CENL
Foundation Conference of European National Librarians

ALL ROADS LEAD TO ROME

OR:
NATIONAL LIBRARIES ON THEIR WAYS TO SUSTAINABILITY

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Preface

Everyone talks about sustainability. And everyone has a different understanding of it. However, this divergence in understanding does not imply a right or wrong perspective. Rather, sustainability is a multifaceted concept, encompassing various dimensions.

Sustainability is not merely a buzzword but an attitude and a mindset. The sustainability mindset represents a distinctive approach to problem-solving, considering the enduring impact of our actions on the environment, society, and economy. Several principles are guiding this mindset:

Systems thinking: Recognising that everything is interconnected and that actions in one area can have unintended consequences in others, the sustainability mindset takes a holistic view of problems and seeks to address root causes rather than surface-level symptoms.

Resilience: The sustainability mindset values the ability of systems and communities to adapt and recover from shocks and stresses. It emphasizes the importance of building systems and communities that are resilient to both expected and unexpected challenges.

Equity: The sustainability mindset acknowledges that not all people have equal access to resources and opportunities, and seeks to promote fairness and justice in decision-making processes. It aims to ensure that the benefits and costs of actions are shared fairly across society.

Regeneration: The sustainability mindset emphasizes the importance of restoring and regenerating natural systems and resources that have been degraded or depleted. Beyond minimizing harm, it focuses on trying to create positive impacts on the environment.

Collaboration: The sustainability mindset recognizes that solving complex problems requires collaboration across different sectors and stakeholders. It values partnerships and cooperation in finding solutions that work for everyone.

Innovation: The sustainability mindset encourages creative thinking and the development of new technologies, practices, and business models that are more sustainable. It recognizes that innovation is essential for finding solutions to complex sustainability challenges.

By adopting these principles, individuals and organizations can develop a sustainability mindset and lay the foundation for a more sustainable future. In line with these principles, we believe that institutions such as national libraries, or libraries in general, have a crucial role to play in advocating and promoting sustainability. To underline this commitment, we have dedicated the 2023 Annual General Meeting of the Conference of European National Librarians (CENL) at the National Library of France in Paris to the topic of sustainability.

This publication collects some of the contributions from our meeting and provides an insight into the sustainability efforts of European national libraries and hopefully inspires others to follow the sustainability path.

Frank Scholze,
Director General of the German National Library and Chair of CENL

Content

Guillaume Lafortune:
The role of science, culture and ancient philosophy to achieve the universal Sustainable Development Goals

Building on the 2023 Sustainable Development Report[1]

The SDGs are not being achieved

The Agenda 2030, which includes the Sustainable Development Goals (SDGs) adopted by all UN Member States in 2015, is not being achieved. Each year, the UN Sustainable Development Solutions Network (SDSN) – the largest global network of researchers and scientists mobilized for the SDGs – tracks the performance of all UN Member States on the 17 Global Goals.

At the midpoint of the 2030 Agenda, all of the SDGs are seriously off track. From 2015 to 2019, the world made some progress on the SDGs, although this was already vastly insufficient to achieve the goals. Since the outbreak of the pandemic in 2020 and other simultaneous crises, SDG progress has stalled globally. In most rich countries, automatic stabilizers, emergency expenditure, and recovery plans mitigated the impacts of these multiple crises on socioeconomic outcomes. Only limited progress is being made on the environmental and biodiversity goals, including SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), SDG 14 (Life Below Water), and SDG 15 (Life on Land), even in countries that are largely to blame for the climate and biodiversity crises. The disruptions caused by these multiple crises have aggravated fiscal-space issues in developing countries leading to a reversal in progress on several goals and indicators.

The world must invest in eight major kinds of capital assets

Despite this alarming development, the SDGs are still achievable. None of their objectives are beyond our reach. The world is off track, but that is all the more reason to double down on the SDGs. At their core, the SDGs are an investment agenda. The urgent objective of the SDG Stimulus introduced by the UN Secretary-General Guterres in September 2022 is to address – in practical terms and at scale – the chronic shortfall of international SDG financing facing developing countries, and to ramp up financing flows by at least US$500 billion. In the most basic terms, the world must devote an increased portion of current output to building up sustainable capital assets for the future and must deploy such assets effectively through long-term planning and implementation pathways.

Development practitioners have identified eight major kinds of capital assets:

1. Human capital: The skills and health of a productive citizenry, supported by universal health access and coverage, quality education, shared data and knowledge, promotion of a culture of peace and nonviolence, global citizenship, and the appreciation of cultural diversity.

[1] Sachs, J.D., Lafortune, G., Fuller, G., Drumm, E. (2023). Implementing the SDG Stimulus. Sustainable Development - Report 2023. Paris: SDSN, Dublin: Dublin University Press, 2023. 10.25546/102924

2. Infrastructure: Energy production and distribution, land and sea transport, telecommunications, digital information services, public buildings (e.g., schools and hospitals), and safe water and sanitation.
3. Natural capital: The capacity and healthy functioning of ecosystems, to be protected by ending human induced climate change, protecting biodiversity, sustainably managing freshwater resources, and eliminating toxic pollutants.
4. Innovation capital: The stock of intellectual property and data resulting from public and private research and development, creative cultural works, and responsibly governed and managed emerging technologies.
5. Business capital: Goods and services of true social value derived from utilizing the machinery, buildings, information resources, and other capital assets that underpin business productivity.
6. Social capital: Social trust and pro-social values, good governance and justice, freedom of speech and the press, trusted scientific capabilities, and international cooperation.
7. Urban capital: Spatial human settlements, notably in urban areas, that drive and support productive and creative interactions across the other seven capital assets.
8. Cultural capital: Appreciation of the diversity of cultures, value systems, languages, the traditional knowledge systems of Indigenous peoples, and artistic expressions.

These capital assets are complementary; that is, they work together in a mutually supportive manner. A business cannot be productive if its workers lack skills and health, or if there is no electricity, piped water, transport, or digital access. There is no hope of achieving global food security for more than eight billion people unless Earth's natural capital is protected. There is no hope for global peace unless there is respect for, and investment in, cultural capital and cultural diversity.

SDSN puts a great emphasis on long-term national planning, to coordinate public investments, regulations, and incentive structures over a time horizon of 20-30 years. Our special emphasis is on pathway analysis to help governments and business design long-term investment plans. The SDSN first pioneered the concept of "Deep Decarbonization Pathways" in the lead-up to the Paris Agreement, to show governments how they could plan their energy investments during the time period 2015-2050. SDSN is also leading global efforts, in cooperation with the Food and Land Use (FOLU) Coalition and other partners, to define long-term sustainable food and land-use pathways via the Food, Agriculture, Biodiversity, Land-Use, and Energy (FABLE) Consortium.

Building shared wisdom for sustainable development

As emphasized by many scholars but also by Pope Francis in 2020 in Fratelli Tutti, short-term thinking and short-term partisan interests often take precedence on long-term vision, policies and cooperation for sustainable development. Scientists have been warning for decades about the impact of human activity on climate change. The first UN Summit and 94 pages final declaration on the human environment which took place in Stockholm in 1972 already recognized the importance of "planning" (mentioned 38 times), research and science (mentioned 40 times) and international cooperation (mentioned 17 times). Failures in implementing the 1972 Stockholm declaration and the SDGs are largely a failure of governance, including long-term planning and long-term investment frameworks, and global cooperation.

The multiple and simultaneous health, security, geopolitical and other crises make it even harder to think, plan and cooperate for long-term sustainable development. In addition, social media and 24/7 news channels have some benefits but also generate a flow of constant information often without appropriate context and long-term vision. As such they can contribute to locking individuals into information bubbles, polarize public opinions and negatively impact cooperation across groups. It is worth here quoting the exact words from Pope Francis:

"As silence and careful listening disappear, replaced by a frenzy of texting, this basic structure of sage human communication is at risk. A new lifestyle is emerging, where we create only what we want and exclude all that we cannot control or know instantly and superficially. This process, by its intrinsic logic, blocks the kind of serene reflection that could lead us to a shared wisdom."

In an information-rich and post-truth environment, citizens and decision-makers need knowledge and tools to transform data and science into evidence, actions, and long-term policies through open and deliberative processes. Yet, according to major international studies, few teenagers can differentiate between a fact and an opinion. As underlined during the United Nations World Data Forum 2023 and in the 27 April Hangzhou Declaration investing in statistical capacity, science, and data literacy are important priorities for achieving the SDGs. Information without wisdom is a barrier for achieving sustainable development.

Initiatives that aim to focus on what brings us together as humans (as opposed to what separates us) are also greatly needed to develop shared understanding. Sustainable development is deeply rooted in many ancient traditions and religions. The "Ethics in Action for Sustainable Development" introduced Pope Francis in 2016 brought together religious traditions, philosophers, scholars, and scientists to promote dialogue and find consensus about the values needed to advance transformative action for our common home and the human family.

Leverage ancient wisdom and indigenous knowledge to build the future we want

In many parts of the world ancient wisdom and indigenous knowledge can help identify solutions for the challenges of our time. These communities should be better integrated into the deliberations on how to achieve sustainable development. According to International Institute for Rural Reconstruction, there are more than 476 million Indigenous people living in 90 countries. While Indigenous people make up less than 6% of the world's population, they manage 28% of the world's land surface, including 80% of global biodiversity.

Indigenous knowledge can play an important role in conserving nature, food production, forestry development, medicine, sustainable practices, land and resource management and ecotourism, climate change and disaster risk reduction (among others). Further efforts are needed in many parts of the world to (1) Mobilize indigenous communities in policy processes; (2) Make indigenous knowledge known and perpetuate and help transfer knowledge and traditions. As one example, SDSN's Science Panel for the Amazon makes recommendations on how to leverage and build on indigenous wisdom to safeguard the Amazon rainforest.

The important contribution of knowledge and cultural institutions to the SDGs

Achieving the SDGs requires safe spaces to discuss long-term social, environmental, and economic transformations, to study the past in order to avoid doing the same mistakes all over again, to foster dialogue across various communities and equip citizen for navigating an information rich environment. At the global level the United Nations must remain the lead forum for global cooperation and exchanges on how to achieve the SDGs.

In modern societies there are no fundamental obstacles to building "shared wisdom" at the community, national and global level using notably the benefits of digital technologies. Libraries, higher education centers, religious sites, associations, citizen assemblies are places where citizens can meet (in person or on-line), think for the long-term and collaborate with each other. SDG 4

(Quality education) and SDG11 (Sustainable Cities and Communities) make explicit references to the role of culture and cultural heritage. Librarians, more specifically, can contribute to strengthening the knowledge base and wisdom of public opinions in three major ways. First, by providing access to important resources and archives on SDG research across various fields. Second, by providing advice and guidance – either directly or via SDG specific tools – to facilitate the identification of useful resources for sustainable development. Third, by organizing events and seminars where people can meet and exchange ideas on topics related to sustainable development at the local, national but also global level via cooperation among librarians.

In many ways, this is already happening with numerous initiatives led by librarians that aim to increase SDG awareness, provide access, and classify reading material by SDGs and foster dialogue among citizens, often in collaboration with other knowledge partners (schools, universities, associations etc.) and communities.

Outlook

The SDGs are vastly off-track, yet the SDSN and its global network will double-down on efforts to implement the SDGs by 2030 working with various partners. The SDSN was created in 2012, soon after the Rio+20 Summit, to mobilize the world's universities, think tanks, and national laboratories on behalf of the SDGs. SDSN's mission was fourfold: (i) scholarly research, (ii) educational innovation and partnerships, (iii) convening power, and (iv) outreach to the public. The SDSN is now a global network of more than 1,900 member organizations, mainly universities, organized in 53 national and regional chapters. Via long-term and science-based pathways and analytics, the SDSN and its global network supports discussions on SDG implementation at the global, regional, and national levels. While it seems hard at times for governments to cooperate, our hope is that maybe scientists, librarians and other cultural institutions can do a better job at building partnerships, go beyond short termism, learn from ancient culture, traditions and history and withhold universal values needed to achieve the SDGs by 2030 and beyond.

Guillaume Lafortune is the Vice President of the UN Sustainable Development Solutions Network (SDSN).

Harri Sahavirta:
Trends of environmental work in libraries in the 21st century

Libraries are often assumed to be environmentally friendly without any deeper justification, but in fact the environmental work in libraries is a relatively new phenomenon, and it is not at all clear what the environmental friendliness of libraries is based on. In this article I will give a short historical overview of green library thinking and the environmental work in libraries. The discussion begins with the green library building and proceeds to green library services. After the launching to UN's Sustainable Development Goals (2015), the social sustainability has gained more room in libraries' sustainability work.

From energy-efficient library buildings to the library's carbon footprint

Monika Antonelli outlines the initial stages of environmental work in libraries in the article "The Green Library Movement" (2008).[2] According to her, the *Green Library movement* was founded in the 90s, but the critical mass of environmental awareness was not reached until 2007, when climate change was understood as an existential threat.

> *"This innovation is happening by building green library buildings, by greening existing library facilities, providing green library services, and embracing environmentally supportive and sustainable practices within the library."*
>
> *"When librarians talk about green libraries what usually comes to mind are green library buildings. [--] Green buildings are measured according to a rating system like the LEED [--]"*
>
> *"A simple green step that libraries can do for the health of the planet and their employees is to quit using toxic chemical cleaners and switch to environmentally friendly cleaning products."*

As can be seen from these quotations, Green Library was initially thought of as an environmentally friendly library building and environmentally conscious property maintenance. The emphasis on buildings is clear, although Antonelli also mentions life after oil, alternative lifestyles, the security of food production, seed banks and community gardens. Thus, according to this approach, libraries are exemplary environmentally friendly buildings and librarians provide access to information about green buildings.

My claim is that Antonelli's view is controversial and, at least, her claim of reaching critical mass in 2007 can be questioned. However, the key thing in this context is that the approach was natural at the beginning of the 21st century, because the green library movement was founded by architects whose focus was on how libraries, as public buildings, could take environmental aspects into account and present new solutions to a wider audience. Libraries were thus conceived as model examples of environmentally friendly buildings. The strengths of the approach were that the review could focus on those features of libraries whose environmental effects are easy to assess and measure. Such are e.g., the following:

[2] The Green Library Movement: An Overview and Beyond (escholarship.org)

- Library location and transport connections (physical accessibility without high emissions)
- Energy efficiency of the library (energy consumption; heating and cooling and lighting)

These are directly connected to the library building. The measures and improvements defined based on the approach are also easily measurable, such as e.g., the following:

- Energy saving measures (consumption data)
- Waste management, sorting and recycling (waste quantities)
- Property maintenance, cleaning and chemicals used (waterless cleaning, detergents)
- Environmental friendliness of procurement (eco-labeled products, such as recycled paper)

All these features are familiar criteria for general eco-certificates. They are common and easily measurable and verifiable. In addition to such general criteria, some aspects specific to libraries were also considered, such as the temperature and lighting of the book warehouses. Even in this case, however, it was a physical feature related to the building.

The Green Library Checklist from 2013, published by IFLA's ENSULIB (Environment, Sustainability and Libraries) section, take similar stance and lists everything that should be taken into account in a green library building.[3] Since then, ENSULIB has sought to expand this approach and offers an alternative definition of a green library, which states, among other things, the following:

> *A green and sustainable library is a library which takes into account environmental, economic and social sustainability. Green and sustainable libraries may be of any size, but they should have a clear sustainability agenda which includes:*
>
> - ***Green buildings and equipment**: The emissions, or carbon footprint, of the building and equipment are actively decreased.*
> - ***Green office principles**: Operational routines and processes are environmentally sustainable.*
> - ***Sustainable economy**: Consumption is restrained, circular and sharing economy practices are advanced and are made accessible to the community.*
> - ***Sustainable library services:** Relevant and up-to-date information is easy to access for users, shared spaces, devices, and environmental education is offered, and operations are efficient. The library has a positive carbon handprint.*
> - ***Social sustainability**: Good education, literacy, community engagement, cross cultural diversity, social inclusion, and overall participation are considered. The library works actively to reduce inequality.*
> - ***Environmental management:** Environmental goals are SMART (Specific, Measurable, Achievable, Realistic and Timebound), and the library works to decrease its own negative impact on environment. The library's environmental policy, its implementation and the results of environmental work are communicated to a broader audience.*
> - ***Commitment to general environmental goals and programmes:** Commitment is guided by the UN Sustainable Development Goals,*

[3] The Green Library Checklists Project – IFLA

the Paris Climate Agreement and related environmental certificates and programmes.[4]

As ENSULIB's definition implies, the construction-centric approach is too narrow and ignores many essential aspects of sustainable development almost completely. At the same time, however, it must be remembered that the physical library building is the biggest source of emissions when measuring the carbon footprint of libraries. In the carbon footprint measurements of both Finnish public libraries and the National Library, approximately 50-60% of the emissions originate from the library building.[5] Since the direct environmental effects of libraries largely originate from the building, neither library buildings nor environmentally conscious routines such as recycling and sorting can be ignored in the discussion, but they form the basis of the environmental work in libraries - but only the basis.

However, equating the environmental effects of libraries with the effects of library buildings is problematic in many ways. In Finnish conditions, heating and electricity are the biggest sources of emissions, but the possibilities of libraries to reduce these emissions are quite limited for two different reasons. Firstly, e.g. the amount of energy used for heating depends to a large extent on how cold the winter is and how long the frost periods are. Another – and in this context a more significant factor – is that libraries often cannot themselves influence the decisions related to the property or the choice of the electricity company. Library properties are mainly managed by the real estate services of the municipality, city or, for example, the university. All these actors make their decisions according to their own criteria. The criteria is often price; and environmentally friendly solutions and changes related to heating and air conditioning are quite expensive. Hence, environmental solutions are often postponed because of the price.

In this way, we immediately face the central challenge of libraries' environmental work: libraries are not independent units that could make completely independent decisions regarding e.g. to real estate. Libraries operate in a network of various commitments and interdependencies, as part of a larger organization. Environmentally conscious changes to buildings are therefore carried forward with negotiation, and the changes are often quite expensive: you usually have to wait years for a new library building or a renovation. I presented this counterargument in 2012 at the IFLA WLIC conference, stating that we cannot rebuild all libraries, but must learn to be environmentally conscious in existing buildings.[6] An approach that emphasizes the importance of library buildings may indeed lead to the frustration of the staff dealing with environmental issues, and its biggest weakness is that it easily leads to passivity or discouragement. The conclusion too often is that there is nothing we can do.

Another weakness of the approach that focuses on library buildings is that it completely ignores the library perspective. As already stated earlier, the energy efficiency of the library building, energy saving measures and routines such as recycling and sorting are the basis of the environmental work in libraries - but they are general criteria and requirements that apply to all buildings and organizations. The exact same procedural requirements therefore apply in all industries and even in households. I call this argument the "grandmother argument" because my grandmother (who was not a librarian) saved energy and recycled everything she could in her own household – but she cannot be said to have followed the principles of a green library. And to put it another way: it would be strange to say that a library will become a green library if it operates the same way our grandmothers operated at home - or the same way teachers operate in schools and architects in their offices. There is nothing in general principles related to real estate or environmentally conscious routines that is specific to the operation of libraries. However, green libraries are not

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[4] What is a Green Library? – IFLA

[5] Summary: Bringing environmental awareness of public libraries to the 2020s; Ensimmäinen selvitys Kansalliskirjaston hiilijalanjäljestä ilmestynyt | Kansalliskirjasto (only in Finnish at the moment)

[6] Sahavirta, Harri: "Showing the Green Way – Advocating Green Values and Image in Finnish Public Library", IFLA Journal, vol. 38, issue 2.

only a subspecies of green offices, and the lessons of our grandmothers are not enough to advance the environmental work of libraries.

The weaknesses of the approach focusing on library buildings can be summarized as follows:

Green building is not the whole story.

- Building a new green library or renovating an old building to make it environmentally friendly is a large and expensive project, and often not affordable.
- Librarians do not make decisions regarding the property, but work in the existing library.
- The criteria regarding real estate and green offices are general and do not reach the nature of library operations.
- Saving energy, sorting and recycling are routines we should all follow at work and at home.

Despite these objections, aspects related to the library building and recycling and sorting are essential to the environmental work in libraries. As already stated, this has come up in the carbon footprint measurements of libraries. About 60% of the library's emissions come from the building and energy consumption, while the actual library activity causes quite a few harmful emissions. Carbon footprint measurements are the most reliable and accurate way to assess the environmental emissions of libraries; and analyzing the results gives a clear picture of what libraries can do to reduce their negative environmental impacts. However, there are also some uncertainty factors associated with the measurements, and the interpretation of the results is not always quite simple. In carbon measurements, it is always necessary to select what is measured (what is relevant data and where reliable figures can be obtained) and consider how different factors affect the interpretation of data.

From a green building to environmentally friendly (basic) library services

If the weaknesses of the approach focusing on library buildings are recognized, the question of environmentally friendly library services arises. This question has often been considered trivial and many have pointed out that libraries just are environmentally friendly – libraries have been sharing and recycling their collections since the beginning. In this way, library services would already be green in nature. This may, indeed, be the case, but leads easily to an "incentive trap". It is easy to continue the argument by stating that libraries do not need to invest in environmental work, because libraries are already environmentally friendly. This may be one significant reason why the environmental work of libraries actually started relatively late – the flash point was reached in 2007 or maybe only in 2015. The reason is clear: if libraries are already environmentally friendly, there is no need to do anything towards the goal. However, libraries cannot afford such arrogance, because there is still a lot of work to be done in the field of environmental work. Public libraries might also have special tasks in environmental work and climate change mitigation that do not belong to the field of any other operator.

The argument also includes another "hidden argument" leading to passivity. In terms of quantity and quality, libraries' emissions are quite modest - in contrast to many other operators. From this fact, it is easy to conclude that the parties responsible for harmful emissions should also take responsibility for environmental work. According to the argument, bad boys should have to answer for their actions and repair the damage they caused, but the same cannot be demanded of good boys. Philosopher Ilkka Niiniluoto calls this argument that I don't have to do anything to slow down climate change because others have caused it, a new formulation of the free rider problem: there are always some who want to benefit from a good outcome without doing anything about it. I

would venture to say that formulated like this, the argument won't convince anyone. Problems that affect everyone like climate change require everyone's efforts, and the solution is not enough for the biggest causes of the problem to compensate for the consequences of their own actions.

Arguments like these reveal that climate change is, indeed, a *perfect moral storm* which is very difficult to deal with. For this reason everybody, also libraries, should contribute to the attempts to solve it – but it is also understandable that the majority is reluctant to act.[7] This seems to hold also for libraries which have hesitated for a long time in taking action.

These arguments are not convincing if the starting point is the question of what libraries could do to increase environmental awareness and help their users reduce their own consumption and carbon footprint. The discussion thus turns to positive environmental actions that are possible and characteristic of libraries: open access to information, environmental awareness, increasing the carbon handprint and promoting the sharing economy.

The change in perspective is significant and can be compared to a paradigm shift: instead of measuring the emissions of the library building and work, the positive effects of the services provided by the library are examined and efforts are made to strengthen them. The strength of this approach is, of course, that the focus is on features or functions specific to libraries - in relation to which the libraries themselves have a large degree of decision-making power.

It is natural to take the Open Access requirement as the starting point for environmentally conscious, positive library services. The idea of open access began to develop with the Internet in the 1990s, when a new ideal was raise: there should be the free access to scientific publications and their use all over the world for legal purposes, without additional barriers. Open access was believed to simulate research and increase the equality of the scientific community.[8] The fact is that online publishing made it possible, in principle, to implement open access in the academic world, where the primary purpose of publications is not to achieve financial gain. However, publishers often offer open access in the form of licenses, so practical implementation is not always a fact.

Libraries - and especially public libraries - have long represented the ideal of open access. However, the original ideal has been strengthened by the principle of equality, where access to information is not limited only to the scientific community and the library acquires material or a license for very broad use: public libraries strive to offer everyone open access to information - but often also more widely within the sphere of civilization or culture. Open, equal and barrier-free access to information is part of the values of public libraries.

This makes it easy to define open access to reliable and up-to-date environmental information as the goal of public libraries' environmental work.[9] This goal includes the fact that libraries should bring out information about the environment, but also take care of collection work, i.e. remove outdated and incorrect information. This last requirement has gained new weight in the age of alternative facts and fake news but has also proven problematic. Evaluating the reliability and up-to-datedness of large amounts of content is quite difficult - regardless of whether the material is online or printed on paper. Libraries have also shunned such a task, as they have seen themselves as defenders of freedom of speech and neutral actors who offer open and equal access to materials representing different views and worldviews.

Libraries' basic tools for achieving the goal of open access have been eco-shelves and environmental material exhibitions and events. In addition to these measures, environmental literacy, which is part of information literacy, has also become a goal. Environmental literacy is the

[7] Gardiner, Stephen M. 2013: A Perfect Moral Storm – The Ethical tragedy of Climate Change, Oxford University Press.
[8] What is Open Access? | UNESCO
[9] Harri Sahavirta: ”Proud that my own library is such a responsible operator!”, teoksessa The Green Library (de Gruyter 2013).

ability to find, analyze and use information about the environment, and as a concept it comes close to environmental education or ecological literacy.

The ideal of open access and the promotion of environmental literacy go hand in hand, as the dissemination of information about environmental issues promotes environmental literacy. Both are therefore based on collection work, providing e-materials and information resources, and organizing events and exhibitions. In this central position are again eco-shelves, the goal of which is that information can be easily found on one shelf. The ability to find environmental information is one of the bottlenecks of environmental work in libraries, as books on, for example, recycling, climate change and energy-efficient construction are distributed throughout the library's shelves due to the library's classification system.

The next step in the development of public libraries' environmental awareness was so obvious that it is difficult to understand why it was not made more aware of and highlighted from the very beginning. Throughout the ages, libraries have recycled their collections, but have also offered study and workspaces as well as tools for studying – now also for leisure time. In modern terminology, public libraries promote the circulation and sharing economy by creating opportunities for the joint use of library materials, spaces and devices used in the library. Public libraries offer free and accessible spaces for studying, working, events, association and civic activities, and recreation. In addition, libraries offer devices for working in these spaces, from computers and printers to audio equipment and video projectors.

This is clearly shared use and sharing, but it is quite difficult to measure the environmental effects of providing common spaces and devices. Ultimately, the environmental effects of shared use are based on the assumption that when the lights are turned on in the library's city office, more lights are turned off in homes... or that the printing option in the library leads to more and more people not buying their own printer or at least a new ink tank. However, such possible environmental effects are difficult to verify and almost impossible to measure or calculate.[10] It is again about the opportunity offered to customers to reduce their carbon footprint and increase library's carbon handprint, but the customers decide whether they will take this opportunity.

The idea of shared use - and the circulation and sharing economy - is also implemented by library item lending and e.g. community gardens and seed libraries. In all of these, the basic idea is to share commodities or crops and recycle seeds. In the case of community gardens and seed banks, it is easy to add sharing of information related to environmentally friendly varieties and cultivation methods to the activities. In many cases, object lending can be accompanied by environmental education or increasing environmental literacy, as well as the introduction of new economic forms.

From a green library to an active and responsible promoter of sustainable development

The expansion of the idea of a green library from a green building towards green library services and environmentally conscious librarianship forms a continuum where the development remains within the traditional library ideal. The environmental work of libraries can be presented as a triangle, which stands on the support of the library building and common spaces, and whose other elements are the collection and sharing of information and lending activities taking on new forms. However, as we enter the 2020s, this triangle no longer seems to be sufficient.

[10] Sahavirta, Harri 2017: "From Green to Sustainable Libraries – Widening the Concept of Green Library", in Strategien für die Bibliothek als Ort, de Gruyter.

UN Sustainable Development Goals

With the UN's Sustainable Development Goals (SDG), libraries' environmental work reached the so-called critical mass or reached its flash point. At the international and national level, certain goals were committed to, the realization of which is reported every two years. At the same time, the goals also provided a kind of criteria for the sustainable development of municipalities and organizations. Efforts have been made to apply the goals of sustainable development in many fields.

The environmental work of libraries was now understood in a much broader sense than before. The Sustainable Development Goals place a strong emphasis on social sustainability goals. This means that libraries have had to reconsider their sustainable development goals and expand them - the SDG goals no longer only apply to direct environmental impacts. On the other hand, it is therefore a question of the carbon footprint being taken into account more and more, but at the same time, sustainable development is no longer thought of only as consideration of environmental aspects, but more broadly as social responsibility.

At the beginning, however, it was not at all clear what kind of measures should be taken due to the Sustainable Development Goals. The SDG goals have been formulated as state goals and are relatively common - so what do they mean in the operating environment of libraries? Do libraries pay attention to, for example, underwater life if their collections include material on ocean protection - or is it enough to satisfy the goal of clean sanitation that the library has a functioning public toilet. Thinking in this way, libraries might continue to operate complacently without changing anything. At least the minimum level is in most cases in treatment.

Another problematic issue from the libraries' point of view is that the Sustainable Development Goals lack open access to reliable information. Achieving different goals does require knowledge and information, but the availability and accessibility of information remain background assumptions. As an example, it can be stated that the goals do not include the promotion of literacy - other than as part of a good education. However, literacy is (broadly understood) a prerequisite for achieving almost all SDG goals: promoting literacy reduces poverty, hunger and inequality, but also promotes environmental protection.

From the perspective of libraries, the SDG goals therefore lead to a kind of paradox: libraries fulfil most (if not all) goals by fulfilling their (statutory) basic task, i.e. by doing what they would do without any goals. At the same time, the SDG goals don't really say anything related to the basic mission of libraries.

The SDG goals are therefore not unambiguous or as such guide activities in the context of libraries. In the project *Environmental work of public libraries for the 2020s*, an effort was made to overcome this difficulty by choosing common SDG goals for all Finnish libraries, the meaning of which was sought to be clarified. Such common perceived goals were:

- Health and well-being
- Good education
- Reducing inequality
- Sustainable cities and communities
- Responsible consumption
- Climate actions

UN Agenda 2030 and the SDGs have had the consequence that several countries and cities have created environmental programs. With these environmental programs and carbon neutrality goals, there has been a change of direction: the hopeful movement from the bottom up has turned into pressure from the top down. In the past, libraries tried to convince municipal decision-makers and other municipal actors of the importance of environmental work. With environmental programs,

environmental goals were now included in the strategies of cities and municipalities, in which case the management of the municipality requires libraries to take environmental measures. The situation has therefore changed a lot: previously, libraries required e.g. improving the energy efficiency of buildings and procuring recycled products from other operators in the city - now all parties are required to promote environmentally conscious activities and report on it to the municipality's decision-makers.

Above, I have characterized the environmental work of libraries in chronological order: environmental work began in the 1990s with measures concerning library buildings and green offices, which were rather straightforward borrowings from more general principles. In the 21st century, environmentally conscious library services and green librarianship have emerged, and in the 2020s, the idea (or requirement) of social responsibility and a more active approach to the environmental work of libraries.

However, the development could also be described from another perspective. The environmental work of libraries started concretely with the material: the physical emissions of libraries built of wood and concrete, as well as the material slag of operations: waste, waste paper, the processing of removed books, etc. It is relatively easy to reliably measure the environmental effects of this aspect: carbon footprint measurements focus on this.

The next development stage was the direct or indirect environmental effects of intangible services: reliable information and shared facilities and equipment. However, the services have a material and calculable aspect: it is easy to calculate the usage figures of facilities and equipment as well as the loan figures of environmental literature. It is considerably more difficult to assess the importance of information as a wake-up call for environmental awareness. A noteworthy point is that as the value of services increases, the concept of carbon footprint is developed: the library creates opportunities for its customers to reduce their own physical emissions. Hence, one can talk about the library's carbon handprint.

In the last stage, we move to a purely immaterial, perhaps downright ideological, level. The principles of sustainable development now come into play, the environmental effects of which are indirect and networked: promoting reading means investing in environmental literacy, but all responsible environmental activities are based on the ability to acquire information and distinguish between relevant and reliable information. The environmental effects of reducing inequality, on the other hand, can be attributed to the assumption that people do not act environmentally conscious if they have to fight to achieve basic conditions. Democracy is seen in the same way as a prerequisite for building a more environmentally conscious society. In such a broad perspective, the environmental work of libraries also begins to take on new features: the promotion of active citizenship and democracy, and the mitigation of climate change.

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Harri Sahavirta is the Chair of IFLA EnSuLib

Laurence Engel:
The BnF case: Building a new conservation centre in Amiens

Faced with an increased need for additional space due to the entry of documents into its collections via legal deposit, the BnF has launched a major real estate project in Amiens (Hauts-de-France Region) to build a brand new sustainable conservation centre. In this article, find out how the BnF managed a sustainable construction project with a high socio-economic impact.

The BnF is facing a double challenge

- The saturation of its existing collection warehouses and sites, which are expanding due to the legal deposit (approximately 300,000 documents/year or 4.2 km/year);
- Some collections are deteriorating, particularly the press collections.

In this context, the BnF launched in 2019 an assessment of its premises and real estate policy. Several options were considered at the time to face this challenge, including extending the existing conservation centre of Bussy, or building and opening a brand new conservation centre.

It was finally decided to close the Bussy centre and to build a new conservation centre instead, with a dual purpose:

- A general conservation centre for all types of collections;
- A national press conservatory.

Following a nationwide call for interest, the location of the future conservation centre was attributed to the Amiens City Council, according to 5 selection criteria:

- The suitability of the proposed property for the programme of the BnF's conservation centre;
- The regularity and quality of public transport access to the site;
- The involvement of the local authority and its partners in co-funding the project;
- The living environment and the surrounding urban fabric of the site;
- The cultural partnership.

The site consists of two adjoining plots of land

- A 3.5-hectare plot of built-up land owned by Amiens University Hospital, which will be handed over to BnF before the end of 2025 after demolition and decontamination work.
- A 2.8-hectare plot of land reserve owned by the municipality of Amiens.

This new conservation site, which is expected to open in 2029, will have 142 workstations, more than half of which will be dedicated to conservation and digitisation, and will provide a total storage capacity of 280 km. By 2050, around 50% of the BnF's collections will be stored in Amiens, including all the press collections.

The four main aims of the Amiens project for the BnF are

- To relieve the overloading of the Paris sites. The first phase of construction, before the end of 2029, will provide capacity for growth over 30 years (until 2050), and the second phase of construction will provide capacity for growth over 50 years. This means that the Amiens site should enable the BnF to ensure the conservation of its collections for the next half-century.
- To create new warehouses with modern equipment in order to provide better conservation conditions for our collections, particularly the press collections, which will be entirely conserved on the Amiens site as part of the future national press conservatory.
- To reorganise its conservation activities, both in terms of restoration and digitisation. Establishing digitisation workshops close to the conservation warehouses will greatly facilitate the mass digitisation of documents, and in particular the digitisation of press collections whose paper is particularly acidic and fragile.
- To encourage the cultural cooperation with the local authorities hosting the project.

The construction and architectural project will have to respect some general objectives

- Respecting both BnF's architectural identity and history, and the architectural history of the Amiens site itself.
- Aiming for the HQE Bâtiment Durable (High Environmental Quality Sustainable Construction) certification. Particular attention will be paid to the rationalisation of energy needs, while not compromising on optimal conservation conditions for the collections. Excellent inertia, particularly in the warehouses, which will operate without active air conditioning, in order to maintain a slow drift in temperature and relative humidity stability, is a pre-requisite.
- Improving working conditions and reaching the OsmoZ certification.
- Being adaptable and flexible to different and future uses.
- Keeping operating costs under control.
- Optimising traffic flow both inside and outside the building.

Costs and financing plans

The construction costs are estimated at € 53m, of which € 42.5m go to the building and € 12.5m for automation. The overall budget is estimated at € 96.2m and includes expenditures which are not related to construction such as preliminary studies, intellectual services (project management assistance), transfer of collections and services, etc.

The project is co-financed by the French government and local authorities:

- State subsidy: € 30m
- The BnF's own funds: € 5m
- Proceeds from the sale of BnF property: € 20m
- Funding from the Region: € 33.6m, including € 20.2m from ERDF funds included in the Hauts-de-France Operational Programme 2021-2027
- Funding from the Somme département: € 2.5m

- Funding from Amiens Métropole (after deduction of the cost of acquiring the land): €5.37m

Environmental issues

Our environmental approach is based on three pillars:

1. The national regulation on energy transition and green growth (Article 8-II of the French law), which stipulates that "all new buildings managed by the state, its public establishments or local authorities must demonstrate exemplary energy and environmental performance and, wherever possible, be positive energy and high environmental performance buildings". The State introduces a requirement for public contracting authorities to set an example by committing to the construction of buildings that perform better from an energy and environmental point of view.
2. The Regional Framework of the third industrial revolution (REV3), a strategic initiative launched by the Hauts-de-France region to collectively face economic, ecological and social challenges and draw from them opportunities for growth and better living.
3. The environmental policy of the Amiens Métropole which aims at reaching excellence in terms of sustainable development and innovation. Several objectives from the Sustainable Planning and Development Project for Amiens, which focuses on zero waste, energy autonomy and soft mobility, apply to the BnF construction project:
    - Protect and enhance undeveloped and natural areas: preserve and encourage the regeneration of biodiversity and protect wetlands.
    - Implement a storm water management policy aimed at limiting the amount of impermeable surfaces, and limiting runoff by organising the retention and infiltration of water in urbanised and peri-urban agricultural areas.
    - Protect and inform the population of risks and nuisances (visual, olfactory, noise).
    - Encourage the conservation of natural resources and the use of renewable energies (use of solar energy, recyclable materials, bioclimatic construction), and work towards the development of High Environmental Quality.
    - Encourage alternative modes of transport to the car.
    - Organise sorting and selective collection of household waste by adapting neighbourhood layout and buildings.

Amiens Métropole's Agenda 21 is structured around five strategic areas:

1. Preserve and enhance our natural heritage;
2. Take account of all aspects of the environment at all times and in all operations;
3. Manage and create with a view to saving resources: energy, water, waste, etc.;
4. Understand and manage risk-related situations;
5. Work towards harmonious and mutually supportive social progress.

As regards certification of the building, the newest version, HQE BD standard Version 4.0, should apply. This certification is intended to replace the NF Bâtiments Tertiaires – Démarche HQE (Commercial Buildings – High Environmental Quality Approach) certification, and to complement it with an improved consideration of all the concerns related to sustainable development, which had only been partially covered with the previous certification scheme. This standard relies on a structure of commitments, objectives and themes, as follows:

Four environmental commitments:

- Quality of life
- Respect for the environment
- Economic performance
- Responsible management

These commitments are then implemented through 12 objectives and 28 themes.

The BnF project also intends to comply with the new OsmoZ certification, which aims at enhancing the well-being of users, and to put end-users at the centre of every construction project, in particular commercial buildings and offices. It offers practical solutions for improving the quality of life and CSR performance of organisations through three action levers:

- Lever 1 – Building & Equipment: Buildings should make a positive contribution to the quality of life of users and meet the functional needs of organisations.
- Lever 2 – Interior planning: Workspaces should be adapted to employees' needs and working styles.
- Lever 3 – Facilitation, HR support services: Actions specific to each company and co-constructed with its employees should be developed.

The aim of the OsmoZ certification is to optimise the performance of buildings and organisations by encouraging creativity and innovation, reducing absenteeism and improving productivity.

An assessment, carried out by Certivea, will conducted for each of the three levers, upon delivery of the building (i.e not at the design stage). The scope of this project is to get the certification for lever 1 – Building & Equipment, and lever 2 – Interior Planning. Lever 3 may be focused on at a later stage.

The future BnF conservation centre, which will accommodate employees from various other existing conservation centres, is expected to be comfortable, healthy and energy-efficient. Particular attention will need to be paid to hygrothermal comfort, given the impact of global warming and changes in external temperature conditions. Visual comfort will also need to be managed as effectively as possible, as will the acoustic comfort of the spaces to ensure a pleasant working environment. The environmental health quality of the spaces will have to be optimal (air quality, water quality, electromagnetic waves, choice of materials, etc.). Accessibility will also be a top priority, in order to construct a building that is accessible and comfortable for people with all types of disability.

Every measure will have to be taken to meet the performance targets set in the HQE BD and OsmoZ certifications, dedicated to the health and well-being of users.

Socio-economic assessment

In France, all civil investment projects financed by the state are subject, as a regulatory obligation, to a prior socio-economic assessment to examine the relevance as well as the advantages and disadvantages of the investment.

This assessment has been commissioned to an independent consultancy, Citizing, and carried out between January and June 2022.

Citizing analysed three scenarios based on a 30-year projection:

- the counterfactual scenario, in which no new construction project would have been undertaken and additional private storage space would have been rented;
- the alternative for comparison, in which an existing conservation site (BnF's existing conservation site in Bussy) would have been restructured and extended instead of starting on a new construction project;
- the actual scenario of setting up a new conservation centre (in Amiens).

The results of the purely financial analysis are very favourable to the Amiens project: the 30-year rental operating cost would exceed the investment and operating costs of the Amiens project.

The socio-economic analysis comparing the Amiens project and the counterfactual scenario shows very positive socio-economic value creation of around € 33.4m. This means that €1 invested would generate a socio-economic value of € 1.33 for the community. The Bussy option, on the other hand, would have a negative socio-economic value of around -€ 20 million. In other words, € 1 invested would generate less than € 1.

Laurence Engel is the President of the National Library of France.

Renaldas Gudauskas: National Library of Lithuania in the context of social responsibility and sustainable development

Social Responsibility Report

The Martynas Mažvydas National Library of Lithuania (the National Library) has been preparing a Social Responsibility Report (the Report) annually since 2019. The Report is based on the principles of the United Nations (UN) Global Compact and the recommendations of the Global Reporting Initiative (GRI), which help to assess the institution's performance in terms of relevant indicators of the organisation's governance, employment practices, environmental protection, employee safety and human rights, and public relations.

It is a voluntary commitment by the Library to purposefully develop sustainable development practices in a manner that respects people, employees, society and the environment in which we work. The report is prepared for all stakeholders and made public. The report presents the National Library's work and achievements in the field of social responsibility in the areas of organisational governance, environmental protection, relations with employees and society.

It is important to us in all areas: corporate governance, employment, human rights, the environment, consumer and service issues, and building and maintaining relationships with the community.

The National Library practices cyclical and economical use of objects and resources: we save electricity, print double-sided, print on carbonless paper for internal use, prepare documents in the electronic document management system "Avilys" (Hive), store them on electronic media or send them by e-mail. We recycle unused items and sort waste. We support initiatives and encourage staff and visitors to be environmentally aware. We provide waste recycling bins in common areas of the library, by the stairs, in staff kitchens and elsewhere.

Every year, the library replaces incandescent and fluorescent light bulbs with environmentally friendly LEDs. Between 2020 and 2022, more than 1 700 light bulbs have been replaced with ones that are more efficient. We aim to use as many eco-friendly cleaning products as possible. For smoke disinfection, we choose mixtures that are environmentally friendly, friendly to plants and machinery. In winter, the stairs and entranceways of the National Library are sprayed with an ice-melting compound that does not damage surfaces or footwear. This mixture is 100% water soluble, so there is no residue to clog sewer pipes.

Between 2020 and 2022, the National Library has recycled:

1. 20 tonnes of paper and cardboard waste;
2. 45 m^3 of sorted paper and plastic
3. 2.5 m^3 of glass waste
4. 1350 kg of electronic waste.

The National Library's workshop PATS SAU – Make, Discover, Save, Be Curious, Seek, Recognise, Capture – pays a lot of attention to ecology, recycling and the green course in general. It is a place to mature ideas, create, construct and craft. The workshop is equipped with more than 20 individual workstations for students and plenty of equipment

Library Activities in the Context of Sustainable Development

Analysis of the 2012–2021 Annual Reports of the National Library of Lithuania

The qualitative (empirical) research showed that six of the UN Social Development Goals (SDG) have thematic (semantic) links to the activities of the National Library for the 2012-2021 period: SDG 3 *Good health and well-being*, SDG 4 *Quality education*, SDG 10 *Reducing inequalities*, SDG 11 *Sustainable cities and communities*, SDG 16 *Peace, justice and strong Institutions*, and SDG 17 *Partnerships in achieving goals*.

Matrix of thematic links between the SDGs and the presentation of the activities of the National Library in the Annual Reports (2012-2022) (SDGs without links are not mentioned)

Year / Goal	3. Good Health and Well-being	4. Quality education	10. Reducing Inequality	11. Sustainable cities and communities	16. Peace, justice and strong institutions	17. Partnerships in achieving goals
2012		+			+	+
2013		+			+	+
2014		+			+	+
2015		+			+	+
2016		+		+	+	+
2017		+	+		+	+
2018		+	+	+	+	+
2019		+			+	+
2020	+	+	+		+	+
2021	+	+			+	+

The National Library's main contribution to the achievement of the SDGs of the UN's 2030 Agenda is to help the community it serves to achieve quality education (SDG 4), to provide access to information for all, thus contributing to peace and justice (SDG 16), and to collaborate with national and international partners, creating networks of partnerships for common goals (SDG 17). The contribution of the National Library to reducing inequalities (SDG 10) and to initiatives on

building sustainable cities and communities (SDG 11) is visible. Towards the end of the period under review, the National Library also contributed to the goal of good health and well-being (SDG 3) by providing emotional support measures for users during the COVID-19 pandemic, as well as preventive protection measures for staff and users.

Key thematic links between the activities of the National Library and the objectives of SD

Sustainable Development Goals (SDG)	**National Library of Lithuania activities**
SDG 16 ***Peace, justice and strong institutions***	* achieving strategic objectives * measuring, comparing and commenting on essential library processes * fulfilling and expanding the parliamentary library function * possibilities for information literacy training; this theme can also be linked to SDG 4 * organisation of an international exhibition on freedom of expression and its limitations * involving the library in the digital movement * ensuring access to information during the pandemic
SDG 17 ***Partnerships in achieving goals***	* participation in the activities of international library organisations * implementation of standardisation and statistical activities * building partnership networks for joint activities * implementation of joint projects with business * partnership in research and development of bibliographic products * use of library professionals for expert activities * development of partnerships during the pandemic
SDG 4 ***Quality education***	* participation in the activities of international library organisations * implementation of standardisation and statistical activities * building partnership networks for joint activities * implementation of joint projects with business * partnership in research and development of bibliographic products * use of library professionals for expert activities * development of partnerships during the pandemic

Sustainable Development Goals (SDG)	National Library of Lithuania activities
SDG 10 *Reducing inequalities*	* development of services for migrants/refugees *organising a National Human Rights Forum * seeking to reduce information inequalities
SDG 11 *Sustainable cities and communities*	* collaborating with Vilnius City Municipality to develop a shared vision for the Knowledge Quarter * aiming for the library to become a cultural attraction centre in Vilnius
SDG 3 *Good health and well-being:*	* supporting readers during the COVID-19 pandemic * taking measures to prevent the spread of the disease

Source: Relevant Tomorrow. 2021, Vol. 1, No. 20, pp. 53–73, ISSN 2669-2899 (Online), DOI: https://doi.org/10.51740/RT.1.20.3.

The practically implemented activities of the National Library of SD

The National Library is a socially responsible institution, always contributing to the most relevant social projects. In 2020, during the first quarantine due to the COVID-19 pandemic, our initiative to produce face shields and their parts in libraries around the country using 3D printers attracted a lot of attention and support. Donatas Kubilius, the administrator of the PATS SAU Markerspace at the National Library, became the curator of this initiative and advised all the libraries joining the campaign. A week later, 54 Lithuanian public libraries started to print the parts for the face shields using 3D printers. In total, more than 8,500 face shields were produced and distributed to Lithuanian medical institutions and staff working in high-risk areas during the quarantine. For these and other civic activities during the COVID-19 crisis, Virginijus Vitalijus Vilkelis, Director of the Department of Mobilisation and Civil Resistance under the Ministry of National Defence, presented a certificate of appreciation to the National Library.

In 2022, after the Russian invasion of Ukraine, the team of the PATS SAU Makerspace immediately got involved in the activities to support Ukrainian war refugees. It took part in the day camps for Ukrainian children organised by the creative team of the LRT programme "Lithuanian Millennium Children" and volunteers at the Contemporary Art Centre. Our team gave Ukrainian children the opportunity to use the workshop equipment and sponsors' tools to create and decorate canvas bags with their own drawings. At the end of the year, we initiated the production of trench candles for Ukrainian soldiers. At first, we invited colleagues to join us, but soon the word spread and the materials people collected and bought to make the candles began to arrive at the library: tins, leftover paraffin and wax, cardboard packaging. Companies and foundations also made important contributions. We had at least a dozen volunteers every day, making the blanks for the trench candles, and pouring them in on weekends. In total, 35 000 trench candles were produced and sent to the front.

Prof. Dr. Renaldas Gudauskas was the Director of the Martynas Mažvydas National Library of Lithuania until January 2024.

Anna Chulyan: Sustainable Development Perspectives of the National Library of Armenia

National Library of Armenia is a publicly accessible national institution meeting public needs, contributing to the implementation of state innovative policy and enhancing competitive advantages and formation of knowledge-based society.

Throughout one hundred years of its existence, National Library of Armenia has created a vast database of human knowledge, which is a noteworthy achievement since making the investment of national resources into a universally accessible collection has taken over a century. The knowledge collection of the National Library is a unique intellectual asset.

But compiling and stocking the resources will not suffice. For the library to perform its mission, it is of great necessity to make use of its collections. That fundamental principle is pinpointed for diverse directions of the Library's activity; services, events and programs should be accessible and usable.

Given the working conditions in the context of pandemic and war, the Library has reviewed its priorities and subsequent objectives taking the feasible challenges posed by the pandemic into account.

For creating a global frame of development, the UN introduced the 'Sustainable Development Goals (SDG)' in 2017. The 17 interrelated goals determine specific targets and serve as benchmarks of sustainable future. They are relevant for every stakeholder of society, including libraries. Incorporating the domain of libraries in the 17 goals of development is predicated on one basic prerequisite: intellectual asset. Libraries are the primary suppliers of information, and they play a prominent part in ensuring information accessibility for SDG-related workers and organizations.[11]

How do libraries abide by SDGs? From literacy increasing to free availability of information, libraries are also safe, welcoming spaces in any community.

Libraries develop digital inclusiveness via IT accessibility, the Internet and other facilities. The most important functions of library mission embrace innovation and creativity promotion, accessibility of global knowledge for present and future generations.

For sustainable future, the most significant component of SDGs is the principle of public inclusiveness. Even though in the current digital era many services are virtualized increasingly, a vast number of population might not be able to make use of certain services, therefore, jeopadizing the chances of socialization or communication with public. Thus, it is of paramount importance to fill in the gap between generations and expand digital facilities.

Pivotal directions of library mission overlap with the SDGs of the UN.

[11] Barbara Lison, Alexandra Hinz. Libraries exist to serve the sustainable development goals: An interview with Barbara Lison. 03.07.2023 // https://blog.degruyter.com/libraries-exist-to-serve-the-sustainable-development-goals-an-interview-with-barbara-lison/, 10.11.2023.

As a client-oriented institution, the National Library prioritizes digital inclusion of the society in its conceptual priorities. The principle of digital inclusiveness results from three main factors:

1. Digital and social inclusion to the national heritage
2. Integration of the language /Armenian/ in the cyberspace
3. Providing people with special needs with an access to library services, databases and so forth.

1. Digital and social inclusion to the national heritage

Heritage is closely linked with memory, values, beliefs and traditions, which are passed over through stories of the location, time, humans and community. It is almost impossible to use the word 'heritage' without identifying its human, social ties in advance. The two main objectives of this principle are to maintain the printed heritage and assure its accessibility. For these goals to be achieved, the awareness of the importance of documentary heritage should be raised among not only the public, but also the government. The major goal is to ensure the preservation of the documentary heritage of global importance and promote the preservation of national and transnational printed heritage, and assure the accessibility of this heritage to as many people as possible via the most accessible technologies both across and beyond the country. Digital transformation is among the most prioritized strategic directions of the Library. The digitization of the printed heritage, its addition to corresponding databases allows the society to interact with their national heritage.

The accessibility of digital toolbar, application facilities and awareness are among the most significant components of public inclusiveness. The toolbar is varied: websites and web spaces, social media, mobile applications. The population of Armenia, aged 54-74, make use of the Internet much less often, than those aged 25-54. These data are documented in the necessity of information accessibility means of library users. The Library envisages addressing the digital inclusion of the elderly through intergenerational learning approaches. The lack of digital facilities proceeds not only from age issues, but also from economic unsafety and low education/literacy rate.

The maintenance of the printed heritage and the expansion of its accessibility are intertwined. For example, digitized content can be accessible to many people, and the demand for accessibility can foster their maintenance activities. Another crucial prerequisite is the increasing awareness of the printed heritage, particularly those aspects of the heritage, which should be noted in terms of global memory. In the spirit of promulgation, it is important to elaborate the product, based on the printed heritage, and make it largely accessible, meanwhile, assuring the best conditions for the preservation and security of the original copies.

Printed heritage should be the dynamic part of the ensuing legislation and decision-making in the state cultural and scientific policy, what's more, that of its priorities, which will allow to progress along with social changes, technological innovation and geopolitical trends.

2. Integration of the language /Armenian/ in the cyberspace

Cyberspace is an aggregate platform, which requires new ways of recognition and perception via complex philosophical, cultural, linguistic approaches assuring limitless opportunities for the development and research of human intellect and language.

Linguistic diversity exists in constantly changing and dynamic setting. Upon the 2021 UNESCO World Report of Languages, around half of the approximately 7,000 languages spoken in the world today could disappear by the end of the century.[12] The internet, which is now the primary way of sharing information, has a key role to play in promoting multilingualism. Upon the given report, English dominates in the cyberspace of world languages, taking the following criteria of its presentation into consideration: 1. Internet users in the language, 2. Website content languages, 3. Dissemination of Wikipedia articles in diverse languages, 4. Language applications, 5. Inclusive voice technologies.

Armenian, one of the oldest, best-developed and richest languages in the world, reflects the life of the Armenian nation, its centuries-long history from ancient times hitherto. Throughout its centuries-long existence, it has gone through various phases of development. Nowadays, the Armenian language faces cyber challenges; accessibility of the printed heritage in the digital domain is limited due to the issue of character recognition of Armenian. Currently available software or platforms (Abby FineReader, simple software, ocrnow, tesseract-ocr, expert-pdf) ensure top quality of character recognition exclusively in case of e-born content. The fonts of Armenian printed content are mainly diverse due to the peculiar history and geography of Armenian printing (the first Armenian book was printed in Venice, only then in various printing houses of various countries of the world).

National Library of Armenia is the largest Armenian repository of the printed heritage in the world. The documents in their style, fonts, text density and other qualities are diverse, which complicates the process of character recognition of the digitized content. The digitized content (more than 13 million pages) is comprehensively presented in the databases of Hay girk, Hay mamul, Digital Repository of NLA.

Calfa, a French company, is the best at experimenting Optical Character Recognition (OCR) and handwritten text recognition (HTR) of Armenian characters. Given the scarcity of means and size of volumes, the opportunities of the Library are limited. In 2021, Armenian Portmind company developed a character recognition software for Armenian. The software experiment has been performed for eight months together with the specialists of the Library. In 2022, the Library and Portmind signed a partnership memorandum, which gave the Library an opportunity to recognize characters of the digitized versions of Armenian printed content exclusively in order to make them accessible to the public. Currently, roughly 15% of the Library's digitized databases is character-recognized, reportedly the pace and quality of character recognition are to be increased.

Later on, the indexation of Armenian character-recognized texts is envisaged to improve, which will contribute to Armenian's involvement in the cyberspace. Armenian's influence will be greatly amplified in various processes of mediated communication:

1. Search engine indexing,
2. Text recognition,
3. Speech recognition,
4. National corpora,
5. Online translation memory databases (Translation Memory),
6. Anti-plagiarism system databases,
7. Language software for the disabled.

[12] UNESCO World Atlas of Languages: summary document, 2021 // https://unesdoc.unesco.org/ark:/48223/pf0000380132/PDF/380132eng.pdf.multi., 10.11.2023

3. Providing people with special needs with an access to library services, databases and so forth.

The agenda of Sustainable Development 2030 calls for creating opportunities for inclusive education and education of equal quality and boost eternal education for everyone (SDG 4). The boost of e-inclusion is an excellent means to contribute to everybody's social and digital inclusion and obtain it by providing the elderly citizens with more chances of learning in various strata of society.

While designing the architecture and functionality of the Library's new website, the experience of leading libraries has been taken into account. As a result of benchmarking, the best facilities of various libraries' sites have been selected, which are presented in the website of the Library https://nla.am/: structure, color scheme, visually impaired-friendly toolbar.

In 2023, the Library joined Accessible Books Consortium, which enabled it to implement one of the programs of World Intellectual Property Organization (WIPO), i.e. to transform printed books into accessible formats to people with special needs. For the specialists of the Library to be able to work with software of transforming into accessible formats and internalize the features of facilities used for various formats, a training has been conducted within the framework of the program: EPUB3, DAISY text, DAISY audio (synthetic speech), DAISY audio (human narration), Braille Ready Files (BRF), Large print files. The transformation of printed products into accessible formats has become feasible since 2022, when the Republic of Armenia joined Marrakesh Treaty. Though RA law (2006) on *Copyright and Related Rights* for ratifying the Agreement has not been amended, the libraries of Armenia can prepare and provide people with print disabilities with copies in accessible formats (including beyond the country) without asking for permission from copyright holders. This results from the fact that upon the RA Constitution, all international agreements ratified by the RA are directly affected, which implies the agreement automatically becomes a law without applying the Legislation.

In addition to various initiatives and events, an Assistive Reading Hall with appropriate equipment, furniture and modern technologies is planned to be built on the first floor of the Library for people with special needs. The Reading Hall is also regarded as a classroom for introducing modern technologies to people with special needs and increasing the skills and capacities of using accessible formats.

The implementation of SDGs requires systematized initiatives and actions:

- Increasing the visibility of libraries and their impact on personal development and social welfare.
- Guaranteeing the accessibility of information, culture and knowledge for everyone.
- Designing, planning and providing new services given the prospect of 2030 agenda in the context of library development and expansion of collections, information product and services.
- Data remodeling, creating and operating appropriate assessment of library programs, based on SDGs via more accurate and reusable data. The impact of library programs on society, institutions and individuals should be analyzed.

Successful implementation of processes and actions, determined for sustainable progress in the future requires development of digital skills in the first place in order to ensure public inclusiveness and online accessibility of national heritage.

The Library will continue to improve the quality and formats of digital content through digitization of printed heritage by boosting digital mindset, knowledge, skills and capacities of the society.

Dr. Anna Chulyan is Director of the National Library of Armenia.

Maria Margarida Lopes: Towards sustainability at the National Library of Portugal

Introduction

The focus on sustainability issues at the National Library of Portugal is formally reflected in several strategic management documents of the institution: it is strongly present in the institution's strategic plan defined for 2021-2023[13], with several lines of action regarding sustainability already present in the 2015-2020 strategic plan[14]. More recently, in August 2023, in alignment with the Public Administration Resource Efficiency Programme for 2030, the National Library has published its own Efficiency Plan[15] with goals defined for 2024.

Sustainability is also included in the annual activity plans of the institution and of its organisational units, with annual targets set, since 2019, mainly for the reduction of energy, water, paper and plastic consumption.

At the same time, the National Library of Portugal has also been addressing the Sustainable Development Goals 2030 (SDGs), implementing projects and targets aligned with the different SDGs, with a particular focus on education and culture related goals.

The move towards sustainability at the National Library of Portugal has been an ongoing process, with different lines of action that run in parallel. Some of these lines of action are incremental and have a continuous nature along the years (e. g. reducing of energy and material consumption), while others are more specific and time defined transformation projects (e. g. building works plan).

We will briefly outline what has been recently achieved and what is planned for the next years, and the alignment of these actions with the different sustainable development goals. We have identified, for this purpose, five main topics of action: in an internal dimension, we will address the topics of the sustainability of the building and gardens; environment and energy efficiency issues; in an external dimension, we will address the topics of preservation and digitisation, user services and educational activities.

Sustainability of the building and surrounding garden area

Although the National Library of Portugal, as an institution, dates back to 1796, the building itself and its 4,13 ha of garden were inaugurated in 1969, at a time when sustainability wasn't on the public agenda. To improve the sustainability of the building, several projects have been implemented in recent years; and others are being developed for future implementation. Below we will highlight the ongoing projects on energy efficiency of the building and the requalification of the library gardens that took place in 2020-2021.

[13] http://www.bnportugal.gov.pt/images/stories/sobre_a_bnp/documentos/2021/DOC%20ESTRT__2021-23_ATUAL.pdf
[14] http://www.bnportugal.gov.pt/images/stories/sobre_a_bnp/documentos/DOC%20ESTRT__2015-2020.pdf
[15] http://www.bnportugal.gov.pt/images/stories/sobre_a_bnp/documentos/2023/BNP-Plano_Eficiencia_ECOAP_2030.pdf

Environment/Energy efficiency

On the topic of Energy efficiency, we have two ongoing projects: one for the complete refurbishing of the General Reading Room, and another for the assessment of the possibility to install a solar-based system to produce energy for self-consumption.

In the project regarding the General Reading Room, a significant share of the investment goes to improving energy efficiency: the Room has over 450m^2 of single glazed windows which cause large quantities of energy being lost in climatization, and that will be replaced by double-glazed units with special thermal and acoustic laminated glass.

Because the building is classified, since 2012, as monument of public interest, the architectural design project had to respect the original layout of the Room and was subject to prior approval. Although the process was considerably complex, it is now completed and approved, and the implementation is planned for 2025.

The other major project is the study of energy production for self-consumption. The National Library has around 5000 m2 of rooftops that can potentially be used for the installation of photovoltaic panels, allowing the library to produce its own energy. At present the objective is to assess, in 2024, the feasibility and return of such an investment, as a prerequisite for applying for its funding.

Requalification of the library gardens, 2020-2021

The National Library garden dates back to 1964 and is a naturalistic type of garden, both in the design of the spaces and in the selection and distribution of species. In addition to natural degradation due to the lack of proper and regular maintenance over the decades, the garden suffered particularly from the extension and remodelling work of the storage building carried out between 2008 and 2011.

The work to requalify the garden intended to match the spirit of the initial project and took place in 2020-2021. In this renovation, all the green areas were recovered - renovation of meadows, lawns, trees and shrubs. A new irrigation system has been installed, and there has been a complete renovation of walls, and pedestrian paths, including lighting. We also worked on sustainability by choosing meadows and species that are not very demanding in water.

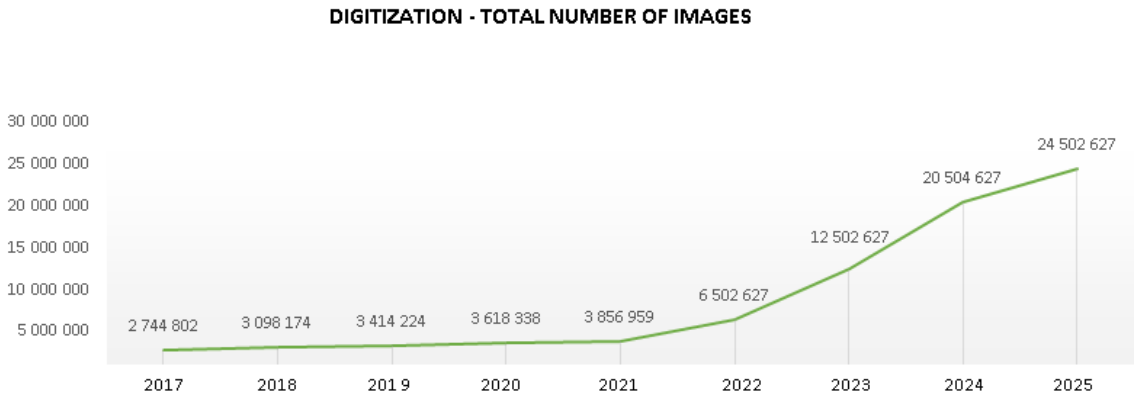
The project was partially funded by the Lisbon City Council in the context of the Lisbon European Green Capital 2020, thus contributing to its environment goals. As a result, the garden is now alive, open to be experienced not only by library users and staff but also by the general public.

These are some of the major transformation projects on the building and garden area. At the same time, we have also been working progressively on other targets, established at the NLP Efficiency Plan, such as reducing the consumption of energy, paper, plastic and other material resources, increasing recycling in the daily routines of the National Library and improving waste management in general.

Sustainability of cultural heritage at the National Library - preservation and digitisation

The preservation and digitisation of the collections is currently the most important and demanding project undergoing at the National Library. It will improve preservation of the original items while making them more accessible and easily reusable in a more sustainable manner.

The program to digitize the library's collections is strategic and has been running continuously since 2003, giving priority to unique, rare and fragile documents.



Evolution of digital images in the National Digital Library and expected growth for 2023-2025

By the end 2021 the National Library had around 4 million images digitised from its collections. Throughout the years the pace of digitation has been slow, due to the scarcity of resources: lack of funding opportunities at the national level and digitisation activities depending solely on the internal human and financial resources of the National Library.

In this respect, the EU Recovery and Resilience Plan (RRP) introduced a major change in Portugal. The Plan includes a total investment of 243M euros for Culture; and, specifically, a total of 7,4 million euros for digitizing collections from the National Library. The goal is to achieve 20 million images from library material by 2025, which represents an increase of more than 500%, in just 4 years.

Although this is a very demanding target to execute in such a short period, considering the legal procedures of public tender and material conditions, it is also a unique opportunity, and one which the institution is determined to achieve. It will allow the library to massively digitise an important part of the collections.

As a result, the National Library expects to make available to the public a big share of the materials that are in the public domain, making it accessible online in the digital library. Of the expected total of 20 million images, it is planned to prioritise all documentation that is unique or rare, from the 13th to the 19th century, namely manuscripts, printed rare books, music collections, the cartography and iconography collections and the archive collections of contemporary Portuguese culture, in an expected total of 10 million images. The other 10 million will be the result of the digitization of Portuguese newspapers, mainly from the 19th century, either from the original or from the conversion of the microfilm section.

Sustainability and User Services

The National Library of Portugal has a set of user services that are closely aligned with the SDGs number 4, 10 and 11, that focus on the quality of education, reducing inequalities and protecting the cultural heritage.

The National Digital Library (https://bndigital.bnportugal.gov.pt) is certainly the most strategic user service, being an essential platform to ensure open access to cultural heritage. It contributes to inclusive, quality education and promotes learning opportunities for all through its freely accessible digital collections on the Internet. In terms of the number of accesses, it is currently the

most important way to access the collections, when compared to access in reading rooms: each year the digital library has 2,5 million documents being accessed digitally, while the number of documents that are read in the different reading rooms, in the same period, is roughly 230.000.

In addition to the National Digital Library, there are new user services that have been developed recently, and also closely aligned with the SDGs.

One of such services is RNOFA, the National Repository of Objects in Alternative Formats (https://rnofa.bnportugal.gov.pt), a Web platform developed by the National Library and available since 2018, to facilitate access to culture for people with disabilities by providing resources in formats alternative to normal text (e. g. printed and digital Braille, audio and digital texts) made available by Portuguese entities. It is a collaborative system to gather and make available on a network the information about these resources and the conditions and mechanisms for their access (SDG 10 – Reducing Inequalities). At present, the platform has 8 participating institutions and 10.000 records, and is growing consistently.

More recently, since December 2021, another user service was developed and made available by the National Library, under the designation Depósito Digital de jornais (DDJ) - The Digital Newspaper Deposit (https://ddj.bnportugal.gov.pt). It's a system conceived for use by newspaper owners. The main objective is to provide a repository to facilitate the fulfilment of the obligation of Legal Deposit by these entities, through a mechanism of self-deposit of newspaper issues in digital format, exempting them from the obligation of depositing the printed format.

In Portugal the Legal Deposit Law dates from 1986 and does not yet require deposit of digital content. Therefore, it is a voluntary system that allows newspaper owners to deposit the final pdf files instead of the printed issues, thus contributing to SDG 11 – Sustainable cities and communities. The goal is to progressively include more newspaper titles in DDJ, that will reduce significantly the use of paper and, more importantly, the amount of resources needed to deal with the newspapers print collections and their preservation.

Educational activities

The National Library of Portugal has a dynamic cultural and educational agenda of exhibitions, conferences, seminars, etc. with over one hundred cultural events and an average of 35.000 attendees every year. Some events are promoted directly by the library, but the majority are co-organised with universities, research centres or other cultural institutions.

Public events that contribute to promoting women and underrepresented minorities have consistently been gaining visibility in the library agenda in recent years, thus contributing to SDGs such as number 5 - Achieve gender equality and 10 – Reducing inequalities, and to several national action plans as well.

One recent example of initiative to raise awareness of the SDG, was the exhibition held in June 2023, promoted by the Director General of the United Nations Office in Geneva, *17 Faces of Action*, a project in which 17 countries each identify 17 women they consider as representing the 17 Sustainable Development Goals.

Final remarks

The National Library of Portugal's commitment to sustainability has been reflected in lines of action that focus on the building and the implementation of more sustainable practices, the promotion of

the preservation and digitisation of its collections, and the promotion of equality and literacy for sustainability.

The main challenge in this area is the building - it is over 50 years old, and it requires significant funding and successive requalification procedures. This has been done progressively, with various projects in the building's works plan for the next 10 years, always with sustainability at the core.

The challenges of preserving and digitising the collections are the main focus of the institution's action at the moment, in order to guarantee the execution of all the European funding available under the Recovery and Resilience Plan and, if possible, going beyond the targets set for its material execution.

Finally, regarding activities to promote literacy for sustainability, to reduce inequalities in access to culture, or to eradicate poverty, which are central themes in several of the 17 SDGs, these are topics that feature continuously on the National Library's outreach agenda.

Maria Margarida Lopes is the Deputy Director of the National Library of Portugal.

Katrīna Kukaine:
The National library of Latvia on its way to sustainability

The National Library of Latvia (NLL) supports and promotes UNESCO's Sustainable Development Goals (SDG) with its services, but is also creating a safe and inclusive environment for everyone, providing access to information resources and communication technologies, participating in public education, preserving cultural heritage, transferring knowledge, promoting reading and informational literacy.

Founded on August 29, 1919, the NLL is a state cultural institution of national importance under the supervision of the Ministry of Culture which's activity is based on the Law on the National Library of Latvia (1922 / 1992), Legal Deposit Law, Library Law and Copyright Law, as well as on series of international standards and principles.

The NLL keeps more than 4,3 million physical items, around 315 000 of them are in free access. And it has 169 455 of the registered readers, which is 9 % of the total number of inhabitants in Latvia. There are reading spaces for more than 1000 readers in 15 Reading rooms, 14 learning spaces, 2 conference halls, TV and sound recording studio. The spaces in the NLL are suited for visually impaired people or people with limited mobility.

The NLL promotes sustainability also in its daily routine, looking for ways to save energy and resources, as well as drawing the attention of the population to various climate issues. The library has conceived a solar panels' project for alternative ways for energy and together with the Latvian Fund for Nature created the natural urban meadow in front of the library building.

However, there are **other aspects of sustainability in the work of the national library.** Sustainability is a part of the NLL's **Strategy for Educational Action**. It was adopted in 2022 and contributes to SDGs in different ways.

Global trends and changes in society encouraged us to direct the educational action of the NLL in four thematic areas - **Latvian language, digital transformation, responsible, sustainable and inclusive society and the professional education** and **training of the librarians** themselves as a basis for the development of a contemporary library. Four directions allow us to work with different audiences - from children and youth to seniors, from library specialists to representatives of other fields of cultural heritage and related professionals.

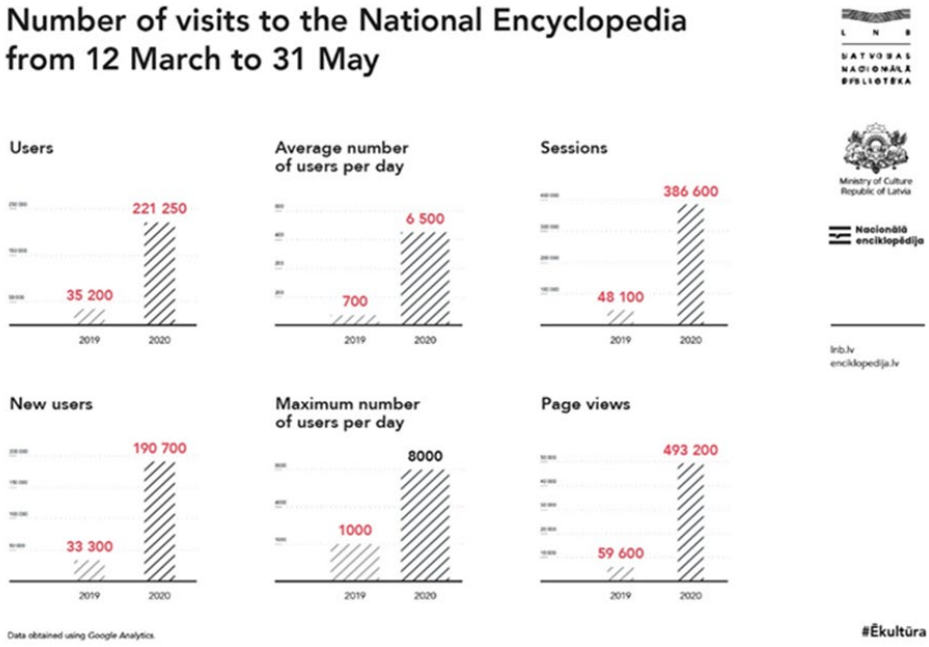
Direction **Latvian language** pays attention to the enrichment of the Latvian language, the development of terminology, its sustainability, research and resilience in the digital environment. There is a special place for a reliable and safe digital knowledge resource created by the NLL – and it is the National Encyclopaedia.

In addition to accumulating knowledge, the encyclopaedia also plays the role of an antidote in the era of fake news and "post-truth", it promotes the vitality of the Latvian language in the digital age. Each page is created with the idea that it can be further developed, investing as few resources as possible, but ensuring better and better "readability", "visibility".

In general, it provides most important media for academic community to disseminate their knowledge using structurally, technologically relevant, effective tools and to quickly and efficiently reach Latvian readership. The digital version of encyclopaedia provides inclusive accessibility by online access wherever internet access is available, for free.

It provides as well unique development of the terminology and online visibility for two other local languages – Latgallian written language and Liv language – translating all titles of all articles in these two relatively poorly developed indigenous languages.

During the pandemic there has been a rapid increase in the number of encyclopaedia users, which has been driven by the presence of teleworking and remote studies and the growing popularity of digital resources.



Compared to 2019, the number of users of the content of the National Encyclopaedia has increased by almost 70%, while page views have increased by 73%. In 2022, the number of encyclopaedia users exceeded 1 million for the first time. The NLL, as a national-level center of modern interdisciplinary knowledge, creates the National Encyclopaedia in order to confirm that modern libraries are no longer just repositories of books, but create technologically advanced, reliable knowledge resources of all kinds.

Within the framework of Direction **Responsible, sustainable and inclusive society**, we will create educational initiatives about SDGs, resilience of society in crisis situations, democratic involvement and promotion of diversity. We have focused especially on Target 13.3 *Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning*.

The NLL **Collection Preservation Center** has been operating for 35 years and its core functions are collection restoration, conservation and binding of library materials. The center also coordinated the development of the integrated Conservation policy across the library for sustainability and preventive measures. The Policy also set the task of preparing for saving collections in emergency situations.

An extensive working group was established with various NLL specialists to work on a disaster risk management plan for resilience in crises situations and preparedness. Research on the practice of other countries has been carried out and active work has been done on the development of successive parts of the plan. The current situation was jointly identified and risk analysis was performed, as well as an emergency team was established.

With funding from the CENL Covid-19 Support Fund, we introduced preventive measures for emergencies in the library – Risk preparedness/Emergency kits. We created 37 kits for each stack and reading room, as well guidelines for use.

We trained on use of the kit 200 employees of the NLL, and we will continue to educate both – the NLL employees and colleagues from other memory institutions on this topic.

Katrīna Kukaine is the Development Department Director at the National Library of Latvia.

Foekje Boersma:
Library collections in times of climate crisis

KB's new storage facility: a robotized storage system in a passive building

The KB National Library of the Netherlands (KB) is developing a new offsite storage facility for rehousing its entire physical collection. In an effort to become more sustainable, the national collection will be housed in a purpose-built passive building without elaborate heating, ventilation and air conditioning (HVAC) systems. Using a super high-density automated storage and retrieval system (ASRS), the combination of building and collections plays a major role in establishing a safe climate.

Our physical collections contain over four million titles and take up over 120 linear kilometres. Roughly 3.500.000 books, 700.000 periodicals, 100.000 newspapers and 575.000 special collections. The purpose built building (1982) has a net floor area of 37,000 m² for the library and offices and 27,000 m² for the repositories, which are placed in 29 active climate controlled compartments spread across nine floors.

Challenge

With a need to respond better to the digital transformation and a major shift in the library's use and social significance, the KB decided it was opportune to address the long-term future of its repositories.

Our current building needs extensive renovations. Climate control for the collections stored in-house and for human comfort has been achieved using advanced HVAC systems that were state-of-the-art in the early 1980s; these are now beyond the end of their life. This traditional approach to collection care followed the mantra that it *is important to store and display library collections in a stable environment… where temperature is consistent and as low as possible with a relative humidity that is stable and controlled.*

Back in 2013, while working as the programme manager of the Managing Collection Environments Initiative at the Getty Conservation Institute, together with international peers, I advocated the need to change to more sustainable climate control strategies for cultural heritage collections. With climate change, the depletion of fossil fuel, resulting in increased costs for climate control in a time when resources for cultural heritage were most likely going to be reduced, it was becoming urgent to address these challenges. And if the cultural heritage sector were not to act itself, upcoming legislation to enforce the reduction of energy consumption would come our way. Now 10 years on, we are in the middle of an energy crisis and in a fast moving energy transition.

At the KB, in our current building, the energy we used in 2018 for our building (mainly HAVC) contributed to 89% of our carbon footprint, which was calculated at 6.142 ton CO_2, the equivalent of several hundreds of households. Since we use renewable electricity from wind, we can reduce our 'official' CO_2-footprint by 5.010 ton, resulting in netto 1.132 ton CO_2. However, the greenest energy is the energy one doesn't use in the first place.

Sustainable solution

In 2014, the Committee for Conservation of the International Council of Museums (ICOM-CC) and the International Institute for Conservation of Historic and Artistic Works (IIC) published a joint declaration for environmental guidelines. It states that collecting institutions should seek to reduce their carbon footprint and environmental impact to mitigate climate change, by reducing their energy use and examining alternative renewable energy sources. Care of collections should be achieved in a way that does not assume air conditioning (HVAC). Passive methods, simple technology that is easy to maintain, air circulation and lower energy solutions should be considered. Last but not least, risk management should be embedded in collection management processes.

At the KB we aim to implement these new guidelines. In our current building we are limited in what we can achieve in terms of energy reduction. The building is totally relient on active climate control. But even so, we have been able to reduce our electricity with 30% and gas with 16% by: shutting down installations at weekends in underground storage areas; broadening the bandwidth for allowable thresholds (RH from 50 +5% to 40<RH>60%); fixing system failures like faulty valves; and by replacing out of date components with more energy friendly parts.

In an effort to move to more sustainable collection management, the library decided to separate the physical collections from the main building by storing them in a new purpose-built remote storage facility. Sustainability is playing an important role in the development of this new repository, the key aim of which is to be energy neutral by means of passive building solutions and the use of locally-sourced green energy. The facility will be both high-tech and low-key: using a super high-density automated storage and retrieval system (ASRS, often referred to as robotic) placed within a passive building structure, with the means to generate renewable energy.

The new building will make optimum use of passive climate buffering by means of a high insulation value, but primarily by leveraging the intrinsic power of the collection itself. A high density of hygroscopic material in a space where external disruptions are kept to a minimum will ultimately result in a stable climate. This is low-key and does not require technical climate-control systems. Compared to the current situation, this concept would result in a lower average temperature that would move with the seasons. Most of the relative humidity buffering will be achieved by the collection itself and also as a result of a positive side-effect of maintaining a low oxygen environment. This low oxygen level is required to ensure that the collection is stored in fire-safe conditions. This approach is in line with a more sustainable climate strategy that abandons attempts to achieve strict bandwidths and is more focused on the avoidance of extremes.

It is calculated, based on an extensive climate simulation model, that by moving to this new storage environment, the life expectancy of the collection can increase by roughly 60%. (Foekje Boersma, Marco Martens, Bart Ankersmit & Marc Stappers (2022) A Robotic Storage Facility for the Dutch National Library Collections, Studies in Conservation, 67:sup1, 32- 39, DOI: 10.1080/00393630.2022.2045420)

Foekje Boersma is the Head of Collection Care at KB, the National Library of the Netherlands

Sustainability as part of the Strategic Planning of the Austrian National Library 2023-2027

1. Management Summary

The Austrian National Library preserves a unique cultural heritage spanning many centuries and is at the same time a future-oriented information, education and research centre. Given this bridging function between the rich heritage of the past and the demands of the modern information society, priorities are always set with a view to their long-term impact. Due to the challenges of the digital transformation, profound societal changes and, above all, climate change, this aspect will take on even greater significance in the future. As a value producer and impulse generator, the Austrian National Library also wants to act as a role model in the area of sustainability.

The Austrian National Library's understanding of sustainability encompasses the economic, social and ecological dimensions of sustainability. The Sustainable Development Goals (SDGs) of the United Nations are supported by the Austrian National Library and are incorporated into everyday activities. In the strategy period 2023-2027, there is a deliberate focus on environmental sustainability due to the importance of the issue. The overarching vision is to leave an ecological footprint as small as possible and to actively take a major step towards climate neutrality with the defined objectives.

A sustainability strategy was developed to achieve the vision. This was subdivided into five sub-areas, from which objectives were defined:

1. Emissions:

The Austrian National Library wants to take a big step toward climate neutrality.

a. Preparation of a greenhouse gas balance sheet and significant reduction in greenhouse gas emissions from the 2019 comparative value.

2. Sustainable procurement / resource consumption:

The Austrian National Library uses material resources sparingly.

b. The majority of daily consumer goods bear an ISO Type 1 eco-label.
c. Maintaining the switch to green electricity (UZ 46).
d. Maintain electricity and heat consumption at 2021 levels.
e. The share of self-produced electricity shall be expanded.
f. Paper consumption shall be reduced compared to 2019 consumption.
g. Other measures

3. Sustainable mobility:

The Austrian National Library organizes business trips in a sustainable manner and supports the sustainable mobility of employees, visitors and users.

h. The proportion of employees who travel by public transport or in an environmentally friendly manner is to be further increased.
i. Public or environmentally friendly travel for visitors and readers should continue to be the preferred travel option.

j. Business trips are to be reduced (compared to the comparative value from 2019).

4. Events:

The Austrian National Library promotes the holding of sustainable events.

k. At least 50% of its own events (based on the number of events) are held as Green Events.
l. Third-party events held at the Austrian National Library shall increasingly be held as Green Events.

5. Sustainability in exhibition design, outreach and public relations:

Sustainability is part of everyday life at the Austrian National Library and the sustainability awareness of members and visitors is actively promoted.

m. Employees are aware of the sustainability goals and actively contribute to them.
n. The Austrian National Library is perceived by the public as a sustainable library/museum.

2. Sustainability Strategy

2.1. Sub-area: Emissions

a. Preparation of a greenhouse gas (GHG) balance and significant reduction of greenhouse gas emissions to the comparative value in 2019.

In the project "Climate Neutral Federal Museums", the Competence Center for Climate Neutrality at the University of Natural Resources and Life Sciences (BOKU) is developing a scientifically based greenhouse gas accounting tool for museums and libraries in cooperation with the federal museums. With the help of this tool, a meaningful GHG balance for the Austrian National Library will be created in the future and subsequently a "climate neutrality roadmap" will be derived in order to achieve a significant reduction of emissions in the long term.

The basic prerequisite for the GHG balance is a solid database. In the medium term, therefore, all relevant data on sustainability will be made available for analysis with the help of the GHG tool and a more systematic preparation in Excel. Initially, the focus will be on those data that are needed for the GHG calculation. The long-term goal is that all relevant data on the topic of sustainability (electricity, heat, paper, waste) will also be displayed in the general statistics dashboard.

The mobility of employees, visitors and users is a significant factor in GHG emissions. Mobility data is therefore collected in the course of preparing the GHG balance. For visitors and users, data from the staff and visitor statistics will be used with average values for the mobility mix from Statistics Austria. An online survey on individual mobility behaviour will be conducted among employees. The survey will be made available in the course of the project "Climate Neutral Federal Museums", the implementation and evaluation of the results can take place without external support.

The project "Climate Neutral Federal Museums" started in January 2022 and will run until February 2023. In the project, the GHG balance is calculated for the year 2019. The year 2019 was chosen because it was the last year without impacts from the COVID-19 pandemic and therefore can serve as a reference year. The annual update of the balance is proposed.

2.2. Sub-area: Sustainable procurement / resource consumption:

b. The majority of everyday consumer goods (e.g. office supplies, copy paper, sanitary paper, paper towels) carry an ISO Type 1 eco-label.

In the area of copy and letter paper, a switch to chlorine-free bleached recycled paper (PCF) or at least chlorine-free bleached paper (TCF) is recommended. For copying paper, the changeover means a cost increase of 3-5% compared to the currently used product "Juwel 80", depending on the product. Furthermore, for external printing orders for business cards, various flyers, ticket rolls, reports and printed works (annual report, Vision 2035, etc.), greater attention should be paid to the sustainability of paper usage in the future.

The photocopiers in the public reading and collection areas are also to be switched to sustainable copy paper. In addition, the conversion of standard settings (double-sided printing/copying, black and white copies) and an incentive system for scanning to USB instead of printing (e.g. in the form of reduced rates) are to be discussed. Since this falls under the responsibility of an external company (Facultas), it is suggested that a discussion be sought in this regard and the suggestions brought forward.

The standard list of office materials is to be revised together with the delivering company with regard to sustainable products. As many products as possible should either bear an ISO Type 1 eco-label or at least be manufactured according to such standards.

Instead of the batteries previously used in the door locking system, it is proposed to use rechargeable secondary batteries (accumulators) in the future. The test operation has shown that the exchange of AA and CR2 accumulators makes sense. AAA accumulators are not suitable in practice due to the short exchange cycles. Due to the higher purchase price of accumulators, additional costs are to be expected in the first three years. Cost savings can be achieved from the 4th year onwards.

At present, Apple and Samsung cell phones are issued to employees as company cell phones and managed centrally via the mobile device management. For new purchases, the acquisition of fairphones as company cell phones is to be offered. In a direct product comparison with cell phones in the same price category, fair phones perform somewhat worse. Nevertheless, the performance as a business cell phone is more than sufficient and all features of a state-of-the-art smartphone are fulfilled. Moreover, it is a fairly manufactured device (the manufacturer is awarded with Fairtrade Gold in the supply chain), which also excels in durability and easier repairs.

In order to motivate employees to purchase sustainable coffee, it is proposed that the purchase of sustainable coffee be subsidized by 15%. The following approach was considered: Each Organisation Unit is allocated a certain budget according to the number of employees. According to the experiences of the first year, the budget will be adjusted in the following years. The OU procures coffee capsules or coffee beans analogous to the purchase of the guest coffees. Only coffee varieties that bear an official seal (EU organic seal, fair trade seal) may be charged. A list must be kept per OU of how much coffee and which seals were purchased. These statistics can be used for the sustainability report and for the annual audit and also ensure that other, non-fair trade coffees have not been purchased.

c. Maintaining the switch to green electricity

For reasons of sustainability, the switch to green electricity is to be maintained in the long term.

d. Electricity and heat consumption are to be maintained at the 2021 level, considering changes in area.

In the area of building-technology, measures are being taken to limit energy requirements: Lighting technology is being converted to LED lighting, motion detectors are being increasingly used where appropriate, technical systems are regularly maintained and replaced as needed, and renovations to maintain the substance, such as window renovations, are taking place as needed.

Particular attention is paid to introducing systems that are as sustainable as possible, especially when renewing facilities: For example, a heat recovery system will be integrated into the planned renewal of the ventilation system in the deep storage. When new IT servers are purchased, it will be checked whether sustainable solutions, for example for heat recovery, are available in this area. Furthermore, it will be examined whether there are possibilities to reduce the stand-by power consumption in the company.

In the area of heating and cooling technology, the use of district cooling for cooling the Austrian National Library is being evaluated in coordination with Wien Energie and Burghauptmannschaft Österreich (BHÖ) through the involvement of an external consultancy, whether the use of district cooling for cooling the Austrian National Library has potential or whether other forms of energy generation (e.g. geothermal energy) can be used sensibly. Among the major energy consumers are the refrigeration systems and ventilation systems. Together with an external energy consultant, the energy efficiency of further systems is to be checked with the aim of achieving savings through improved settings.

e. The share of self-produced electricity is to be expanded.

By commissioning Art for Art to supply and install a 148.5 kWp PV system on the roof of the external depot at the Haringsee, the Austrian National Library can produce part of the electricity it needs itself. Calculated with the current electricity costs, savings of approximately EUR 10,000 per year can be achieved.

The Austrian National Library will continue to lobby the owner (BHÖ) for the installation of PV systems in the Hofburg, Palais Mollard and Grillparzerhaus areas.

f. Paper consumption is to be reduced compared to 2019 consumption.

Paper consumption is to be further reduced with the increased use of suitable technical infrastructure:

The default settings of the printers will be adjusted so that double-sided printing in black and white is provided for and can only be switched over via the print settings if required. The intention to convert all workstations to laptop workstations with docking station and monitor is to be maintained. The internal training program will continue to offer more (short) training courses on the possible uses of the existing technical infrastructure (e.g. the Power Automate workflow tool).

Collection bins for single-sided paper are to be set up again at the central copying stations. Notepads for internal purposes will then be produced in the bindery from paper that is no longer needed and then distributed to the employees.

Internal standard processes are to be increasingly replaced by electronic workflows. Office 365 offers the possibility of mapping workflows with the Power Automate application. Simple workflows can be mapped relatively easily. In order to be able to map more complex workflows with the application, it is recommended that master users at the Austrian National Library (preferably in the ITS department) be trained for this purpose. These master users should then support departments in digitizing their workflows with Power Automate. For more complex issues, the specialist company (Sharevision) can also be consulted. The goal is for the master users to set up new workflows together with the departments, to serve as the first point of contact for questions or problems with Power Automate and, if necessary, to coordinate with the specialist company. The working group proposes to start with the following four workflows: Workflow SPO/BU, Inventory Management,

Third Party Funding Projects, Review of Loan Agreements. It can be assumed that in the course of time other workflows will emerge that can be easily digitized using Power Automate. Furthermore, in the future, the HR department will also work more intensively on digitizing standard workflows through the use of the workflow tool of the Sage DPW HR software, thus limiting paper consumption.

In the long term, the aim is to introduce an electronic signature solution for legally binding contracts with external parties. Due to the high costs of the current solutions on the market, the project is put on hold. Monitoring further developments is recommended.

g. Other measures

The waste separation system is to be restructured in the public and internal areas. The waste fractions in the public areas essentially comprise: waste paper, yellow garbage can as well as residual waste. In the internal office areas, used glass is also collected separately. The collection bins are to be self-extinguishing (at least in the public areas) and, for hygienic reasons, are to be operated without being touched as far as possible. It is suggested that both in the internal areas and in the public areas the colour assignment be designed analogously to the Viennese waste separation (waste paper = red, yellow garbage can = yellow, waste glass = green, residual waste = black). For better identification, the bins should be provided with clear stickers and a description of what can and cannot be put in them. It is recommended that a total of 18 waste separation stations be set up in the public areas and three additional separation stations, making a total of 27 waste separation stations in the internal areas.

The order slips in the Heldenplatz library will be printed using the toner-saving Garamond font. Compared to other fonts, such as Arial, Swift, etc., the use of the Garamond font can save about 30% toner. The general use of the toner-saving font is not recommended due to its more difficult legibility.

The Austrian National Library will also consider sustainability aspects (e.g. sustainability goals of the provider, green electricity, location of the server farm, etc.) when selecting cloud providers in the future.

2.3. Sub-area: Sustainable mobility

h. The proportion of employees who travel by public transport or in an environmentally friendly manner is to be further increased.

i. Public or environmentally friendly travel for visitors and readers should continue to be the preferred travel option.

j. Business trips are to be reduced (compared to the comparative figure from 2019).

It is recommended to evaluate the allocation of employee parking spaces at Josefsplatz and Heldenplatz with regard to the issuance of future parking permits. General parking permits could, for example, only be issued in exceptional cases (e.g. permanently in the case of physical limitations, or selectively on days with special official requirements).

The Austrian National Library continues to lobby the owner (BHÖ) for the construction, adaptation and expansion of theft-proof bicycle parking spaces at Josefsplatz, Heldenplatz, Bibliothekshof (D-Hof), Augustinerhof and Palais Mollard. The goal is to provide additional bicycle parking spaces that are firmly anchored in the ground and thus offer the greatest possible protection against theft.

The bicycle check day for employees, which took place for the first time in 2021, is to be repeated annually. In coordination with the BHÖ, the Austrian National Library is examining the installation

of a vandal-proof bicycle repair station with an air pump at Heldenplatz, which would be available to both employees and external users. As this is the responsibility of the BHÖ, the Austrian National Library can only make the recommendation.

The installation of an e-charging station is to be examined in cooperation with the BHÖ. An e-charging station serves as a basis for the intention to use an e-car as a future company car. At the same time, it should also be examined whether a publicly accessible e-charging station can also be set up for employees and external parties at the Josefsplatz and Heldenplatz locations. Ultimately, implementation is the responsibility of the owner (BHÖ).

The Austrian National Library continues the current home office policy and encourages employees to work from home one or two days a week whenever possible. As this avoids the need to travel to work, emissions are saved.

The Austrian National Library offers employees the opportunity to purchase a job ticket or the Austria-wide climate ticket. As of July 1, 2021, the previous job ticket has been expanded to become a "public transport ticket", which means that costs for weekly, monthly or annual tickets (e.g. for the Austria-wide climate ticket) can now also be replaced tax-free. The ticket could, for example, be offered as an incentive, instead of salary valorization or as an alternative to a performance bonus. The annual ticket of Wiener Linien regularly costs EUR 331.82 net, the Austria-wide climate ticket EUR 995.45 net.

It is proposed that the business travel guidelines be amended to the effect that business trips of up to 800 km in distance should, if possible, be made by train. It is also proposed that, if the employee concerned agrees, an overnight train can be booked instead of a hotel.

2.4. Sub-area: Sustainable events

k. At least 50% of the company's own events (based on the number of events) are held as Green Events.

In the area of its own events (exhibition openings, event series such as "Das besondere Objekt", etc.), the Austrian National Library has set itself the goal of holding almost 66% of them as green events by the end of 2027. The year 2022 was taken as the basis for the 66%, which envisages the implementation of 35 events. If 23 events are implemented as Green Events in 2027, this results in a percentage of 66%. To achieve the target, the gradual implementation of preparatory measures is necessary in order to achieve licensing in accordance with the "Green Events" eco-label (UZ 62). After a review of the necessary target and mandatory criteria together with a professional consultant, any adjustments are to be made (e.g. in the area of procurement, material and waste management for events as well as e.g. communication/printed materials). After successful implementation of the preparatory steps, a pilot event is implemented that meets the test criteria. Subsequently, a paid license for Green Events is awarded for a period of four years. At the end of this period, the license must be reapplied for with a new review.

As a first step, the goal for 2023 and 2024 is to hold approximately 20% of the company's own events as green events. This includes two cultural days, an exhibition opening, an event "The Special Object", an event of the literature museum, a music salon and another event. In 2025 and 2026, approximately 51% of the events are already to be held as Green Events, followed by almost 66% in 2027. Significant factors for the additional costs of Green Events represent the areas of catering and technology. The prerequisites for licensing with costs also include the installation of a Green Meetings / Green Events Officer, the training of employees and the advertising of the Green Meetings / Events.

l. External events held at the Austrian National Library should increasingly be held as green events.

The possibility of being able to implement green meetings/events in the Austrian National Library should be actively promoted in the product portfolio and presented through advertisements in corresponding online forums and media. Licensing the Austrian National Library in accordance with UZ 62 is a good prerequisite for this. An increase in the marketing budget is proposed for intensified advertising and marketing measures in the area of green events.

2.5. Sub-area: Sustainability in public relations and sustainable awareness

m. Employees are aware of the Austrian National Library's efforts in the direction of sustainability and are actively involved.

Ultimately, the employees convey the message of the green library, the green museum to the outside world. To achieve this, it is first necessary that the employees perceive the efforts of the Austrian National Library in the direction of sustainability, take them seriously and ultimately also support them. The following measures are intended to contribute to this:

Creation of the official function of sustainability officer(s) and anchoring of the function in the organizational chart as well as the establishment of a sustainability steering group. The sustainability officer heads the sustainability steering group, which meets quarterly and is responsible for various activities in the area of sustainability, reports on activities in the various formats (e.g. Palatina, annual report, etc.) and also serves as a contact for employees and external parties. By personalizing the function and establishing the steering group, the topic should become more present and the participation of the workforce in the form of suggestions for improvement, feedback, etc. should be increased. It is proposed that the steering group be made up of the team from Strategy-Working Group Nr. 3 and expanded to include people from KM (Events, Communications, Graphics) and Building Services as well as, if necessary, other people from other departments who are interested in the topic. In addition, a good exchange with the sustainability officers of the other federal museums will continue to be promoted in order to make the best possible use of synergies.

The organization of a sustainability day for employees is proposed. Experts on various current sustainability topics could be invited for short presentations, workshops and discussions. The aim is to raise awareness of sustainability and environmental protection among employees. The Sustainability Day should be organized by the Sustainability Steering Group. It is proposed to offer the sustainability day in cooperation with the safety day every 2-3 years via the budget health management.

n. The Austrian National Library is perceived by the public as a sustainable library/museum.

To ensure that the Austrian National Library can lead the way as a role model in the field of sustainability and is also perceived by the public as a source of inspiration, the logo of the Austrian Eco-Label is used prominently in public communications. The Austrian Eco-label is integrated into the e-mail signature of every employee. In general, information about activities in the area of sustainability is also increasingly provided in the course of public relations work.

3. Implementation / Budgeting

A sustainability steering group is to be set up to implement the sustainability strategy. The steering group ensures that the individual projects are further developed, budgeted and

implemented. The projects are largely financed via existing ongoing budget items. By approving the sustainability strategy, the management signals its willingness in principle to increase the budgets in line with the sustainability targets - the final decision and consideration will be made in the course of the annual budget discussions. Furthermore, selected projects are to be financed via the strategy budget.

4. Impact Goals

Impact	**Stakeholder**
Project 1	
The Austrian National Library wants to take a big step toward climate neutrality.	all
Project 2	
The Austrian National Library uses material resources sparingly.	Employees Users Visitors
Project 3	
The Austrian National Library organizes business trips in a sustainable manner and supports the sustainable mobility of employees, visitors and users.	Employees Users Visitors
Project 4	
The Austrian National Library promotes the implementation of sustainable events.	Employees Cooperation partners Customers
Project 5	
Sustainability is an integral part of the Austrian National Library's daily routine, and the Austrian National Library actively promotes sustainability awareness among its staff and visitors.	Employees Users Visitors Customers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