

Attfield, R. & Humphreys, R. (2016). 'Justice and Non-Human Beings, Part I. *Bangladesh Journal of Bioethics*, *7*(3), 1-11.

Boudreau, D., McDaniel, M., Sprout, E. & Turgeon, A. (2023). Environmental Refugee, *National Geographic*, Environmental Refugee (nationalgeographic.org)

Braverman, I. (2023).Introduction: More-than-One Health, More-than-One Governance. In I. Braverman (Ed.), *More-than-One Health: Humans, Animals, and the Environment Post-COVID* (pp. 1-23). New York: Routledge.

Centre for Animals and Social Justice (CASJ). Animal Protection Commission, Centre for Animals and Social Justice | Centre for Animals and Social Justice | CASJ

CIWF (Compassion in World Farming) (2023). Ending Factory Farming: Animal Cruelty, Animal cruelty | Compassion in World Farming (ciwf.org.uk)

CIWF (Compassion in World Farming) (2020). Is the Next Pandemic on our Plate?: Our Food System, through the Lens of Covid-19, Is The Next Pandemic On Our Plate | Compassion in World Farming (ciwf.org.uk)

CIWF (Compassion in World Farming) (2024a). Case Studies on Regenerative Agriculture, https://www.ciwf.org.uk/research/solutions-for-humane-and-sustainable-agriculture/

CIWF (Compassion in World Farming) (2024b). Why we Need a Global Agreement on Food and Agriculture, ciwf_un-report_18_global-agreement.pdf

Claas, K. (2021). *Bearing Witness: Ruth Harrison and British Farm Animal Welfare (1920-2000)*. Dublin: Palgrave Macmillan.

Clark, J. (2023). The Devastating Water Footprint on Animal Agriculture. *Open Access Government*, *July*, 502-511.

Colwell, R. K., Brehm, G., Cardelús, C. L., Gilman, A. C. & Longino, J. T. (2008). Global Warming, Elevational Range Shifts, and Lowland Biotic Attrition in the Wet Tropics. *Science*, *322*(5899), 258-261.

Cox, J. H. & Stevenson, P. (2022). Doughnut Economics: Incorporating Animal Welfare. *WellBeing International Studies Repository*, 1-9. https://www.wellbeingintlstudiesrepository.org/es_ee/4

DeGrazia, D. (1996). *Taking Animals Seriously: Mental Life and Moral Status* Cambridge: Cambridge University Press.

Dunayer, J. (2004). *Speciesism*. Derwood, Maryland: Ryce Publishing.

Ekins, P. (1993). Making Development Sustainable. In W. Sachs (Ed.), *Global Ecology* (pp. 91-103). London, Atlantic Highlands: Zed Books.

Fernandez, L. (2020). Climate Ethics Bridging Animal Ethics to Overcome Climate Inaction: An Approach from Strategic Visual Communication'. In B. G. Henning and Z. Walsh (Eds.), *Climate Change, Ethics and the Nonhuman World* (pp. 33-48). New York, Oxon: Routledge.

Francione, G. L. (2008). *Animals as Persons: Essays on the Abolition of Animal Exploitation*. New York: Columbia University Press.

Garner, R. (2019). Animal Rights and the Deliberative Turn in Democratic Theory. *European Journal of Political Theory*, *18*(33), 309-329.

Garner, R. (2016). Animals and Democratic Theory: Beyond an Anthropocentric Account. *Contemporary Political Theory*, *16*(4), 459-477.

Gibbs, E. P. J. (2014). The Evolution of One Health: A Decade of Progress and Challenges for the Future. *Veterinary Record*, *174*(4), 85-91.

Heeger, R. & Brom, F. W. A. (2001). Intrinsic Value and Direct Duties: From Animal Ethics Towards Environmental Ethics? *Journal of Agricultural and Environmental Ethics*, *14*(2), 241-252.

Herrmann, K., Pistollato, F. & Stephens, M. L. (2019). Beyond the 3Rs: Expanding the Use of Human-Relevant Replacement Methods in Biomedical Research. *ALTEX, 36*(3), 343-352.

Humphreys, R. (2024). *Philosophy and Animal Studies*. Cambridge: Polity [Forthcoming].

Humphreys, R. (2023). *Animals, Ethics, and Language: The Philosophy of Meaningful Communication in the Lives of Animals*. Hampshire, UK, New York: Palgrave Macmillan.

Humphreys, R. (2020). Suffering, Sentientism, and Sustainability: An Analysis of a Non-Anthropocentric Moral Framework for Climate Ethics. In B. G. Henning & Z. Walsh (Eds.), *Climate Change, Ethics and the Nonhuman World* (pp. 49-62). New York, Oxon: Routledge.

Humphreys, R. (2011). The Moral Status of Sentient and Non-Sentient Creatures. In M. Vyas (Ed.), *Issues in Ethics and Animal Rights* (pp. 70-83). Regency Publications: Delhi.

Humphreys, R. (2010). Game Birds: The Ethics of Shooting Birds for Sport. *Sport, Ethics and Philosophy*: *Journal of the British Philosophy of Sport Association, 4*(1), 52-65.

Katz, E. (2020). Anthropocentrism and the Anthropocene; Restoration and Geoengineering as Negative Paradigms of Epistemological Domination. In B. G. Henning & Z. Walsh (Eds.), *Climate Change, Ethics and the Nonhuman World* (pp. 23-32). New York, Oxon: Routledge.

Kemmerer, L. (2011). Introduction. In L. Kemmerer (Ed.), *Sister Species: Women, Animals, and Social Justice* (pp. 1-43). Urbana, Chicago and Springfield: University of Illinois Press.

Kiley-Worthington, M. (2022). Conflicts between Wildlife Conservation, Animal Welfare and Human Interests, and Ways Forward. *Acta Scientific Veterinary Sciences*, *4*(10), 95-101.

King, L. J, Anderson L R, Blackmore C G, Blackwell M J, Lautner E A, Marcus L C, Meyer T E, Monath T P, Nave J E, Ohle J, Pappaioanou M, Sobota J, Stokes W S, Davis R M, Glasser J H, Mahr R K. (2008). Executive summary of the AVMA one health initiative task force. *Journal of the American Veterinary Association*, *233*(2), 259-261.

McMullen, S. (2016). *Animals and the Economy*. Hampshire, UK, New York: Palgrave Macmillan.

Nussbaum, M. C. (2022). *Justice for Animals: Our Collective Responsibility*. New York: Simon and Schuster.

Palmer, C. (2016). Climate Change, Ethics, and the Wildness of Wild Animals. *Animal Ethics in the Age of Humans, The International Library of Environmental, Agricultural and Food Ethics*, *23*, 131-150.

Parmesan, C. (2006). Ecological and Evolutionary Responses to Recent Climate Change. *Annual Review of Ecology, Evolution, and Systematics*, *37*, 637-669.

Raven, H. (1999). Sustainable Agriculture's Friend and Foe: the WTO. In G. Tansey & J. D'Silva (Eds.), *The Meat Business: Devouring a Hungry Planet* (pp. 214-220). London: Earthscan Publications Ltd.

Raworth, K. (2017). *Doughnut Economics: Seven Ways to Think Like a 21st Century Economist*. London: Random House.

Regan, T. (1983). *The Case for Animal Right.* Los Angeles: University of California Press.

Rodogno, R. (2010). Sentientism, Wellbeing, and Environmentalism. *Journal of Applied Philosophy*, *27*(1), 84-99.

Root, T. L., Price, J. T., Hall, K. R., Schneider, S. H., Rosenzweig, C. & Pounds, J. A. (2003). Fingerprints of Global Warming on Wild animals and Plants. *Nature, 421*, 75-60.

Russell, W. M. S. & Burch, R. L. (1959). *The Principles of Humane Experimental Technique*. London: Methuen.

Ryder, R. (1975). *Victims of Science: The Use of Animals in Research*. London: Davis-Poynter.

Singer, Peter (1995). *Animal Liberation* (second edition). London, Sydney, Auckland, New Zealand, Bergvlei, South Africa: Pimlico.

Singer, Peter (1975). *Animal Liberation: A New Ethic for Our Treatment of Animals*. New York: HarperCollins.

Stevenson, P. (2009). The Impact of the World Trade Organisation Rules on Animal Welfare. In In P. Sankoff & S. White (Eds.), *Animal Law in Australasia: A New Dialogue* (pp. 1-20). Sydney, Australia: Federation Press.

United Nations, Department of Economic and Social Affairs (2023a). Sustainable Development: The 17 Goals. United Nations, THE 17 GOALS | Sustainable Development (un.org)

General Assembly Economic and Social Council (May 2023b). Progress towards the Sustainable Development Goals: Towards a Rescue Plan for People and Planet, Report of the Secretary-General (Special Edition), advanced unedited version. United Nations, SDG_Progress_Report_Special_Edition_2023_ADVANCE_UNEDITED_VERSION.pdf

Varghese, N. & Puthenkalam, J. J. (2020). Experiencing Environment: Ecological Conscience and Discourse in Malayalam Literature. *Global Environmental Studies*, *16*, 1-11.

Warren, M. E. (2017). The All Affected Interests Principle in Democratic Theory and Practice. *IHS Political Science Series*, *Working Paper 145*, 1-15.

Warren, R., Price, J., VanDerWal, J., Cornelius, S. & Sohl, H. (2018). The Implications of the United Nations Paris Agreement on Climate Change for Globally Significant Biodiversity Areas. *Climatic Change*, 147, 395-409.

Wasley, A. (2009). Killing Fields: The True Cost of Europe's Cheap Meat, *Ecologist*, https://theecologist.org/2009/oct/13/killing-fields-true-cost-europes-cheap-meat-0

Woods, A. (2023). ONE HEALTH: A 'More-than-Human' History. In I. Braverman (Ed.), *More-than-One Health: Humans, Animals, and the Environment Post-COVID (*pp. 27-40). New York: Routledge.

Woods, J., Williams, A., Hughes, J., Black, M. & Murphy, R. (2010). Energy and the Food System. *Philosophical Transactions of the Royal Society of Biological Sciences* (365:1554), 2991-3006.

WWF (2022). *Living Planet Report 2022: Building a Nature Positive Society*, Living Planet Report 2022 | WWF

Xu, Jianchu, Edward Grumbine, Arun Shrestha, Mats Eriksson, Xuefei Yang, Yun Wang, and Andreas Wilkes (2009). 'The Melting Himalayas: Cascading Effects of Climate Change on Water, Biodiversity, and Livelihoods', *Conservation Biology* (23:3), 520-530.

Zoological Society of London (ZSL) & WWF (2023). Living Plant Index (LPI), https://www.livingplanetindex.org

# **Naslov članka** (*Times New Roman, bold, 14*)[1]

**SAŽETAK** *(Times New Roman, bold, 12, indent)*

Između 1200 i 1400 znakova uključujući razmak. (*Times New Roman, 11, indent, justified*)

**Ključne riječi**: ključna riječ1, ključna riječ2, ključna riječ3, ključna riječ4, ključna riječ5. (*Times New Roman, 11, indent, justified*)

[1] For non-Croatian authors this part is edited by Editorial Board.