

Tre Lezioni sull'Agenda 2030

ROBERTO CONIGLIARO

Order of Journalists of Palermo, Italy



Editors: RomaTrE-Press
Publisher: John Wiley and Sons
Pages: 82
Year: 2022
ISBN: 979-12-5977-071-4

Introduction

The authors of the book 'Sustainability - Three Lessons on Agenda 2030' are Marcela Villarreal, Chiara Tonelli, and Catia Bastioli. Marcela Villarreal serves as the Director of Partnerships and UN Collaboration at the FAO, the United Nations Organization for Food and Agriculture. Chiara Tonelli is an Associate Professor in Architectural Technology at the Architecture Department of the University of Roma Tre, a delegate for StartUps and Enterprises, and an expert in sustainable construction. Catia Bastioli is the CEO of the Novamont group, which emerged from her research on the development of bioplastics and biochemicals from renewable sources, in line with a circular Bioeconomy model she developed. The authors' intent in writing this book was to explore and discuss themes related to sustainable development, analyzing their complexity and laying the groundwork for building educational paths and skills at the university level. This stems from the premise that the University of Roma Tre has demonstrated early sensitivity towards sustainability, as evidenced by the experience of realizing the idea of a multidisciplinary project on sustainability. This project began with considerations expressed in the Agenda 2030 document, from which the book originated.

Agenda 2030 is the global action plan adopted by the United Nations in September 2015, representing the document in which nations universally committed to eliminating poverty, safeguarding the planet, and ensuring peace and prosperity for all. The positive reaction from Rector Luca Pietromarchi to the multidisciplinary project on sustainability showcased his understanding of its importance and originality, leading the university to go beyond mere support for the emerging sensitivity on this topic. Therefore, at the end of 2019, an initiative was taken to create a prorectorate dedicated to sustainable development within the University of Roma Tre, along with the subsequent formation of the Interdepartmental Working Group on Agenda 2030. The group's efforts then resulted in a multidisciplinary teaching course on Agenda 2030,

proposed to all departments, with 500 students welcoming and including the structured course in their study plans.

Structure of the Book

The course that originated from the project featured a program of 18 "master classes" on Agenda 2030 given by high-level speakers. These classes covered the 17 Sustainable Development Goals (SDG) of Agenda 2030. Out of the 18 lessons of the course, 3 were chosen for the book, which thus divided addresses the central and most relevant themes of Agenda 2030.

Fighting Hunger;

Sustainable Cities;

Circular Economy.

- The introductory section of the book addresses the interdependent environmental, social, and economic challenges our planet is facing. It then focuses on topics such as rising emissions, over-exploitation of ecosystems, climate change, and the impact of the global pandemic on human resilience and development models. The central part of the book contains the lessons that were given by speakers who are experts in their professional fields.

- The 3 lessons were obviously given by the three speakers who are experts in their fields, namely the authors of the book, Marcela Villarreal, Catia Bastioli, Chiara Tonelli. The concluding section of the book summarizes the key points covered in the lessons and provides bibliographic references for further study related to Agenda 2030 and the importance of the multidisciplinary approach to studying and deepening the themes addressed and the need to address the complexity of sustainable development by collaborating across different sectors.

Strengths

First Lesson: Food Security and World Hunger

The first of the three lessons, as previously mentioned, delves into sustainable agricultural practices, food security, and the role of technology and innovation in enhancing food access and nutritional quality for the global population. Through Marcela Villarreal's work, the question arises about the realistic possibility of eradicating world hunger by 2030. This lesson on the challenges confronting the global food system stands out for its in-depth analysis of threats to global food security. Using clear yet scientifically rigorous language, the lesson explores various internal and external factors that jeopardize the stability of the food system. The text effectively outlines natural threats that hinder local food supply in some parts of the world, such as desert locusts and the Fall Armyworm, emphasizing their devastating impact on agricultural production. The representation of these pests extends beyond direct damage to crops, encompassing a broader examination of their economic and social impacts. This demonstrates a deep understanding of the complex interactions between agriculture, the economy, and society. Another section of the lesson is dedicated to Antimicrobial Resistance (AMR), highlighting another critical aspect of the problem and emphasizing how current agricultural and fishing practices can significantly impact human and animal health. The discussion

on AMR is particularly relevant and reflects contemporary concerns about the sustainability of agricultural practices.

The author then addresses the issue of multilateral strategies for threat management with a balanced approach, recognizing the necessity for global and coordinated solutions. The analysis of initiatives undertaken by organizations responsible for combating world hunger, such as the FAO's EMPRES system—an online global animal disease information system—demonstrates the importance of international collaboration and technological innovation in resolving issues affecting many parts of the world. The lesson concludes with a powerful call to action. While acknowledging that the global food system produces enough food to feed the global population, the author highlights the contradictions within the global food system, such as the persistence of pockets of hunger in some parts of the world and the prevalence of overweight and obesity in affluent societies. Finally, particular attention is given to the need for a global commitment to sustainable production and support for small producers.

Second Lesson on the Importance of Mass Adoption of Sustainable Architecture Practices

In contemporary narratives about global challenges, Chiara Tonelli's lesson stands out for her analysis of Europe's financial and political responses to the economic and social impacts caused by the COVID-19 pandemic and on the adoption of sustainable architecture practices, given the availability of post-Covid resources allocated by the EU.

In particular, the "Next Generation EU" initiative is examined, an over 800 billion euro initiative conceived to create a greener, more digital, and more resilient continent, adapted to current and future challenges. The adoption of this initiative in Italy through the National Recovery and Resilience Plan is detailed, highlighting the three strategic axes: digitalization and innovation, ecological transition and social inclusion. The lesson explores the interaction between economy and society with responsible development policies towards the environment, referring to the objectives of the European Union set in 2008 and to goal 11 of the Agenda 2030 for sustainable development titled: "Make cities and human settlements inclusive, safe, resilient and sustainable". Two transitions are crucial in this regard, the ecological and the digital one.

The ecological transition is an integral part of the shift towards sustainable economies and communities and emphasizes the importance of adopting and using renewable energies and energy-saving techniques. A significant aspect discussed in the lesson is the greenhouse effect, essential for life on Earth, which is altered by pollution from human activities such as the emission of carbon dioxide and methane, pushing global temperatures upwards. In the treatment of these topics, the author's particular attention to the role of buildings as energy consumers and significant contributors to the worsening of global climatic conditions emerges. Buildings are responsible for 40.74% of energy consumption in Europe, surpassing other sectors such as transport and industry. The European Union

has promoted the improvement of building performances aiming at a drastic reduction of greenhouse gas emissions, with the goal of achieving nearly zero-energy buildings (nZEB) by 2050. The achievement of this goal has been planned through the approval of new standards and certifications.

Some innovative experiments such as the Solar Decathlon, an international competition established by the United States Department of Energy in 2002, push knowledge and implementation of innovative technologies. In particular, the author highlights the success of the University of Roma Tre in the Solar Decathlon, where it obtained excellent results in various editions demonstrating the effectiveness of the path taken for the realization of high energy efficiency buildings.

Furthermore, the author presents a comprehensive analysis of the digital transition in the construction sector, a radical change in the way of conceiving, building, and managing buildings. The adoption of Building Information Modeling (BIM), a digital model that revolutionizes architectural design through 3D components and integrated data, The lesson explores the evolution of the construction process with advanced prefabrication and the assembly on-site of predefined components defined as "dry" construction, a method that reduces construction times and costs and ensures precise correspondence between design and realization minimizing the environmental impact of traditional construction methods. A particularly captivating chapter of the lesson is dedicated to Construction 3D Printing (C3DP), an emerging technology that offers advantages in terms of speed, reduction of labor costs, complexity and precision of forms, minimization of waste. In the lesson, concrete examples of this technology are cited, such as the assembly of an office in Dubai realized in just 17 days.

In addition, the reconversion of old buildings is another crucial topic addressed. Techniques such as retrofitting and reverse engineering, illustrated with the example of the Technische Universität München, show how digitalization can improve the energy efficiency of existing buildings.

Finally, the lesson also highlights the importance of the awareness of building inhabitants. Examples like the "dWeLL!" project demonstrate that users play a crucial role in achieving the energy efficiency of buildings, illustrating how awareness and proactive behavior positively reduce energy consumption.

Third Lesson: Circular Bioeconomy and Novamont's Innovative Model

The third lesson rigorously addresses the theme of circular bioeconomy as a response to the interconnected environmental challenges our planet is facing, including the climate crisis and environmental degradation. The urgency of soil regeneration highlights the need for a radical transformation in development, production, and consumption models.

Circular bioeconomy assigns a fundamental role to soil as a resource vital for life on Earth. The soil, with its ecosystem services, is crucial for food production, water regulation, biodiversity, and climate change mitigation. However, soil is a non-renewable resource currently undergoing rapid degradation,

raising critical questions about its health and regeneration.

Catia Bastioli, the author, focuses on the case of Novamont, examined and proposed as an outstanding example of applied circular bioeconomy. Founded thirty years ago as a research center, Novamont has developed an innovative vision integrating green chemistry with agriculture, creating an integrated supply chain for the production of bioplastics and biochemicals. Novamont has transformed abandoned production sites into sustainable production centers, efficiently using resources and focusing on territorial regeneration.

The lesson details the procedures Novamont engaged in for territorial regeneration, promoting a circular model that maximizes organic matter recovery and develops innovative and ecological production processes, such as the SPring National Technological Cluster for Circular Bioeconomy. Moreover, Novamont has promoted innovation projects with local industrial and research entities, experimenting with low-environmental-impact oilseed crops, and collaborating with schools and training institutes to develop educational projects in circular bioeconomy.

Finally, the company is particularly active in the Patrica plant, employing advanced technologies for the production of biopolyesters and biopolymers.

Weaknesses

Analyzing the three lessons offered in the book as a whole reveals some weaknesses regarding the global implementation of the techniques and solutions proposed in relation to the goals of Agenda 2030:

Many developing countries, among others, lack the resources, technologies, and infrastructure needed to implement the proposed actions and solutions.

The synergistic and coordinating framework of Agenda 2030 seems insufficient and hinders progress toward the shared and subscribed goals by nations, making it less effective.

National economic and political interests often take precedence over the global needs identified and analyzed.

Despite significant advances in sustainable technologies, their large-scale application is often hindered by technical limitations and high costs.

Resistance to changing established cultural, social, and economic behaviors remains strong in many nations.

Ongoing climate changes, recurrent environmental crises, and the absence of monitoring and effective comprehensive evaluation systems make it difficult to measure progress and correct ongoing actions.

Conclusions

The three lessons proposed bring attention to and analyze important considerations and actions for achieving the goals set by Agenda 2030. However, among the globally proposed aspects that require further exploration, the following seem relevant:

Improving International Collaboration: Especially in the current highly destabilized global geopolitical context, there is an urgent need to deepen strategies to strengthen international cooperation, including the sharing of technologies, resources,

and knowledge between developed and developing countries.

Providing additional incentives such as public-private partnerships, green investments, and dedicated financial instruments for Sustainable Development, and studying innovative ways to achieve the goals of Agenda 2030.

Studying the impact of new technologies, such as generative intelligence, biotechnology, and renewable energies on the environment and society, and how they can be used to promote sustainable development.

Studying new ways for greater integration of Environmental Policies with Economic Development so that ecological and sustainability considerations are integral parts of economic growth. Deepening the analysis of the regulatory and legislative frameworks necessary to support the achievement of sustainable development goals.

Deepening strategies to educate and raise awareness among people on sustainable development topics, promoting behavioral change in support of sustainable practices.

Investigating global disparities in access to resources, both natural and economic, and how these can be mitigated to ensure a more equitable and sustainable future.

In conclusion, the book achieves the goal of providing a deep and multidisciplinary understanding of sustainable development themes related to Agenda 2030. However, it would be interesting to further explore the practical implications of these lessons for society and individuals, as well as to examine specific case studies demonstrating the practical application of the concepts discussed in the book.