Alsamara, I.; Beinert, S. F.; De Jong, J. C.; Klappe, M. J. P.; Marewski, V. S. (Policy brief). SEEJPH 2022, posted: 23 June 2022. DOI: 10.11576/seejph-5603

POLICY BRIEF

IMPACT

Ideal Measures for Participation and Awareness of Climate Change: Stronger Together

Citizen participation in achieving the European Green Deal in the Meuse-Rhine Euroregion

Issam Moussa Alsamara[1], Stefanie Felicitas Beinert[1], Jeanne Catelijne de Jong, Maaike Jeannette Barbara Klappe[1], Viktoria Sirkku Marewski[1], Rana Orhan[1,2]*

[1]Department of International Health, Care and Public Health Research Institute – CAPHRI, Faculty of Health, Medicine and Life Sciences, Maastricht University, Maastricht, The Netherlands
[2]The Association of Schools of Public Health in the European Region
*Senior advisor

Corresponding author: Maaike Klappe,
Email: m.klappe@student.maastrichtuniversity.nl
Address: Universiteitssingel 60 6229 ER Maastricht, The Netherlands

Abstract

Context: The European Green Deal is a tool to make Europe the first climate-neutral continent by 2050. To reach this goal, action is needed on all organizational levels. At the same time, temperatures keep rising, and the Meuse-Rhine Euroregion (EMR) suffered from heavy floods in the summer of 2021and extreme weather events are expected to increase. This is an example of a cross-border issue and therefore shows the need for cross-border climate action. The EMR could be a showcase for climate action and collaboration for other border regions across Europe and worldwide**.**

Policy Options: Citizens often do not feel responsible for taking climate action; however, everyone should contribute to achieving the biggest results in tackling climate change. Therefore, three policy options are presented to increase citizen participation in climate action: local climate measurements, sustainable food consumption, less food waste, and sustainable cities through urban gardening. These policy areas deserve more attention and have room for improvement.

Recommendations:

- Encourage the implementation of citizen science projects in the EMR.
- Gather insights on the region's greenhouse gas emissions.
- Provide more sustainable food in institutional canteens and reduce food waste.
- Use social media as a tool to provide information about sustainable food.
- Use urban areas for urban gardening projects.
- Create community sustainability challenges**.**

Keywords: *Citizen participation; Climate change; European Green Deal; Meuse-Rhine Euroregion*

Introduction

Climate change is one of the main challenges that encounter humanity, and its consequences will keep on affecting the current forms of life on earth for the decades and centuries to come. The human influence on warming the atmosphere is unequivocal (1). Moreover, in every region across the globe, the environment is affected by human-induced climate change. With the continuing global warming, it is projected that the global water cycle and other weather extremes will be further intensified (1, 2, 3).Furthermore, the projected change in climate is expected to alter the geographic range and burden of various climate-sensitive health outcomes and affect the functioning of public health and health care systems (4). Substantial increases in morbidity and mortality are expected over the coming decades if no additional actions are taken (5). Figure 1 illustrates the pathways by which climate change can affect health (6).

Global actions to mediate and counter climate change have started taking shape since the second half of the twentieth century and kept on gaining momentum and support from growing stakeholders around the world. The Paris Agreement in 2015 is one of the most significant steps the international community has taken toward limiting global warming in the last two decades. It is a result of the continuing efforts of the United Nations Framework Convention on Climate Change and the Intergovernmental Panel on Climate Change. Besides, the latest Conference of Parties of the UNFCCC (COP26) in November 2021 set several objectives, like committing to more ambitious targets to reduce Greenhouse Gas (GHG) emissions by 2030 and other matters regarding adaptation measures and funds for developing countries (8).

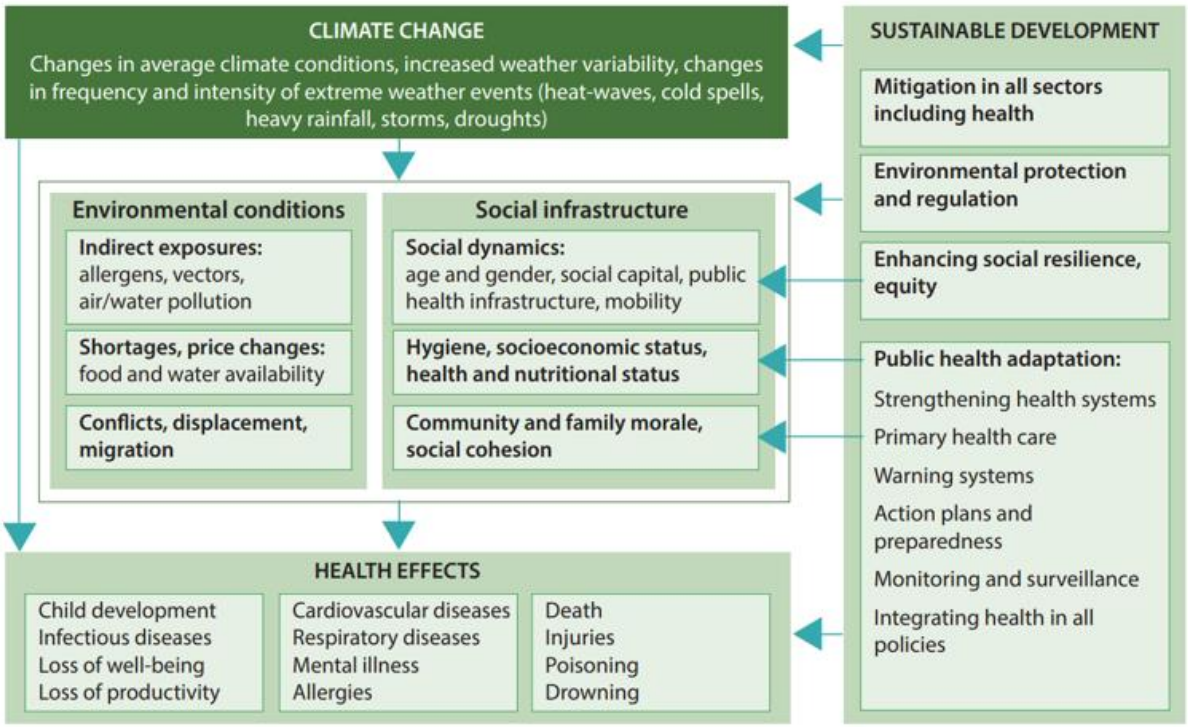

Figure 1: A combination of conceptual frameworks to show the effects of climate change on health, conducted by the WHO Regional Office for Europe (7).

Europe is a key stakeholder in humanity's fight against climate change due to several reasons. One is the historical and ongoing contribution of the European states to warming the climate. Moreover, Europe must deal with the severe consequences of climate change, as it threatens high temperatures, droughts and wildfires, availability of freshwater, and sea-level rise across Europe (9). Finally, and most importantly, there is a desperate need for a global leader who spearheads the fight against climate change. Through its endeavors, the European Union is claiming such a position. That is by leading by example, i.e., through adopting advanced environmental legislation, achieving its international obligations regarding its CO_2 emission reduction, stepping up its goals to cut down emissions, and even making it a legal obligation through the European Climate Law (10, 11).

Those endeavors could be spotted in the objectives of the European Green Deal, where the Member States agreed on an array of policy initiatives that set out how to make Europe the first climate-neutral continent by 2050 (12). One of the main strategies of the European Green Deal is the Farm to Fork Strategy (F2F), which is at the heart of the Deal. This strategy addresses the challenges of sustainable food systems and recognizes the inextricable links between healthy people, healthy societies, and a healthy planet. F2F is also essential to the European Commission's agenda to achieve the United Nations' Sustainable Development Goals (SDGs), in particular SDG 12 (Sustainable Consumption and production) and SDG 13 (climate action) (13). The F2F approach aims to ensure that agriculture, fisheries, aquaculture, and the food value chain contribute appropriately to the process of curbing the GHG emissions, as stated by the EU goals (14). According to the European Environment Agency, the 2019 levels of GHG emissions correspond to a higher reduction rate than the original target set for 2020 (15). Moreover, bringing citizens together in the development and implementation of the European Green Deal is the aim of the European Climate Pact. That is because citizens' just and inclusive participation and engagement in all areas of the deal is essential for the transition towards a climate-neutral, sustainable Europe (1).

Context

During the Summer of 2021, the European continent witnessed one of the direct effects of global warming. After the unprecedented heatwave in June, the hottest one since 1901, devastating floods hit different river basins across Europe, killing hundreds of people, displacing thousands, and damaging the infrastructure and the agricultural lands, resulting in billions of euros in losses (17).

These floods contributed to the truth that the effects of climate change know no borders. This fact necessitates cross-border collaboration in climate action and makes cross-border regions within Europe the main stage to initiate actions and mediate changes. Furthermore, the similarity in context and culture in those regions create, to an extent, a similar theme of challenges and barriers, thus, similar solutions as well.

The dreadful disaster was evident in the Meuse-Rhine Euroregion (EMR), where the most intense floods occurred. The EMR is a cross-border collaboration composed of three languages (French, Dutch, and German) and five partner regions, including the Dutch Province of Limburg, the German Zweckverband of the Aachen Region, the German-speaking community of Belgium, and the Belgian provinces of Liège and Limburg (18,19).

This policy brief will target the citizens of the Meuse-Rhine Euroregion in its options due to

several reasons. The EMR is one of the oldest cross-border regions in Europe, and it retains a high population density, numerous industrial activities, high traffic, and frequent large-scale events. Therefore, it is at high risk of large-scale disasters (20,21). Moreover, the environment is one of the critical subjects the EMR wants to work on in the upcoming years (22). Additionally, the EMR could be a showcase for other border regions across Europe and worldwide.

This policy brief aims to provide decision-makers in the EMR with several policy options to promote climate literacy and climate action among citizens of the Meuse–Rhine Euroregion under the umbrella of the Farm to Fork strategy and the European Green Deal

Policy Options

Although a long-term strategy to mitigate climate risks is needed, research in Hollands Noorderkwartier in The Netherlands has shown that citizens often do not feel responsible for taking climate action. Even though the urgency of climate change is apparent, they do not feel like they would be the ones responsible for inducing change (23). So, to achieve the biggest results in tackling climate change and increasing citizen participation in the EMR, new policy areas should get more attention. Firstly, citizen participation throughout local climate measurements is an under-explored area that can play an essential role in improving the feeling of responsibility in citizens. Secondly, food waste and sustainability are some of the most significant contributors to climate change, making it a relevant policy area with great opportunities. Lastly, urban sustainability is needed in the increasing urban-focused communities of the EMR. These broad policy options are required to achieve the biggest results for a sustainable future in the EMR..

Citizen participation support throughout the use of local climate measurements

Citizen involvement in scientific measurements, or citizen science, could be beneficial in the early detection and communication of climate events through monitoring and sharing data. The risk management for the flooding in the EMR was insufficient to provide safe evacuations for all citizens in the affected areas. In these cases, early detection and risk communication could save lives by allowing for early-stage evacuation (24). For example, the EMR could draw on the experiences of a citizen observatory for flood risk reduction in Brenta-Bacchiglione, Italy (25). Local climate measurements could thus be an efficient way to obtain reliable data on air quality while increasing awareness and

knowledge of environmental change indicators, like air pollution.

Citizen science has recently gained attention in environmental monitoring projects, and communities could potentially greatly expand the scope. In the Netherlands, the project 'Measure Together' supports citizen science locally (26). Climate participation projects have efficiently increased knowledge and awareness (27). So far, similar projects have not been implemented in the EMR.
Different types of citizen science projects exist; some are contributory, others collaborative, and some are co-created projects in which researchers and citizens design together (28). An example of an effective citizen science project is a tool for carbon calculation, which contributed to achieving the local CO2 targets in various cities in Austria, Germany, and Spain. This online tool gives insights into the carbon footprint of citizens by collecting data on several aspects of environmental factors. Besides increasing awareness and knowledge of CO2 impacts, the CO2 emissions of participants slightly decreased during the project (29).

Sustainable food consumption and less food waste

Current food consumption patterns are neither sustainable for health nor the environment (30)**.** Besides contributing to cardiovascular diseases and death in humans, tonnes of waste and increased amounts of emissions per capita are hazardous consequences for the planet (31). In the EMR, these emissions are almost twice as high as the global average (32). That is why the EMR must transform the environmentally friendly choice into the easiest choice. Thus, for that purpose, alternative approaches are to follow.
Firstly, provide information; Customers often do not pay attention to storage instructions on the packaging. As a result, food is usually thrown away both because it is not consumed before it has passed its "best by" date or because many goods in retail shops remain unsold since consumers prefer to buy food with a longer shelf life (33). Besides this information about food waste, education about food production and its impacts on health and the environment is needed. The arrangement of this explicit information makes it less demanding for people to select healthy and economic diets that will benefit their well-being (30). Therefore, innovative ways to provide this information through other means, including digital possibilities, social media, and more regional-related announcements, are needed.

Secondly, creating opportunities: The EMR could be a best practice example by setting minimum mandatory criteria for sustainable food procurement in institutional catering. By integrating daily vegetarian and vegan food in public canteens, a large part of the population would consume fewer animal products and eat a healthier diet (34). Vegetarian and vegan food in canteens can also inspire people to change their daily lives. Additionally, the third-largest source of food waste in Europe is the food service industry, including school canteens (35). One of the main reasons for this plate waste is a lack of knowledge and awareness (36). Cities, regions, and public authorities could assume responsibility for sourcing sustainable food for schools, universities, and local institutions. In this manner, the EU plans to enhance its commitment to feasible nourishment utilization and, specifically, reinforce informational messages on the significance of healthy nutrition, ecologic production, and diminishing food waste (30).

And lastly, promote awareness; To shift the consumer's attention to the process of food production, the EMR could promote the extension of nutritional labeling on the front of the packaging. In addition, origin or provenance information should become obligatory to indicate CO2 and water pollution. If the product proved an appropriate balance, it could receive its own EMR Eco-label (32). Furthermore, citizens should be more aware of the impact of customer behavior on food waste and, therefore, the environment. On the other hand, decision-makers should also be mindful of the different motivations of citizens to change behavior, such as saving money and social responsibility (37). The aim is to create awareness of food's background and strengthen regional offers related to this, and canteens could state where the products are from and how disrupting they are for the environment (32).

Sustainable Cities through Urban Gardening

Due to the advancing climate change, urban areas are currently facing significant challenges.

On the one hand, ways must be found to deal with more frequent weather extremes (38). On the other hand, urban areas should involve residents in land use, provide opportunities for them to be outdoors, be physically active, interact with each other, and learn more about our environment and the consequences of

climate change. One way to get closer to these goals is to use urban spaces for community projects such as urban gardens to combine urban planning with social aspects.
Considering the weather extremes of recent years, areas used for urban gardening can be very beneficial because they help infiltrate large amounts of water, reducing the risk of flooding. They also support groundwater replenishment. In addition, the influence of green spaces on temperatures must be considered. Unsealed surfaces such as grass or patches do not store heat as much as asphalt or pavement do and, thus, contribute to regulating the urban climate in summer (39).
It has also been shown that urban green areas positively affect air quality as they absorb, e.g., carbon monoxide, ozone, nitrogen oxide, or sulfur dioxide (39, 40, 41). Furthermore, this type of space increases the urban landscape's biodiversity by providing habitats for insects, birds, small mammals, and a wide range of different vegetation, both ornamental and crop plants (39, 41, 42). The social dimension of community gardening is another considerable advantage. People from all generations can contact each other and grow their food (42). Physical work outdoors and social engagement can prevent or improve health-related issues such as stress, social isolation, and depression (43, 44).

It has also been shown that people integrated into such projects by growing their food, consuming more fruits and vegetables, and having better food knowledge (45). Furthermore, an argument for these projects within cities is the accompanying educational opportunities. Children and adolescents especially can learn more about nature, conservation, sustainability, seasonality, and our food production (45). Working in a community garden makes it possible to raise environmental awareness and promote citizen participation in the fight against climate change (39).

Recommendations

The recommendations provided in this section elaborate on implementing practical solutions to promote climate literacy and climate action among citizens. To provide an integrative approach to tackling climate change, we call on policymakers and researchers to follow our holistic recommendations.

- **Prioritize funding of citizen science, urban gardening, and sustainable food projects in the EMR**

Internal or external money, current or new staff time, technical skills, or stakeholder

buy-in may be necessary to support a project or program, depending on the goals. Noteworthy, the EMR is part of an EU fund for a stronger Euregion (21). To reach a significant impact, it is necessary to invest in implementing the proposed projects.

- **Ensure equal participation options for every citizen**

A precondition of successful implementation is accessibility to *all* citizens within the EMR. It must not be related to their education, age, disabilities, country of origin, or financial situation.

- **Empower implementation of the projects through organizational support**

Policymakers should contribute to measures that look beyond country borders. Citizens should be provided with the possibility to gain insights into climate data. Early-stage participation of partners should be considered, for example, by stimulating

debates, gathering information, or seeking neighbors to sign a sustainability pledge.

- **Stimulate the formulation of clear sustainability goals**

Program designers should work with clearly defined goals, communicate the goals of such programs to the public, and choose specific actions to pursue. These goals should be coherent, well-designed, relevant to the community, and proactive.
All measures must be evaluated to improve the value and create long-term advancements.

- **Encourage the implementation of citizen science projects in the EMR**

Citizen science projects aim to increase environmental awareness among citizens while simultaneously gathering valuable data on the state of the environment. Reforms, as mentioned above, are needed to allow all citizens to take part in such projects.

- **Gather insights on the region's greenhouse gas emissions**

Help local governments determine and track progress towards goals by better understanding activities and emission sources.

- **Provide more sustainable food in institutional canteens and reduce food waste**

A big part of the EMR student population eats a few times per week in an institutional canteen. Therefore, this would be a suitable place to create opportunities for citizens to include more sustainable food into their diet.

- **Use social media as a tool to provide information about sustainable food**

Young citizens are progressive and open-minded, and they appear to be open to receiving advice through social media and find it easy to communicate with peers about societal subjects (46). Therefore, they are most likely to change their behavior more

sustainably if they are aware of the importance and know-how to act.

- **Use urban areas for urban gardening projects**

Urban areas should be used more intensively for urban gardening projects to promote the health of the residents, reduce environmental pollution, save biodiversity, and mitigate the effects of weather extremes in cities. Furthermore, the initiators must pay particular attention to the quality of the soil to prevent harmful consequences to health. The terrain must be suitable. Issues such as accessibility, water supply, and possible pollutants in the soil must be considered. The initiators have the task of ensuring this by reporting on the project as widely as possible, making it easily accessible, and ensuring that participation is free of charge.

- **Create community sustainability challenges**

Creating little public challenges (such as a one-month vegetarian diet), discounts for regional offerings, accessible outreach, and education, hosting a discussion on recycling and waste reduction, building a green gardening demonstration project, and so on might all be adopted. Community-based social marketing is critical, as it uses direct neighbor-to-neighbor communication and influence to encourage behavior change (47). Giving people and organizations in your audience short-term action checklists with doable tasks can help them feel accomplished. Such a list can offer suggestions and be a starting point for long-term behavior adjustment. The action items must be carried out in a low-key manner

Conclusion

The climate is changing, and the human influence on it is unmistakable. This policy brief stresses the urgent need for leadership to tackle these changes and provide opportunities for citizen participation. Implementing the suggested measures in the EMR will increase the knowledge and awareness of the environment among the EMR citizens and the local authorities, consequently leading to empowering people to engage in climate action. Even though there is a long way to go, the recommendations of this policy brief are provided in the belief that measures to include citizens in climate action are of high necessity to tackle climate change

Conflicts of interest
None declared.

Funding
None declared

Acknowledgments
The authors wish to acknowledge and thank Rana Orhan for her help and support in developing this policy brief. In addition, they want to thank Katarzyna Czabanowska for her guidance and assistance throughout the Public Health Leadership course at Maastricht University. “The content of this publication has not been approved by the United Nations and does not reflect the views of the United Nations or its officials or Member States”.

References

1. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [MassonDelmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis [Internet]. 2021 [cited 2021 Dec 2]. Available from: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf.
2. Smith KR, Woodward A, Campbell-Lendrum D, Chadee Trinidad DD, Honda Y, Liu Q, et al. Human Health: Impacts, Adaptation, and Co-Benefits Coordinating. Cambridge University Press. Cambridge, United Kingdom and New York, NY, USA; 2014.
3. Romanello M, McGushin A, Di Napoli C, Drummond P, Hughes N, Jamart L, et al. The 2021 report of the Lancet Countdown on health and climate change: code red for a healthy future. Lancet. 2021;398(10311):1619-1662. Doi:10.1016/S0140-6736(21)01787-6.
4. Mitchell D, Heaviside C, Vardoulakis S, Huntingford C, Masato G, P Guillod B, et al. Attributing human mortality during extreme heat waves to anthropogenic climate change. Environ Res Lett [Internet]. 2016 [cited 2021 Dec 8];11(7):074006. Available from: https://iopscience.iop.org/article/10.1088/1748-9326/11/7/074006.
5. Haines A, Ebi K. The Imperative for Climate Action to Protect Health. N Engl J Med. 2019;380(3):263-273. Doi:10.1056/NEJMra1807873.
6. Kendrovski V, Schmoll Oliver, Matthies-Wiesler F. Health and climate action: Policy brief [Internet]. World Health Organization. 2019 [cited 2021 Dec 8]. Available from: https://www.preventionweb.net/publi

cation/health-and-climate-action-policy-brief.
7. World Health Organization – Regional Office Europe. Protecting health in Europe from climate change: 2017 update [Internet]. Copenhagen; 2017 [cited 2021 Nov 9]. Available from:http://www.euro.who.int/__data/assets/pdf_le/0004/355792/ProtectingHealthEuropeFromClimateChange.pdf?ua=1.
8. European Council. Climate change: what the EU is doing [Internet]. 2021 [cited 2021 Dec 2]. Available from: https://www.consilium.europa.eu/en/policies/climate-change/.
9. European Commission. How will we be affected? [Internet]. 2021 [cited 2021 Dec 2]. Available from: https://ec.europa.eu/clima/eu-action/adaptation-climate-change/how-will-we-be-affected_en.
10. European Council. Climate change summit COP26 [Internet] 2021 [cited 2021 Dec 3]. Available from: https://www.consilium.europa.eu/en/policies/climate-change/paris-agreement/cop26/.
11. Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law'). PE/27/2021/REV/1 (June 30, 2021).
12. European Commission. A European Green Deal: Striving to be the first climate-neutral continent [Internet]. 2021 [cited 2021 Nov 22]. Available from: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en.
13. United Nations Development Programme. Sustainable Development Goals [Internet]. 2021 [cited 2021 Nov 9]. Available from: https://www.undp.org/sustainable-development-goals.
14. European Commission. Farm to fork strategy: for a fair, healthy and environmentally-friendly food system. Internet]. 2020 [cited 2021 Nov 9]. Available from: https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy_en.
15. Environmental European Agency (EEA). Is Europe reducing its greenhouse gas emissions? [Internet]. 2021 [cited 2021 Dec 3]. Available from: https://www.eea.europa.eu/themes/climate/eu-greenhouse-gas-inventory/is-europe-reducing-its-greenhouse.
16. European Commission. European Climate Pact [Internet]. 2020 [cited 2021 Nov 25]. Available from: https://ec.europa.eu/clima/eu-action/european-green-deal/european-climate-pact_en.
17. The Economist. Devastating floods in Germany warn Europe of the dangers of warming [Internet]. 2021 [cited 2021 Dec 6]. Available from: https://www.economist.com/europe/2021/07/16/devastating-floods-in-germany-warn-europe-of-the-dangers-of-warming.
18. World Health Organisation. Meuse-Rhine Euroregion [Internet]. 2018 [cited 2021 Nov 12]. Available from: https://www.euro.who.int/__data/assets/pdf_file/0008/373157/rhn-meuse-rhine-eng.pdf.
19. Paquay, M., Chevalier, S., Sommer, A., Ledoux, C., Gontariuk, M., Beckers, S. K., et al. Disaster management training in the euregio-meuse-rhine: What can we learn from

each other to improve cross-border practices? International Journal of Disaster Risk Reduction, 2021; (56):102134. Doi: https://doi.org/10.1016/j.ijdrr.2021.102134.

20. Ramakers M, on behalf of: Eumed members GGD Zuid Limburg, Staedteregion Aachen, Stadt Aachen, Kreis Heinsberg, Kreis Dueren. Eumed: a long history in cross-border acute care in the Euregio Meuse-Rhine. Eur J Public Health [Internet]. 2014 [cited 2021 Dec 8]; 24(2):2018. Available from: https://academic.oup.com/eurpub/article/24/suppl_2/cku164-052/2839479. Doi: https://doi.org/10.1093/eurpub/cku164.052
21. Interreg Euregio Meuse-Rhine. Lettre d'information: L'assistance transfrontalière Emric+ sauve des vies. [Internet] 2011 [cited 2021 Nov 5]. Available from: http://www.interregemrnews.eu/fr/lettre-dinformation/interreg-euregio-maas-rijn-5-zomer-2011/l39assistance-transfrontaliere-emric-sauve-des-vies/60/.
22. Regions for health network & World Health Organisation. Meuse-Rhine Euroregion. [Internet]. 2018 [cited 2021 Nov 7]. Available from: https://www.euro.who.int/__data/assets/pdf_file/0008/373157/rhn-meuse-rhine-eng.pdf.
23. Kreemers LM, van Brecht J, Bakker T, Renes RJ. Samen naar een klimaatbestendige omgeving: burgerparticipatie bij klimaatadaptatie in Hollands Noorderkwartier. HBO kennisbank. Amsterdam. 2020.
24. Mathiesen K, Posaner J, Gehrke L. Europe's floods: How a modern warning system was overwhelmed. Politico [Internet]. 2021 [cited 2021 Nov 7]. Available from: https://www.politico.eu/article/unnatural-disaster-the-german-belgian-floods-climate-change/.
25. Ferri M, Wehn U, See L, Monego M, Fritz S. The value of citizen science for flood risk reduction: Cost-benefit analysis of a citizen observatory in the Brenta-Bacchiglione catchment. Hydrol Earth Syst Sci. 2020; 24(12): 5781–98. Doi: https://doi.org/10.5194/hess-24-5781-2020.
26. Rijksinstituut voor Volksgezondheid en Milieu Ministerie van Volksgezondheid, Welzijn en Sport. Welcome to the knowledge portal 'Samen meten' / 'Measure together'. [Internet] 2021 [cited 2021 Oct 13]. Available from: https://www.samenmetenaanluchtkwaliteit.nl/international.
27. Peter M, Diekötter T, Kremer K. Participant Outcomes of Biodiversity Citizen Science Projects: A Systematic Literature Review. Sustainability [Internet]. 2019 [cited 2021 Dec 3];11(10):2780. Available from: https://www.mdpi.com/2071-1050/11/10/2780/htm. Doi: https://doi.org/10.3390/su11102780.
28. Bonney R, Mccallie E, Phillips T. Public Participation in Scientific Research: Defining the Field and Assessing Its Potential for Informal Science Education. Washington, D.C. Center for Advancement of Informal Science Education (CAISE). 2000.
29. Aichholzer G, Allhutter D, Strauß S. Using online carbon calculators for participation in local climate initiatives. In: Tambouris E, Macintosh A, Sæbø Ø, editors. International Conference on

Electronic Participation. Springer, Berlin, Heidelberg. pp. 85-96.
30. European Commission. Farm to Fork Strategy. For a fair, healthy and environmentally-friendly food system. Brussels; 2020.
31. International Food Container Organization. Food waste by country: who's the biggest waster? 2020 [cited 2021 Nov 17]. Available from: https://www.ifco.com/countries-with-the-least-and-most-food-waste/.
32. Federal Ministry for the Environment Nature Conservation and Nuclear Safety Germany (BMU). Environmental Sustainability, Consumption and Products and sustainable consumption [Internet]. 2020 [cited 2021 Oct 13]. Available from: https://www.umwelt-im-unterricht.de/hintergrund/umweltbewusstsein-konsumverhalten-und-nachhaltiger-konsum/. German.
33. Nicastro R, Carillo P. Food Loss and Waste Prevention Strategies from Farm to Fork. Sustainability. 2021;13(10):5443. Doi https://doi.org/10.3390/su13105443.
34. Umweltbundesamt. Biolebensmittel [Internet]. 2020 [cited 2021 Oct 27]. Available from: https://www.umweltbundesamt.de/umwelttipps-fuer-den-alltag/essen-trinken/biolebensmittel#gewusst-wie. German.
35. Eriksson M, Giovannini S, Ghosh R. Is there a need for greater integration and shift in policy to tackle food waste? Insights from a review of European Union legislations. SN Applied Sciences. 2020; 2(8):1-13.
36. Pinto R, Pinto R, Melo F, Campos S, Cordovil C. A simple awareness campaign to promote food waste reduction in a University canteen. Waste Management. 2018;76:28-38. Doi: https://doi.org/10.1016/j.wasman.2018.02.044.
37. Kim J, Rundle-Thiele S, Knox K, Burke K, Bogomolova S. Consumer perspectives on household food waste reduction campaigns. Journal of Cleaner Production. 2020;243:118608. Doi: https://doi.org/10.1016/j.jclepro.2019.118608.
38. World Health Organization. WHO Global Strategy on Health, Environment and Climate Change. The transformation needed to improve lives and wellbeing sustainably through healthy environments. Geneva: The World Health Organization. 2020.
39. Okvat HA, Zautra AJ. Community gardening: A parsimonious path to individual, community, and environmental resilience. American journal of community psychology. 2011;47(3-4):374-87. Doi: https://doi.org/10.1007/s10464-010-9404-z.
40. Demuzere M, Orru K, Heidrich O, Olazabal E, Geneletti D, Orru H, Bhave AG, Mittal N, Feliú E, Faehnle M. Mitigating and adapting to climate change: Multi-functional and multi-scale assessment of green urban infrastructure. Journal of environmental management. 2014;146:107-15. Doi: https://doi.org/10.1016/j.jenvman.2014.07.025.
41. Lin BB, Philpott SM, Jha S. The future of urban agriculture and biodiversity-ecosystem services: Challenges and next steps. Basic and applied ecology. 2015; 16(3):189-201. Doi: https://doi.org/10.1016/j.baae.2015.01.005.

42. Goddard MA, Dougill AJ, Benton TG. Scaling up from gardens: biodiversity conservation in urban environments. Trends in ecology & evolution. 2010; 25(2):90-8. Doi: https://doi.org/10.1016/j.tree.2009.07.016.
43. Schram-Bijkerk D, Dirven van Breemen EM, Otte PF. Healthy Urban Gardening. In: National Institute for Public Health and the Environment. Ministry of Health, Welfare and Sport (Ed.), RIVM. 2015. Report no: 2015-0172.
44. Soga M, Gaston KJ, Yamaura Y. Gardening is beneficial for health: A meta-analysis. Preventive medicine reports. 2017; 5:92-9. Doi: https://doi.org/10.1016/j.pmedr.2016.11.007.
45. Nettle C. Community Gardening and Food Security. Chain Reaction. 2010; 109: 18–19.
46. Klassen K, Douglass C, Brennan L, Truby H, Lim M. Social media use for nutrition outcomes in young adults: a mixed-methods systematic review. International Journal of Behavioral Nutrition and Physical Activity. 2018; 15(1):1-18. Doi: https://doi.org/10.1186/s12966-018-0696-y.
47. United States Environmental Protection Agency (EPA). Learning from EPA's Climate Showcase Communities: Climate and Energy Resources for State, Local, and Tribal Governments; 2020 [cited 2021 Nov 12]. Available from: https://19january2017snapshot.epa.gov/statelocalclimate/learning-epas-climate-showcase-communities_.html

Editable graphics: