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МЕЂУНАРОДНИ НАУЧНИ СКУП  
„ИЗАЗОВИ И ПЕРСПЕКТИВЕ РАЗВОЈА  
ПРАВНИХ СИСТЕМА У XXI ВИЈЕКУ“  
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**Година V, Бања Лука, број 5 (2025)**  
**Том I**

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„CHALLENGES AND PERSPECTIVES OF THE DEVELOPMENT  
OF LEGAL SYSTEMS IN THE XXI CENTURY“  
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# NATIONALLY DETERMINED CONTRIBUTIONS UNDER THE PARIS AGREEMENT AND PUBLIC HEALTH<sup>1</sup>

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**Summary:** *The consequences of climate change have become increasingly pronounced, especially when it comes to population health. Over the decades, different documents have been adopted at the global level with the aim of mitigating climate change and adapting to it. In this paper, we analyze the Paris Agreement and nationally determined contributions (NDC) of different countries in order to find an answer to the question of whether the health is recognized within the NDCs and if so in which way, how detailed. One section of the paper is devoted to NDC of Serbia. The results of our research showed that health considerations are not well integrated, or not integrated at all in some developed countries, while NDCs of small African countries represent good examples. In the paper we also gave suggestions for improvement and better involvement of health considerations in NDCs.*

**Keywords:** *climate change, health, Paris Agreement, nationally determined contributions*

## 1. INTRODUCTION

In recent years, the consequences of climate change have become increasingly pronounced, especially when it comes to population health. The effects of climate change such as increasing temperatures, weather disasters, floods, and droughts negatively affect human health.<sup>3</sup> Climate change can worsen the condition of people who already suffer from various diseases such as cardiovascular<sup>4</sup> and respiratory diseases,<sup>5</sup> but it can also affect healthy population. Changing climate

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1 This paper was written as part of the 2025 Research Program of the Institute of Social Sciences supported by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia. This paper present research results of the project *Health in all policies – legal theory and practice*, Institute of Social Sciences, Center for Legal Research.

2 Research Associate, Institute of Social Sciences, email: [snikolic@idn.org.rs](mailto:snikolic@idn.org.rs) ORCID: 0000-0002-5938-4462

3 Benjamin K. Sovacool, *et al.*, “Critically examining research funding patterns for climate change and human health”, *npj Climate Action*, 64, 3 (2024): 2; Mark Maslin, *et al.*, “Understanding the health impacts of the climate crisis”, *Future Healthcare Journal*, 12, 1 (2025) 1-3; Gaia Bianco, *et al.*, “Projected impact of climate change on human health in low- and middle-income countries: a systematic review”, *BMJ Global Health*, 8, 3 (2024): 1 etc.

4 Simon Stewart, *Heart Disease and Climate Change* (Cham: Springer, 2024), 74, etc.

5 Chalachew Yenew, *et al.*, “Scoping review on assessing climate-sensitive health risks”, *BMC Public Health*, 25, 1, (2025): 3-7.

conditions can also lead to the emergence of new diseases in parts of the planet where they have not been previously present, as it was the case with the emergence of West Nile virus in Serbia in 2012.<sup>6</sup>

The connection between climate change and health is best illustrated by the statement of the Director of the Department of Environment, Climate Change and Health of the World Health Organization “the climate crisis is a health crisis. Gone are the days where climate change was a threat on the horizon. It is here now, it is making us sick, it is killing us.<sup>7</sup> Deaths and illness due to extreme heat are overloading already strained health systems. Air pollution kills over 7 million people per year and knows no borders, leading to asthma, ischemic heart disease, and stroke which are major killers of people across all nations. Wealth does not supersede the need to breathe.”<sup>8</sup>

Over the decades, different documents have been adopted at the global level with the aim of mitigating climate change and adapting to the consequences of climate change. One of the latest is the Paris Agreement. In this paper, we will analyze the Paris Agreement focusing on nationally determined contributions (NDC). Special section of the paper is dedicated to NDCs of different countries. We conducted comparative research in order to find an answer to the question of whether the health is recognized within the NDCs. Given the close connection between health and climate change, it is logical to expect that health is included in the NDCs of countries. The results of our research will show whether this is indeed the case. A special focus will be on the Serbian NDC. At the end of the paper, recommendations for improvement in this area will be provided.

## 2. PARIS AGREEMENT

As part of the United Nations Climate Change Conference held in Paris in December 2015, 197 member states of the United Nations Framework Convention on Climate Change adopted the Paris Agreement, a legally binding international treaty.<sup>9</sup> The agreement entered into force on November 4, 2016. The connection between climate change and health is recognized already in the preamble stating that “climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity.”<sup>10</sup>

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6 Sofija Nikolić Popadić, “The impact of climate change on human health: does legislation in Serbia adequately respond to the challenges?”, *Pravni zapisi*, XVI, 1(2025): 149.

7 “Climate-sensitive health risks or outcomes were estimated to make up 69.9% of global deaths in 2019.” 2023 WHO review of health in Nationally Determined Contributions and long-term strategies: health at the heart of the Paris Agreement (Geneva: World Health Organization, 2023). p. 10. <https://www.who.int/publications/i/item/9789240074729>, accessed 10.3.2025.

8 “Quality criteria for integrating health into Nationally Determined Contributions (NDCs)”, (Geneva: World Health Organization, 2024). [https://cdn.who.int/media/docs/default-source/environment-climate-change-and-health/quality-criteria-for-integrating-health-in-ndcs\\_web.pdf](https://cdn.who.int/media/docs/default-source/environment-climate-change-and-health/quality-criteria-for-integrating-health-in-ndcs_web.pdf), accessed 10.3.2025.

9 United Nations Climate Action <https://www.un.org/en/climatechange/paris-agreement>, accessed 11.3.2025; Mahinda Siriwardana, Duy Nong, “Nationally Determined Contributions (NDCs) to decarbonise the world: A transitional impact evaluation”, *Energy Economics*, 97 (2021): 105184.

10 Paris Agreement, p. 2-3. [https://unfccc.int/sites/default/files/english\\_paris\\_agreement.pdf](https://unfccc.int/sites/default/files/english_paris_agreement.pdf), accessed 11.3.2025.

One of the goals of the Paris Agreement is to limit the increase in the global average temperature “well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.”<sup>11</sup> It is also necessary to strengthen resistance to climate change and increase the ability to adapt to it.<sup>12</sup> One of the approaches in achieving these goals is the determination of NDCs. In this way, countries should contribute to the reduction of greenhouse gas emissions (GHG). According to the Paris Agreement countries should “prepare, communicate and maintain successive nationally determined contributions that intend to achieve” and they should “pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.”<sup>13</sup> The NDCs should be communicated every five years.<sup>14</sup> Countries have to regularly provide information which are “necessary to track progress made in implementing and achieving its NDC,” and also to provide “national inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases, prepared using good practice methodologies.”<sup>15</sup>

It has to be emphasized that countries within the Paris Agreement have “common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.”<sup>16</sup> The division is made between developed countries which should undertake “economy-wide absolute emission reduction targets,” developing countries which should “continue enhancing their mitigation efforts, and are encouraged to move over time towards economy-wide emission reduction or limitation targets in the light of different national circumstances,” and “least developed countries and small island developing States which may prepare and communicate strategies, plans and actions for low greenhouse gas emissions development reflecting their special circumstances.”<sup>17</sup> As Todić stated, the principle of equality and common but differentiated responsibility and respective capabilities “does not imply essential differentiation based on actual participation in global emissions, contribution to the creation of the problem as such and the possibility of participating in its solution.”<sup>18</sup> The Paris Agreement establishes a universal obligation for all parties to reduce GHG emissions in accordance with their respective capacities, while giving developing countries a distinct status through the differentiated delineation of rights and responsibilities for developed countries.<sup>19</sup>

The NDCs represent each country’s self-defined climate action plan, taking into account its national circumstances, capabilities, and level of development, when outlining targets and measures for reducing GHG emissions and adapting to the impacts of climate change. Therefore, the climate change adaptation action should be country-led, and should take into account the needs of

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11 Paris Agreement, art. 2.

12 Paris Agreement, art. 2.

13 Paris Agreement, art. 4.

14 Paris Agreement, art. 4.

15 Paris Agreement, art. 13.

16 Paris Agreement, art. 4.

17 Paris Agreement, art. 4.

18 Dragoljub Todić, “Princip zajedničke ali diferencirane odgovornosti i Pariski sporazum o klimi”, u *Klimatske promene: pravni i društveni izazovi*, ured. Sofija Nikolić Popadić, Marko Milenković (Beograd: Institut društvenih nauka, 2023), 25.

19 *Ibid.* More on common but differentiated responsibility, see: Stellina Jolly, Abhishek Trivedi, “Principle of CBDR-RC: Its Interpretation and Implementation Through NDCS in the Context of Sustainable Development” *Washington Journal of Environmental Law and Policy*, 310 (2021).

vulnerable groups, communities, and ecosystems, traditional knowledge, knowledge of indigenous peoples. Adaptation measures should be integrated into relevant social, economic, and environmental policies and actions.<sup>20</sup> Although adaptation measures are scaled down to the national and local levels to be better tailored to specific local conditions and needs, the Paris Agreement also encourages international cooperation and collaboration in achieving climate change adaptation goals. Among others, this should encompass sharing of information, good practices, experiences and scientific knowledge, which can be done through submission of adaptation communication as a voluntary, structured way for countries to share information.<sup>21</sup> Cooperation between countries should also include capacity building, taking measures to enhance climate change education and training, measures to raise public awareness, participation and access to information.<sup>22</sup> Financial support is also part of cooperation between countries, as stated in the Paris Agreement “developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation.”<sup>23</sup> It is also important to emphasize that involvement of each Party is necessary, as the lack of participation of individual countries, especially those that are significant GHG emitters, can importantly affect the achievement of the goal to keep global average temperature well below 2°C.<sup>24</sup> It should be noted that it is already questionable whether it is possible to reach the goals prescribed in the Paris Agreement as “according to the Copernicus Climate Change Service and the Berkeley Earth temperature update, June 2024 was the first time in the instrumental record that global mean surface temperatures reached 1.5°C above the pre-industrial period for 12 consecutive months.”<sup>25</sup>

### 3. HEALTH IN NATIONALLY DETERMINED CONTRIBUTIONS – COMPARATIVE ANALYSIS

Given the risks that climate change poses to the health of population (as outlined in the introduction of this paper) and the NDC as an approach to combat the consequences of climate change and to adapt to them, in line with the Paris Agreement, it would be logical to include field of health in the NDCs of countries. However, the questions are whether health is an integral part of the NDCs of all countries that are signatories to the Paris Agreement, and if so, to what extent is it represented and how detailed? According to the Paris Agreement NDCs should be recorded

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<sup>20</sup> Paris Agreement, art. 7.

<sup>21</sup> Paris Agreement, art. 7.

<sup>22</sup> Paris Agreement, art. 11, 12.

<sup>23</sup> Paris Agreement, art. 9.

<sup>24</sup> Mario Larch, Joschka Wanner, “The consequences of non-participation in the Paris Agreement”, *European Economic Review*, 163 (2024): 16-17.

<sup>25</sup> Alex Cannon, “Twelve months at 1.5°C signals earlier than expected breach of Paris Agreement threshold”, *Nature Climate Change*, 15 (2025): 266; Copernicus, “June 2024 Marks 12th Month of Global Temperature Reaching 1.5°C Above Pre-industrial” (Copernicus Climate Change Service, 2024); <https://climate.copernicus.eu/copernicus-june2024-marks-12th-month-global-temperature-reaching-15degabove-pre-industrial> accessed 14.7.2025; Robert Rohde, “June 2024 Temperature Update” (Berkeley Earth, 2024) <https://berkeleyearth.org/june-2024-temperature-update/> accessed 14.7.2025.

in a public registry<sup>26</sup> which is maintained by the United Nations Framework Convention on Climate Change (UNFCCC) secretariat. That registry was the basis for our research. We analyzed NDCs of different countries in order to find answers to above questions. Part of our research also included analysis of different documents of World Health Organization (WHO) as the WHO is actively working on these topics recognizing that “climate change presents a fundamental threat to human health.”<sup>27</sup>

The analysis shows that majority of NDCs include health considerations. There has been increment of NDCs that include health over the years. Namely, in 2019, approximately 70% of NDC included public health considerations,<sup>28</sup> while the results from 2022 show that that number increased to 91%.<sup>29</sup> Although the percentage of health considerations in NDCs is high, there are differences between countries in terms of the way of integration of health considerations and the level of details. This overall percentage includes both NDCs that only mention health, and countries in which health considerations have a significant place, where the problem of the relationship between climate change and health is approached in a much more detailed manner. Therefore, the division between countries which include health considerations in NDCs can be made based on different criteria. One criterion is integration of “health co-benefits from taking ambitious climate mitigation and adaptation action across sectors like energy, transport, housing, agriculture and industry.”<sup>30</sup> Approximately 30% of NDCs identify health co-benefits of climate mitigation, while 20% identify measures related to reduction of air pollution and therefore decrease of negative impact on health, and 24% of NDCs include mitigation measures which should contribute to the “general improvement in population health.”<sup>31</sup> Unfortunately, only 10% of NDCs quantify the health co-benefits of mitigation.<sup>32</sup> Health sector is also contributing to climate change with 5.2% of global greenhouse gas emissions.<sup>33</sup> Therefore, some countries (only 11%) included in their NDCs emissions reduction commitment for the health sector as well.<sup>34</sup> When it comes to climate change adaptation measures, health adaptation priorities are determined in 63% of NDCs.<sup>35</sup> They include different actions which should contribute to building “climate-resilient health system”<sup>36</sup> to enhance “prevention, surveillance and monitoring of climate-sensitive diseases, provide training and education to healthcare professionals and communities, perform vulnerability assessment and mapping...improving sanitation and hygiene practices as well as responding to climate-sensitive

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26 NDC Registry <https://unfccc.int/NDCREG> accessed 11.6.2025.

27 WHO, “Climate change” <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>, accessed 11.3.2025.

28 “Health in the Nationally Determined Contributions (NDCs): a WHO review”, (Geneva: World Health Organization, 2020), p. 4. <https://iris.who.int/bitstream/handle/10665/330656/9789240000674-eng.pdf> accessed 14.3.2025.

29 “2023 WHO review of health in Nationally Determined Contributions and long-term strategies: health at the heart of the Paris Agreement”, (Geneva: World Health Organization; 2023), p. 1. <https://www.who.int/publications/i/item/9789240074729> accessed 14.3.2025.

30 *Ibid.*, p. 5.

31 *Ibid.*

32 *Ibid.*

33 Marina Romanello, et al. “The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels”, *The Lancet*, 400, 10363, (2022): 1639.

34 “2023 WHO review of health in Nationally Determined Contributions and long-term strategies: health at the heart of the Paris Agreement”, p. 6.

35 *Ibid.*, p. 8.

36 *Ibid.*

vector- or water-borne diseases, and cardiovascular and respiratory-related diseases.”<sup>37</sup> Some countries include measures to improve “early warning systems for health risks and impacts.”<sup>38</sup>

It is interesting that approximately 87% of “low and lower-middle income countries have set health adaptation priorities.”<sup>39</sup> The research results show that usually those countries, as well as small island countries, typically include health considerations in their NDCs more thoroughly than many developed countries. When we analyzed the NDCs in search of examples of good practice, we could not find them in developed countries like Australia, Japan, or New Zealand. Some of developed countries do not even mention health considerations in their NDC, like it is the case in Australia,<sup>40</sup> New Zealand,<sup>41</sup> Norway<sup>42</sup> and Iceland.<sup>43</sup> Other developed countries usually mention health in NDCs and acknowledge correlation between climate change and health, but do not embed health in mitigation strategies, nor do they quantify health co-benefits in GHG reduction, or sector-specific emission reduction targets for healthcare itself, etc. While conducting our research, we managed to find good examples of integration of health into NDCs mostly in countries in Africa. One example is NDC of Kingdom of Eswatini. There is special section for health in NDC where it is stated that legal, policy and institutional frameworks for health sector should be enhanced. One of the ways to do so is to through “mainstreaming climate change into the national health policy and other strategic documents.”<sup>44</sup> This is very important as in some countries like Serbia, climate change is not included in all relevant strategies and documents. Only integration of different sectors which should work together can contribute to the achievement of desired climate and health goals. The NDC of Eswatini also emphasize the importance of “strengthening climate-informed disease control programs and surveillance systems using climate services to target vector control; improving and integrating the health management information system with other systems from relevant sectors to achieve a centralized Monitoring Review and Verification system and strengthening the preparedness and resilience of the health sector to respond to climate related emergencies and illnesses through preparedness plans and programs; establishing a multi-hazard early warning system to trigger prompt public health intervention when certain variables exceed a defined threshold”<sup>45</sup> This is important example as only 36% of all NDCs include

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37 “Nationally determined contributions under the Paris Agreement”, UNFCCC Secretariat, 2022, 35 <https://unfccc.int/documents/619180> accessed 14.3.2025.

38 “2023 WHO review of health in Nationally Determined Contributions and long-term strategies: health at the heart of the Paris Agreement”, p. 8.

39 *Ibid.*

40 “Australia’s Nationally Determined Contribution Communication 2022”, Australian Government Department of Industry, Science, Energy and Resources. <https://unfccc.int/sites/default/files/NDC/2022-06/Australias%20NDC%20June%202022%20Update%20%283%29.pdf> accessed 19.3.2025.

41 “New Zealand’s second Nationally Determined Contribution 2025”, New Zealand Government <https://unfccc.int/sites/default/files/2025-01/New%20Zealand%27s%20second%20Nationally%20Determined%20Contribution.pdf> accessed 19.3.2025.

42 “Norway’s Nationally Determined Contribution (NDC) for 2035” <https://unfccc.int/sites/default/files/2025-06/Norways%20NDC%20for%202035..pdf> accessed 10.6.2025.

43 “Update of the Nationally Determined Contribution of Iceland 2021”, Government of Iceland. [https://unfccc.int/sites/default/files/NDC/2022-06/Iceland\\_updated\\_NDC\\_Submission\\_Feb\\_2021.pdf](https://unfccc.int/sites/default/files/NDC/2022-06/Iceland_updated_NDC_Submission_Feb_2021.pdf) accessed 19.3.2025.

44 “Kingdom of Eswatini, Update of the Nationally Determined Contributions Submitted to the United Nations Framework Convention on Climate Change (UNFCCC)”, October 2021. p. 4. <https://unfccc.int/documents/497962> accessed 24.3.2025.

45 *Ibid.*, p. 4, 5.

risk monitoring and early warning.<sup>46</sup> Kingdom of Eswatini also included the goal of enhancing the capacity of healthcare workers to address the health impacts of climate change.<sup>47</sup> This is also significant as only 11% of all NDCs include health workforce and strengthening their capacity to respond to climate change challenges.<sup>48</sup> The country that goes even further is Seychelles which stated in the NDC that National Institute of Health and Social Studies “has identified areas where climate adaptation can be integrated into the curriculum for professional health education programs including nursing and environmental health.”<sup>49</sup> In general, the NDC of Seychelles is also one of the good examples how small country dedicated special section to health within the NDC. Some of the goals of this NDC are to build capacity and resilience in the health sector, to improve health surveillance related to climate change issues, to build “early warning systems that enable early action to reduce impacts of climate hazards on health and wellbeing.”<sup>50</sup>

When it comes to European countries, it is important to state that the European Union (EU) submits NDC on behalf of the EU and its Member States. The latest update on NDC was submitted in October 2023.<sup>51</sup> In our research we analyzed the submission of intended NDC from 2015, NDC from 2020 and the update from 2023. We came to the conclusion that health considerations were not included in the submission from 2015<sup>52</sup> nor in 2020<sup>53</sup> and 2023. The EU NDC focuses almost entirely on mitigation targets and associated policies, and does not explicitly integrate health objectives, measures, or co-benefits in any substantive manner. This is very important conclusion. It is hard to understand why EU did not include health considerations in NDC, having in mind all correlations and interdependence between climate change and health. This should be changed as NDC is a document that Member States should follow when preparing their integrated national energy and climate plans (NECPs). Although the alignment of NECPs with EU targets and goals regarding climate change is ensured through EU legislation, we consider that recognizing health within the NDC is very important.

In search for positive example of integration of health considerations within the NDC of country in Europe (non-EU), we found the NDC of the United Kingdom of Great Britain and

46 “2023 WHO review of health in Nationally Determined Contributions and long-term strategies: health at the heart of the Paris Agreement”, p. 8.

47 “Kingdom of Eswatini, Update of the Nationally Determined Contributions Submitted to the United Nations Framework Convention on Climate Change (UNFCCC)”, p. 4.

48 “2023 WHO review of health in Nationally Determined Contributions and long-term strategies: health at the heart of the Paris Agreement”, p. 8.

49 “Republic of Seychelles, Seychelles’ Updated Nationally Determined Contribution”, July 2021, p. 34. [https://unfccc.int/sites/default/files/NDC/2022-06/Seychelles%20-%20NDC\\_Jul30th%202021%20\\_Final.pdf](https://unfccc.int/sites/default/files/NDC/2022-06/Seychelles%20-%20NDC_Jul30th%202021%20_Final.pdf) accessed 26.3.2025.

50 “Republic of Seychelles, Seychelles’ Updated Nationally Determined Contribution”, p. 35-36.

51 Council of the European Union, “Submission to the UNFCCC on behalf of the European Union and its Member States on the update of the nationally determined contribution (NDC) of the European Union and its Member States”, Brussels October 2023. <https://data.consilium.europa.eu/doc/document/ST-14286-2023-INIT/en/pdf> accessed 8.4.2025.

52 “Submission by Latvia and the European Commission on behalf of the European Union and its Member States, Intended Nationally Determined Contribution of the EU and its Member States”, March 2015. <https://unfccc.int/sites/default/files/LV-03-06-EU%20NDC.pdf> accessed 8.4.2025.

53 In 2020 submission word health is mentioned, but that was only related to nature-based solutions, as their implementation should bring improvement in different fields among which is health. Council of the European Union, “Submission to the UNFCCC on behalf of the European Union and its Member States on the update of the nationally determined contribution of the European Union and its Member States”, Brussels December 2020, p. 4. <https://data.consilium.europa.eu/doc/document/ST-14222-2020-REV-1/en/pdf> accessed 8.4.2025

Northern Ireland (UK). Namely, the NDC of UK has a special section entitled Health and air pollution.<sup>54</sup> Right at the beginning of that section in the updated NDC in 2022, it was stated that “Air pollution is the top environmental risk to human health in the UK.”<sup>55</sup> Tackling all types of air pollution is devoted to the UK’s Clean Air Strategy, with the aim to “save lives and reduce health inequalities, in line with protecting the right to health as set out in the Paris Agreement.”<sup>56</sup> In 2025 UK submitted the 2035 NDC in which it stated that the UK government, when preparing interventions for reducing GHG emissions, considers also the effects on public health.<sup>57</sup> In the section on Health and air pollution it is noted that work on decarbonization of transport will contribute to the reduction of air pollution and “improve people’s health.” It is stated that the government will work with local authorities in order to implement measures related to air quality and to “improve the health of their residents.”<sup>58</sup> This is an example how different fields and sectors are interconnected and have to work together especially at the local level in order to achieve intended goals regarding the health of population.

#### 4. HEALTH IN NATIONALLY DETERMINED CONTRIBUTIONS OF SERBIA

The Parliament of the Republic of Serbia adopted the Paris Agreement on 29<sup>th</sup> of May 2017.<sup>59</sup> Becoming the Party to this international treaty Serbia is obliged, among other things, to submit NDC. The Government of the Republic of Serbia submitted the Intended National Determined Contributions in 2015. The updated NDC – “Nationally Determined Contribution (NDC) of the Republic of Serbia for the 2021–2030 period” was submitted on 24<sup>th</sup> of August 2022.<sup>60</sup> The health is mentioned only at the beginning of the NDC within the fields that are affected by the climate change, stating that “the vulnerability of water resources, agriculture, forestry, including biodiversity and health has already been confirmed.”<sup>61</sup> Unfortunately, health considerations (apart from mentioning the health in previously cited sentence) did not find the place in the NDC. Having in mind severe impact of climate change on human health in Serbia, especially regarding the heatwaves, storms and other weather disasters that are becoming more frequent in the last few

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54 “United Kingdom of Great Britain and Northern Ireland’s 2035 Nationally Determined Contribution”, January 2025, p. 46. <https://assets.publishing.service.gov.uk/media/679b5ee8413ef177de146c1e/uk-2035-nationally-determined-contribution.pdf> accessed 11.7.2025.

55 “United Kingdom of Great Britain and Northern Ireland’s Nationally Determined Contribution”, Updated: September 2022, p. 33. <https://assets.publishing.service.gov.uk/media/633d937d8fa8f52a5803e63f/uk-nationally-determined-contribution.pdf> accessed 11.7.2025.

56 *Ibid.*

57 “United Kingdom of Great Britain and Northern Ireland’s 2035 Nationally Determined Contribution”, p. 34.

58 *Ibid.*, p. 47.

59 Law on Ratification of the Paris Agreement, “Official Gazette of the Republic of Serbia - International Treaties”, No. 4 of 30 May 2017.

60 “Nationally Determined Contribution (NDC) of the Republic of Serbia for the 2021–2030 period”, [https://unfccc.int/sites/default/files/NDC/2022-08/NDC%20Final\\_Serbia%20english.pdf](https://unfccc.int/sites/default/files/NDC/2022-08/NDC%20Final_Serbia%20english.pdf) accessed 4.3.2025.

61 *Ibid.*, p. 1.

years,<sup>62</sup> it would be of great importance to include health considerations in NDC. The possibility to do so was in the part 3. *Scope and coverage*, especially in the section dedicated to Mitigation co-benefits resulting from Parties' adaptation actions. In that part, the NDC mentioned mitigation co-benefits for agriculture, forestry, bioenergy and hydrology,<sup>63</sup> but unfortunately did not include health co-benefits.

In general, connection and interdependence between health and climate change was not properly recognized in Serbia until the Climate Change Adaptation Program for the 2023–2030 Period (CCAP)<sup>64</sup> was adopted.<sup>65</sup> The special section of CCAP is dedicated to “Human health and safety” which includes differentiation between four climate hazard groups (too warm, too wet, too dry weather and storms), their impact on human health and safety<sup>66</sup> and groups which are especially vulnerable to climate change (elderly population, poor population, rural population, outdoor workers, children, pregnant women, chronic illness sufferers, people with disabilities).<sup>67</sup> Measures that should be implemented in order to increase population's resilience to climate change are also recommended within the CCAP together with specific implementation methods. Some of the measures are: to increase population preparedness for extreme weather conditions and other climate hazards, to increase the capacities for interventions of emergency services and health-care institutions, to improve disease and infections monitoring and prevent disease spreading or implement early interventions, to strengthen education and raise awareness among children and youth, to expand knowledge about vulnerability and risks to human health and safety, etc.<sup>68</sup> The approach in CCAP is in line with statement in the preamble of Paris Agreement which we cited in the section 2 of this paper.<sup>69</sup> Unfortunately these guidelines from Paris Agreement should have also been implemented in the Serbian NDC, which is not the case, as we concluded in our analysis. The change that CCAP brought by recognizing the impact that climate change has on human health is of utmost importance, especially considering that specific measures have been proposed to reduce the vulnerability of the population to the effects of climate change. Recognizing the connection between climate change and health within the framework of climate change adaptation programs is only the first step. For concrete changes, it is necessary to implement measures in practice, to connect different sectors and to carry out actions at the local level.<sup>70</sup> The coming

62 Nikolić Popadić, “The impact of climate change on human health: does legislation in Serbia adequately respond to the challenges?”, *Pravni zapisi*, XVI, 1(2025): 148-150; Sofija Nikolić Popadić, “Klimatske promene i poljoprivredna proizvodnja – pravni i strateški okvir”, u *Klimatske promene: pravni i društveni izazovi*, ured. Sofija Nikolić Popadić, Marko Milenković (Beograd: Institut društvenih nauka, 2023), 180-181.

63 *Ibid.*, p. 4-5.

64 Government of the Republic of Serbia, “Climate Change Adaptation Program for the 2023–2030 period”, “Official Gazette of the Republic of Serbia” No. 119/2023.

65 See: Nikolić Popadić, “The impact of climate change on human health: does legislation in Serbia adequately respond to the challenges?”, 157-159.

66 For more details see: “Climate Change Adaptation Program for the 2023–2030 period”, p. 28.

67 For more details see: “Climate Change Adaptation Program for the 2023–2030 period”, pp. 20-30.

68 For more details see: “Climate Change Adaptation Program for the 2023–2030 period”, pp. 30-32.

69 “climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity” Paris Agreement, p. 2-3.

70 Nikolić Popadić, “The impact of climate change on human health: does legislation in Serbia adequately respond to the challenges?”, 159.

years will show whether the proposed measures will remain just part of the plan or will actually be implemented in practice.

## 5. CONCLUSION

Even though most of NDCs include health, results of our research shows that health considerations are detailed included only in small percentage of countries. Those are usually small countries which are most affected by climate change. Developed countries in their NDCs focus more on reduction of GHG emissions and either do not connect health considerations within the mitigation and adaptation measures, or when including them that is usually not done in detailed way. The deadline for submitting the third NDC was February 2025, but as most of the Parties (including EU) did not fulfill the obligation by that time, the deadline was extended to September 2025.<sup>71</sup> We hope that within this third round health considerations will take more significant place in NDCs as they deserve. At the end of this paper, we will provide some recommendations how this connection between health and climate change should be improved. One of the first steps is to explicitly link climate change and health in NDC goals, to clearly identify health as one of the priorities in mitigation and adaptation sections and to integrate health vulnerability assessments into NDC planning. To include health targets in NDC, such as reductions in air pollution-related mortality or improvements in climate-resilient health systems, to quantify and emphasize health co-benefits of climate policies. As already emphasized, it is very important to integrate different sectors as only together we can reach goals regarding public health. One of the steps in this process is also to include health professionals, scientists, and civil society in NDC consultations. Raising public awareness regarding negative effects of climate change on health and also possibilities to contribute to mitigation activities is very significant, as in the end it is not only the state and the government (although their steps are crucial) that should be involved and work in these fields, but the local communities and individuals who are directly affected and who can also make concrete changes and improvements. It is important to emphasize that implementation of measures in practice is crucial as without that prescribed goals in NDCs will remain just letters on the paper.

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<sup>71</sup> European Parliament, “Updating the EU’s Nationally Determined Contribution to the Paris Agreement”, [https://www.europarl.europa.eu/RegData/etudes/ATAG/2025/772893/EPRS\\_ATAG\(2025\)772893\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2025/772893/EPRS_ATAG(2025)772893_EN.pdf) accessed 14.7.2025.

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