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Case report

Nature step to health 2022-2032: Interorganizational collaboration to prevent human disease, nature loss, and climate crisis

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ABSTRACT

Existential risks of climate change and nature loss are proceeding and their impacts on human health are increasingly acknowledged. However, practical actions that broadly consider planetary health, that is, "the health of human civilization and the state of the natural systems on which it depends", are scarce. Therefore, *Nature Step to Health – Lahti Regional Health and Environment Programme 2022-2032* was initiated in 2021 by three main actors: Wellbeing services county of Päijät-Häme, City of Lahti, and Lahti University Campus. In this case report we describe how the programme was built: its initiation, coordination, objectives, main stakeholders, and lessons learned during the early process. Sharing this case may encourage and help others to similar initiatives and projects and action for planetary health.

1. Introduction

Environmental changes, increasing temperature and decreasing biodiversity (nature loss) are serious threats to human life. Here, we describe a transdisciplinary approach to prevent health and environmental crises in line with the planetary health concept [1].

While the existential risks of climate change and nature loss are acknowledged [2,3], practical actions towards a healthy and sustainable environment are scarce. In the northernmost countries, adverse effects of climate change include, e.g., deteriorating sleep and mental health due to less solar radiation and snow [4], more slipping injuries in winters [5,6], and increasing hospitalization and mortality due to summer heat waves [7,8]. These risks most endanger vulnerable groups such as the elderly [7,8], young children, and people suffering from chronic diseases [9]. Decline of natural biodiverse environments, especially in urban surroundings, reduces nature contacts, impoverishes the human microbiome, disturbs immune responses, and increases the risk of non-communicable diseases [10–12]. Implementation of a green transition has been slow in healthcare, although it is estimated to be responsible for nearly 5% of the total CO_2 emissions globally [13]. Healthcare systems have great potential to cut emissions by developing synergies with other sectors of the society. Moreover, a transdisciplinary approach would help to explore interactions between health and environment by identifying effective solutions via systems thinking.

To establish real-life evidence and a model for a local transformation, Nature Step to Health – Lahti Regional Health and Environment Programme 2022-2032 – was initiated in 2021 [14]. It is a 10-year commitment of three Finnish actors: Wellbeing services county of Päijät-Häme (Päijät-Sote), City of Lahti, and Lahti University Campus. The latter represents University of Helsinki and Lappeenranta-Lahti University of Technology (LUT). In addition, the programme is supported by expertise from Finnish Institute for Health and Welfare, Finnish Environment Institute, and Natural Resources Institute Finland.

To encourage others towards similar local or regional action plans, we report here the process of building the Lahti Regional Health and Environment Programme: its initiation, interorganizational collaboration, objectives, main stakeholders, and lessons learned during the early process.

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Table 1
Intersectoral and interdisciplinary task force for the Lahti Regional Health and Environment Programme 2022-2032.

Participant	Description	Role
Wellbeing services county of Päijät-Häme (Päijät-Sote)	The joint authority is responsible for the health, social and rescue services.	Coordinator of the programme
City of Lahti	Lahti is a regional centre with its 120,000 inhabitants and was the European Green Capital 2021.	Programme partner
Lahti University Campus	The Lahti University Campus connects professionals in the Lahti region, facilitates university research, development, and innovation (RDI) activities, disseminates information and aims to increase the impact of activities.	Programme partner
University of Helsinki	The University of Helsinki is Finland's largest academic institution and is partially based in Lahti.	The University of Helsinki participates in selected research projects and disseminates research-based information through its education and engagement with the community.
Finnish Institute for Health and Welfare (THL)	THL studies, monitors, and promotes health and wellbeing of the population. THL produces research-based information and provides interest groups with expert help and solutions to support their decision-making and work.	THL is a member of the Steering board and a programme partner in selected research projects.
Finnish Environment Institute (SYKE)	SYKE studies, assesses and promotes sustainability transformation, trends in community structure and biodiversity. SYKE produces research-based information and provides interest groups with expert help and solutions to support their decision-making.	SYKE is a member of the Steering board and a programme partner in selected research projects.
Natural Resources Institute Finland (Luke)	Luke is a national research and expert organization that produces information, e.g., of the impact of exposure to nature on people's health and wellbeing.	Luke is a member of the Steering board and a programme partner in selected research projects.
WWF Finland	WWF Finland is part of the international WWF network. WWF strives to halt the deterioration of the environment and build a future where people live in harmony with nature.	WWF Finland is a member of the Steering board and serves as an advisor in biodiversity topics.

2. Starting coordination and collaboration

Transdisciplinary initiatives are often plagued with a lack of commitment by decision-makers [15], highlighting the need to find impactful and committed partners. Cities and smaller regions act as catalyzers and hotspots for innovation and change, producing evidence-based data and experience for upscaling, including information about economic benefits. Urban governance exercises political, economic, and administrative authority for new initiatives, involving interaction between local governmental bodies and civil society.

The European Commission awarded the City of Lahti the title of European Green Capital 2021 for its long-term environmental work, proving its commitment to sustainable development. The Lahti University Campus had a role in supporting the environmental work with education and research, e.g., investigating the biodiversity hypothesis [10]. Päijät-Sote, the regional healthcare authority in Southern Finland, brought the stakeholders together [15] and leads the transdisciplinary initiative to improve the health of citizens and take care of the environment.

To identify experts, researchers, and advisors interested in interdisciplinary collaboration, the relevant regional and national stakeholders, and organizations (e.g., those linked to public health, nature, environment, climate change, biodiversity, nutrition, and medical services) were identified through professional networks [16]. Also, international actors like ISGlobal, Institute for Global Health in Barcelona, were consulted. The identified people and organizations were invited to the planning process (Table 1). In 2021, the project team prepared the programme and arranged regular online meetings with the key stakeholders to discuss priorities, goals, tasks, activities, implementation, and interorganizational collaboration. The programme was launched in November 2021 in a hybrid event attended by local people, companies, and representatives of various organizations.

3. Operationalizing the programme

3.1. Goals, tasks, and monitoring

Implementation of planetary health initiatives may be hampered by the question: Who is taking care of the costs [15]? As the main task was to move beyond disciplinary and cultural silos, the programme integrated the main regional health and environmental actors; Päijät-Sote, City of Lahti, and Lahti University Campus. The five overarching goals of the programme are: 1) preventing non-communicable diseases, 2) enhancing biodiversity, 3) climate change mitigation and adaptation, 4) improved interdisciplinary collaboration between different actors, and 5) cost-effectiveness. The goals are achieved through four cross-cutting tasks: a) healthy and sustainable nutrition, b) physical activity and active mobility, c) healthy living and sustainable environment, and d) connection to natural environments (Figure 1).

The tasks interlink with goals and correspond to regional needs. For example, obesity, along with sedentary lifestyle and reduced contact with natural environments [17], is a major concern as obesity in school aged children has been in constant increase (Figure 2). A healthy and environmentally sustainable diet and physical activity would help to turn this trend. In general, dietary factors are among the most important determinants of non-communicable diseases [18], and account for 23% of the global greenhouse emissions [19]. The programme aims to find new ways both for primary and secondary prevention of non-communicable diseases and their risk factors. In addition to obesity, the main indicator diseases are asthma, diabetes, and depression, and their prevention is integrated to the environmental goals to halt nature loss and mitigate climate change.

Overall, it may be difficult to monitor changes in human and environmental health with good quality data, because the data systems are fragmented [15]. The programme circumvents this by setting clear indicators for each goal to be monitored over ten years and supplements the data with shorter term project results. Monitoring the indicators does not increase costs, as these are included in national or regional schemes (e.g., prevalence of obesity or asthma or consumption-based CO_2 emissions), or are produced by regional actors (e.g., urban biodiversity). Prior to setting of the indicator targets (e.g., the incidence of obesity stops increasing), their feasibility was discussed in stakeholder meetings in 2021. The monitoring schemes are complemented with additional project- and survey-based results, as well as overall feedback. Performance of the programme is evaluated by the core team and steering group every 2-4 years, and corrective actions are taken when needed.

Fig. 1. The Nature Step to Health Program 2022-2032 has five goals and four cross-cutting tasks.

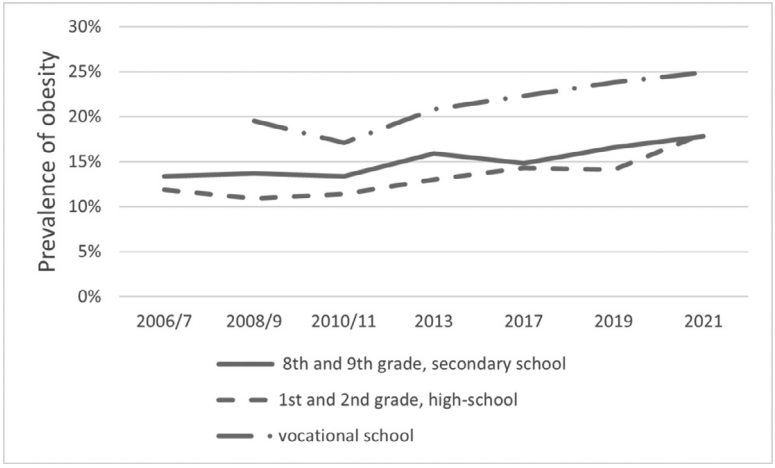

Fig. 2. Prevalence of obesity among school-aged children and youth in the Päijät-Häme region from 2006 to 2021. Source: School Health Promotion study, Finnish Institute for Health and Welfare.

3.2. Organizational structure and implementation

Multi-actor and transdisciplinary collaborations are notorious for their difficulty in sustaining and engaging action and actors [15], especially if they are based on short-term projects. Although Nature Step to Health is implemented via transdisciplinary projects and actions with separate funding sources, Päijät-Sote, the main program coordinator, City of Lahti and Lahti University Campus have all committed to implementation and allocated funding. Päijät-Sote has employed a planetary health physician and a manager for sustainable development, and Lahti University Campus a specialist to facilitate transdisciplinary research and higher education. Biweekly meetings of the core team and frequent communication to other stakeholders reduce institutional and cultural fragmentation and facilitate collaboration.

The programme implementation, monitoring and evaluation is additionally performed by a steering board that meets quarterly and consists of experts from all the organizations listed in Table 1. Program activities are also consulted with an expert board that meets three to six times per year and consists of practitioners of city governance, health and social services, and scientists from various fields, such as environmental and health sciences, natural resources, and circular economy. The expert board focuses on best practices, suggestions for practical initiatives and uses its networks to promote regional, national as well as international collaboration.

3.3. Strengthening and extending the networks

Although collaboration has improved among actors in the health and environmental sectors (e.g., in waste recycling and measuring carbon footprint), institutional fragmentation persists. Yet, a transformative change requires active engagement of a range of actors, highlighting the need for close communication and inclusiveness at all levels [20].

To start, the programme established a website with information on planetary health and related research projects, proceedings, best practices, and results of the projects. This information and publications or events are also shared via social media platforms to target different interest groups. In order to reach wider audiences podcasts, lectures, and educational materials are also developed, as showcased by the successful Finnish Allergy Program 2008-2018 [11] that was acknowledged by the European Commission in the Best Practice Portal of non-communicable diseases in 2021.

In 2022, the City of Lahti organized a video-based campaign called Planetary Prescription, that followed the wellbeing of five participants who were given personalized prescriptions for lifestyle

changes, e.g., barefoot forest walks, more plant-based diets, and gardening. The campaign reached more than 3 million people in Finland and millions of people across the world. However, more experimentation is needed with bottom-up approaches that could empower citizens, marginalized groups, and drive engagement of actors.

Challenges to collaboration between stakeholders include a lack of guidelines and practical expertise for transdisciplinary work, "silo thinking", differing agendas, lack of trust, allocation of working time, and inadequate funding [15]. Yet, there are already more than thirty research and development projects linked to the programme goals such as bicycle-sharing systems for lay-public or workplaces (incl. Päijät-Sote), projects addressing healthy nutrition and food waste (called FoodStep), and education related to planetary health. Experience and best practices need to be shared, e.g., via Planetary Health Alliance and the newly established European hub.

4. Conclusions for the future

Dos S Ribeiro and colleagues have provided a comprehensive analysis of similar transdisciplinary initiatives for the concept of One Health [15]. Our extensive interorganizational collaboration with local, regional, and national authorities and institutions sets an example on how various stakeholders, institutions and people can work together for common goals, although major capacity building for education, training and research is still needed to reach the goals.

In our experience, a foundation of interested parties and trust from previous collaboration have been the key to initiate a regional transition towards planetary health, and jointly address human disease, climate change and nature loss. They are already high priorities in the national and local agendas, and integrated policies advancing health and environmental issues have been welcomed. The broad acceptance and appreciation of the aims by the authorities involved has ensured the resources to initiate such a programme.

New transdisciplinary working methods, systems thinking, and funding are required to co-create and identify best practices towards planetary health. Thus, it is highly beneficial to consult similar initiatives and for projects to share experience, study results and materials, and jointly address fragmented data systems as well as ensure funding. The Planetary Health Alliance serves as an educational and cooperative platform that is open for all organizations and individuals to enlarge the activities and learn from each other.

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Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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