

SmartGreen

News from the environment **Post**

ON THE WAY TO THE ECOLOGICAL TRANSITION



GREEN ECONOMY

Circular economy application: the by-product from waste to precious resource

NEWS

Cingolani: 'If it's too hot, we'll have to spend the summer in Germany'

HEALTH & LIFESTYLE

The Mediterranean diet prevents cardiovascular diseases

SmartGreen

News from the environment **Post**

SmartGreen Post is a blog on the green world, from climate change to separate waste collection. You will always be updated on news from Italy and the world, on the environment, green economy and new technologies. In addition, you can find our tips for a more eco-friendly and healthy lifestyle, as well as a section dedicated to sustainable tourism.

SmartGreen Post is part of a larger Green project that includes SmartRicicla, the separate collection app available in Italy, the United Kingdom, Ireland, Australia, Canada and the United States of America. You can download the app directly on the Play Store. For more information visit the website www.smartricicla.com

SmartGreen Post wants to be a small contribution to the protection of our planet, because to prevent catastrophe it is necessary to know and then act, each in his own small way, with simple but highly effective gestures.





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SmartGreen Post enters a new phase

After two years of hard but fruitful work, the time has come to take the next step, focusing mainly on the internationalisation of the blog.

Two months ago, I began this new and exciting adventure, which has been allowing me to indulge my green nature, shaped by the valuable years I spent in countries with a high ecological footprint, such as Germany and Switzerland. First, I would like to thank the founder of SmartGreen Post, Mario Telesca, for having persuaded me to take on the management of this ambitious project, which I am going to carry out with dedication.

Secondly, I would like to express my sincere gratitude to the contributors who continue to consistently write for SmartGreen Post, showing a commendable collaborative spirit towards me even though I have only recently joined the team. I would also like to thank those who, due to the succumbing of other work and personal commitments, have had to give up their fundamental personal contribution to our blog. Finally, I would like to welcome the two new contributors who started writing for SmartGreen Post shortly after my appointment. I am confident that this wave of fresh air will benefit the blog and be an opportunity for further growth towards new and wider horizons.

I thought it appropriate to dedicate this eighth issue of the magazine to the theme of transition in the broadest sense of the term. From the Latin "transition" (derived from "transire" 'to pass'), the term indicates a passage from one condition or situation to a new and different one: SmartGreen Post is, in fact, in a period of transition in which we count more than ever on the support of our readers. Any change implies a great deal of effort and above all requires great courage to face new challenges. Starting on a new path is frightening. But after each step you take, you realise how dangerous it was to stand still. Any transition requires time, patience, and perseverance; it is a slow journey, not a marathon sprint.



Marisa Silvestri

Translator and interpreter (IT, EN, DE, FR, ES), professor of German language at the University of Basilicata and at the Scuola Superiore per Mediatori Linguistici della Basilicata. She graduated in languages in Italy and in journalism at the Eberhard Karls Universität Tübingen. She wrote for German newspapers, worked as a multilingual copywriter for advertising agencies, collaborated with important publishing houses and with companies in the renewable energy sector. The 15 years of life abroad, in environmentally sustainable countries, such as Switzerland and Germany, shaped her green nature.

To improve is to change.

(Winston Churchill)

The main objective to be achieved in the medium term is to internationalise the project by giving the English-language blog site a boost. To this end, we are considering proposals for collaboration from abroad, as well as the possibility of a newsletter in other languages.

The ecological transition currently at the centre of the European (and other) political debate is just as long and complex. The interesting exclusive interview with the Italian Minister Roberto Cingolani in the well-known German magazine Der Spiegel - which we present in full in this issue - highlights precisely this aspect.

The message we wish to convey to our readers is that this challenging transition path must be tackled together, because unity is strength! If each one of us, in our own small way, contributes with small gestures (for example, avoiding the irrational use of air conditioners in the summer season that has just begun, as recommended by ENEA) to do good for our planet and humanity, the objective can certainly be pursued. In my opinion, a change of pace is needed, starting with legislative bodies, to fill the constitutional gaps (not only in Italy, but also in Switzerland, where the environmental questions were rejected in the referendum of 13th June) on the issue of sustainability, a challenge with three dimensions: social and economic as well as environmental. It is also necessary to gradually get into the business view that waste can be considered a resource.

In conclusion, it is essential to work on everyone's conscience by encouraging and promoting environmental information and education initiatives and, above all, by making ecology a compulsory school subject. It is important to introduce environmental education projects into schools, broken down by age and skills, as this will make it possible to translate complex scientific concepts into more accessible language and trigger positive change. SmartGreen Post has been trying to do just that for more than two years: to constantly contribute to the development of a sustainable collective awareness. From now on, more than ever, even beyond the borders of the Belpaese.

FOUNDER



Mario Telesca

Computer scientist, sensitive to environmental issues, he has carried out various green projects including SmartRicicla, the app for separate collection. He has always been looking for the perfect union between science and art.

SCIENTIFIC BOARD



Francesco Ripullone

Francesco Ripullone is Associate Professor at the School of Agricultural, Forestry, Food and Environmental Sciences of the University of Basilicata, where he holds the chair of the course of Ecology and Dasometry. He is deputy coordinator and Erasmus contact for the degree course in Forest and Environmental Sciences. Prof. Ripullone carries out his research in the field of forest ecology, studying the effects of climate change and natural and anthropogenic disturbing factors on forest ecosystems. He is responsible for several research projects to study the possibilities of forest decline and mortality in the Mediterranean environment.



Angelo Rosiello

Geologist, specialized in fluid geochemistry in volcanic and non-volcanic areas, specialist degree from the University of Perugia, in Geological Resources and Risks. I worked in the field of environmental monitoring of the underground waters of the Umbria region and took part in the volcanic surveillance works of the Campi Flegrei in collaboration with the National Institute of Geophysics and Volcanology. Winner of a PhD scholarship, with a project focused on the issue of terrestrial CO₂ degassing.

EDITORIAL BOARD



Silvia Benati

Consultant and chief operating officer of a service cooperative for business internationalisation. After graduating in International and Diplomatic Sciences and in Economics at the University of Bologna, she works in Switzerland as Product and Project Manager. She is convinced that sustainability is an important driver of growth in foreign markets, and that we can all benefit from more environmentally friendly production, processing and sales techniques.



Maria Giuseppina Ferrulli

Archaeologist specialist in late ancient and medieval archeology and teacher of letters.



Maria Concetta Rizzo

I'm a chartered accountant and specialized in tax and corporate consultancy for profit companies and third sector entities, innovative start-ups and with a social vocation, social enterprises and benefit companies. In particular, I strongly believe in the role that companies play today in ensuring a more ethical and sustainable world for future generations.



Claudio Ventura

He has always cultivated a passion for nature and the environment. Thanks to the degree in business administration he was able to specialize and further deepen the concepts of circular economy and industrial ecology.





Organic farming: target of 25% in EU areas by 2030

Editorial Board

Some objectives need to be changed because they are contradictory, such as abolishing the use of copper



“The objective of reaching 25% of the agricultural area devoted to organic farming by 2030, indicated by the European Commission in the ‘Farm to Fork’ could be modified because it contains some contradictions, although several measures contained in the plan allow to seize many opportunities for the future”. This is what IBMA Italy (International Biocontrol Manufacturers Association), the Association that brings together the main producers of organic pesticides in Italy, stresses, commenting on the statements of COMPAG (the Federation of Agricultural Retailers), extremely critical in a note towards the measures of the European Commission, and “basically agrees with many points of the COMPAG’s note and does not deny that in the current regulations on organic farming there are obvious contradictions and substantial corrections to be made”. IBMA also agrees that “the abolition of the use of copper is, for the moment, totally impracticable, especially for organic crops typical of Mediterranean countries such as vines, olives and vegetables”.

IBMA Italy, however, wants to specify that “also the registration of the so-called ‘Biopesticides’ follows the same procedures and timing of the synthetic molecules and that, in Europe, biological means must meet the criteria of selection, effectiveness and eco-toxicological safety exactly the same as chemical ones”. From the COMPAG’s note, in fact, IBMA Italia states, ‘it is inferred that biological means are less effective and reliable than their chemical ‘big brothers’. In reality, both for regulatory and toxicological reasons, both for human health and for the environment, the process of withdrawal from the market of substances

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that we have used for a long time thinking that they were not dangerous (but then the opposite was seen, if you think of the many cases of non-re-registration for the reasons described above) is instead opening new scenarios to technical means that have become increasingly reliable and therefore used by many farmers. Most of them are conventional and not organic!”.

“We expected COMPAG – IBMA Italy underlines – to be more ready to seize the new opportunities and not to do rearguard battles; maybe helping IBMA and other Associations of the sector to make the registration procedure of biocontrol means much faster and more consistent, as it happens in the USA where a biopesticide enters the market within a couple of years. It is high time that in the fields, the integration of a correct use of pheromones for sexual confusion, (registered) microorganisms, useful insects and plant extracts wisely integrated with a bit of chemistry, when really necessary (as foreseen by the new criteria of integrated pest control, where first the biological means are used and then the chemical one) can be profitably applied by everybody”. For this reason,’ IBMA Italy concludes, ‘our association is ready and willing to engage in constructive discussions that can open up innovative perspectives with advantages for everyone: the environment, farmers, distribution chains and consumers’.



Greening the post-pandemic recovery

Are the packages of measures that all the countries of the world are launching to overcome the economic crisis triggered by the pandemic able to stimulate an environmentally sustainable and socially inclusive recovery? The G20 countries have a key role to play in driving a truly green recovery and in showing the way with examples, as the Italian presidency has done by putting this issue at the heart of the G20 debate. This was the theme of the ‘Virtual Workshop’ organised as part of the side events of the Italian G20 Presidency and held on Monday 17 May.

The event, organised in collaboration with the OECD (Organisation for Economic Co-operation and Development), consisted of two sessions in which representatives of the Italian government, the OECD, scholars and international experts discussed ‘A new perspective: meeting the challenges to reap the benefits of a green recovery’.

OECD statistics on post-covid recovery measures show that 336 billion dollars have been allocated by the world’s largest economies to “green” measures, but these measures produce neutral or negative effects on the environment and represent only 17% of the total sums earmarked for post-covid recovery. In short, there is still a long way to go to achieve a truly sustainable and inclusive recovery.



Swiss referendum: environmental questions rejected

On 13th June, around 60% of Swiss voters rejected the popular initiatives on water conservation, the ban on pesticides and the law on reducing CO2 emissions. The public debate that precedes referendums and the content of the questions play a fundamental role in participation, the expression of opinions and, consequently, the outcome of the vote.

Silvia Benati



Background

The effects of climate change on Swiss glaciers caused by global warming, which is in turn caused by high greenhouse gas emissions, primarily carbon dioxide, are increasingly evident. Glaciers have been retreating gradually for the past century, with a loss of volume averaging 2% per year over the past decade. As the glaciers melt, it is inevitable that Switzerland will lose an important water supply. According to SwissInfo's estimates, Switzerland would only be able to provide its population with drinking water for another 60 years.

Despite the country's small size, the Swiss Confederation has a very high ecological footprint, due to high levels of consumption, road transport – despite an efficient and extensive public transport network – and high energy consumption for domestic use.

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However, agriculture also bears responsibility, and not only for the production of greenhouse gases. The use of chemical pesticides is a further indictment. SwissInfo's analysis of FAO data shows that Switzerland uses less pesticides than Italy (4.9 kg/ha compared with 5.9 kg/ha in Italy) but more than France (4.5 kg/ha), Germany and Austria (both 3.8 kg/ha), to name but a few of its neighbours.

Initiatives and promoters

By signing the Paris Agreement, the Confederation committed itself to halving greenhouse gas emissions by 2030 compared to 1990 levels. To honour this commitment, it decided, after lengthy negotiations in parliament, to ask the Swiss people to vote on three environmentally-oriented referendums: two concerning the preservation of clean drinking water and a ban on the use of pesticides, supported only by the left and part of the centre, and the CO₂ Act supported by all political parties except the Centre Democratic Union (a conservative right-wing political party).

The questions

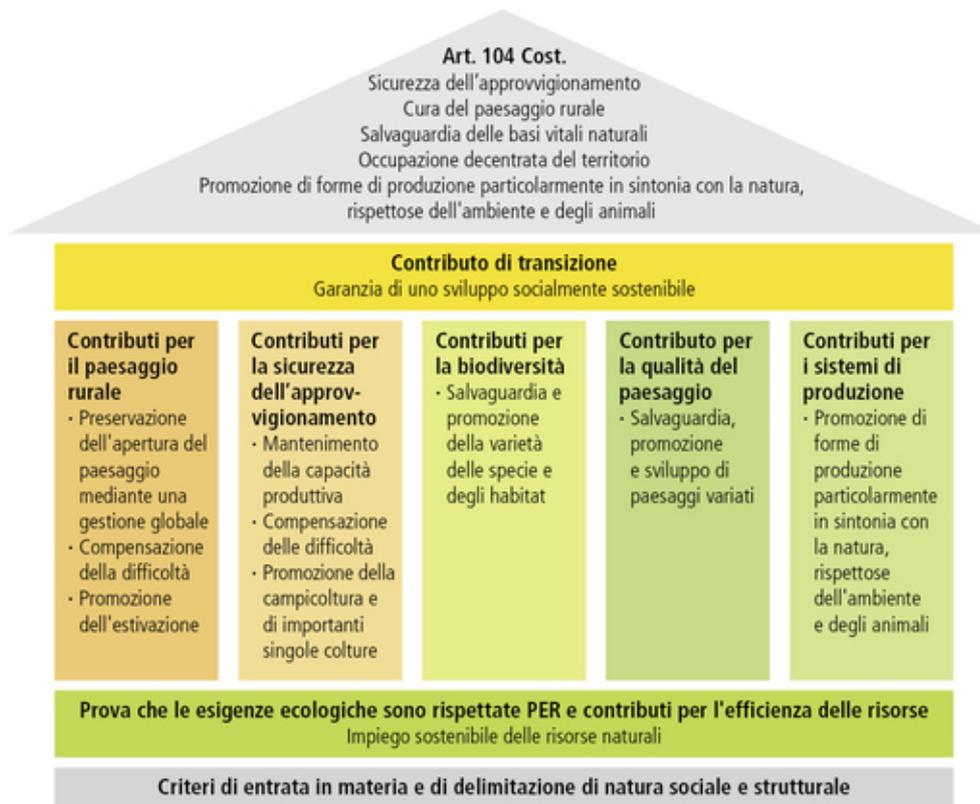
1. Clean drinking water and healthy food – No subsidies for the use of pesticides and the prophylactic use of antibiotics”.

Direct payments account for the largest share of the Swiss government's agricultural budget. In particular, these subsidies are paid to farms that cultivate the land and are run by entrepreneurs under 65 years of age with specific professional training in agriculture. The maximum amount of CHF 70,000 per standard labour unit (UMOS) is only granted if the farm requires the work of at least 0.20 UMOS and if at least half of the work required for the operation of the farm is carried out by in-house labour. To this must be added the ecological burdens that farmers must comply with, providing evidence of their compliance. Below is a diagram of their distribution drawn up by the Federal Office for Agriculture – FOAG.

The referendum initiative committee considers these charges to be insufficient and therefore calls for direct payments to be made only to farms that do not use pesticides, that do not regularly use antibiotics for prophylactic purposes on their farms and that are able to feed their animals exclusively with fodder from their own production, in order to avoid excessive manure and slurry spillage, to preserve water and also to direct agricultural research, advice and training towards these goals. The initiative would not affect less virtuous farms that do not receive direct payments, and are still not sanctioned in any way.

The Federal Council and Parliament have warned voters that acceptance of the initiative, which they believe has excessive standards, could lead to a decrease in local agricultural production, with the obvious consequence of increasing food imports to support national needs.

According to the initiating committee, the massive use of pesticides, antibiotics and excessive spreading of slurry on fields violates the right to clean drinking water, and a reorientation of subsidies would be desirable to limit environmental damage and health risks.



Overview of direct payments for agriculture in Switzerland.
 Source: Federal Office for Agriculture – FOAG.

2. “For a Switzerland without synthetic pesticides”

The initiative would ban the use of synthetic pesticides in Switzerland not only, of course, in agriculture, food production and processing, but also in the maintenance of public green spaces, private gardens and infrastructure (e.g. railway tracks). The import of foodstuffs from abroad containing synthetic pesticides or in the production of which they have been used would also be banned. During the adjustment period of 10 years after acceptance of the initiative, the Federal Council could allow exceptions to counteract a serious threat to agriculture, the population or nature.

The Federal Council and Parliament consider this ban to be disproportionate and have spoken out against it, advising voters to do the same. In their view, the domestic and foreign supply of food would be severely restricted, and the ban would violate international trade agreements.

3. Federal Act on the Reduction of Greenhouse Gas Emissions (CO2 Act)

In order to further reduce carbon dioxide emissions, the law provides for a combination of financial incentives, investments, new technologies, as well as increased costs for those who generate the most CO2.



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For example, the renovation of buildings, the construction of recharging stations for electric vehicles and the introduction of other vehicles that use less petrol and less diesel would be encouraged. Importers of these types of fuel would, however, incur additional costs to finance investments in reducing their environmental impact, and to compensate for this, they could increase the price at the pump. The price of oil, heating gas and flight tickets would also be increased.

Given that rising temperatures lead to melting glaciers, heatwaves, droughts and landslides, both the Federal Council and Parliament welcome this initiative as an effective way of combating climate change. Additional orders for Swiss SMEs and job creation in the field of new technologies would be just some of the positive effects of the measures.

The “Economic Committee NO to the CO2 Act”, which is led by the motoring and mineral oil industry associations, is strongly opposed to the initiative. It considers the law to be costly, to have little impact on the global climate – Switzerland would only produce one per thousand of global CO2 emissions – and, above all, to be unfair, since the measures would hit the lower and middle income groups hardest.

The results of the consultations

On 13th June, around 60% of Swiss voters rejected all three environmental questions. The real surprise was the NO vote on the CO2 Act which, despite the approval of the cantons of Geneva, Vaud, Neuchâtel, Basel City and Zurich, received 51.7% of the total vote. Basel-Stadt, in particular, was the only canton whose majority also voted in favour of the questions “Clean drinking water and healthy food” and “For a pesticide-free Switzerland”, while Geneva and Zurich recorded a balanced but negative result on these two issues.

Swiss environmental policy: Quo vadis?

Sommaruga, the environment minister, and the Green Party are disappointed with the outcome of the polls, saying that it will have a negative impact on the country’s future and on the achievement of the EU’s shared goal of climate neutrality by 2050.

However, it is legitimate to wonder whether a different formulation of the questions, less demanding on some aspects and more incentive-based on others (e.g. a reduction in the cost of the exorbitant General Abonnement for Swiss public transport in order to encourage its use), would have returned a different result and contributed to even a small advance towards the ambitious goal.

The negative result comes on top of that of another popular initiative rejected on 29 November last year, which concerned the civil liability of multinationals with headquarters in Switzerland for the violation of human rights or international environmental standards by their foreign subsidiaries. Had there been approval, individuals or organisations would have been able to take legal action against an alleged violation in Switzerland, where the company’s headquarters are located and where more punitive laws presumably apply than in other countries. Another missed opportunity.



The Climate Clock in Rome: How much time do we have before the climate apocalypse?

On the occasion of World Environment Day, the Italian Ministry of Ecological Transition inaugurates the famous “Climate Clock”

Editorial Board

Already present in the world’s major capitals, the Climate Clock is being inaugurated in Rome today, 4th June, on the facade of the Ministry for Ecological Transition on Via Cristoforo Colombo. The ministry announces it, explaining that it is a digital clock that does not mark any old time: the numbers in red (the deadline) tell us how much time humanity has to act before entering an irreversible climate emergency, those in green (the lifeline) indicate the percentage of energy obtained from renewable resources that is available in the world. In other words, it’s a countdown to the apocalypse if we don’t take the necessary steps to cut greenhouse gas emissions, mainly carbon dioxide (CO₂), produced by human activities: from traffic – diesel and petrol engines – to emissions from heating systems, power stations and many other sources.



The installation of the climate clock aims to raise public awareness on the issue of climate change, so that everyone can feel part of a shared path towards a low-carbon future.

The event, which will be attended by the Minister for Ecological Transition, Roberto Cingolani, and the CEO of the GSE (Gestione Servizi Energetici), Ing. Roberto Moneta, will be held today, 4 June, at 11.00 a.m., at the MiTE headquarters, in Via C. Colombo 44 in Rome. However, the switch-on is scheduled for tomorrow, 5 June, on World Environment Day.

Years, months and days, the note continues, “calculated on the basis of the latest data from the Ipcc (Intergovernmental Panel on Climate Change), the United Nations’ intergovernmental group on climate change: we have a limited amount of time in which to intervene, beyond which the Earth’s temperatures are set to rise well above 1.5 degrees Celsius, the maximum limit set by the Paris Agreement. The goal is to add time to the clock. As we reduce the rate of global carbon emissions, the time on the clock will increase rather than decrease,” the note concludes.



Italy towards ecological transition with environmental education initiatives

The Mite-MAXXI protocol on information and environmental education initiatives has been signed at the dicastery by the Minister of Ecological Transition Cingolani and the President of the National Museum of XXI Century Arts (MAXXI) Melandri

Editorial Board



A memorandum of understanding signed by the Minister for Ecological Transition, Roberto Cingolani, and the President of the MAXXI Foundation, Giovanna Melandri, has made official the collaboration between the two institutions for joint programmes and initiatives on environmental information and education, in relation to the museum's exhibition projects. The agreement was signed on the 25th of May at the dicastery of Via Cristoforo Colombo in Rome.

In particular, the synergy will be aimed at promoting artistic-cultural and research initiatives on environmental issues and sustainable development, also through the realisation of competitions of ideas, exhibitions, meetings, cycles of conferences and the organisation of open spaces for interactive workshops.

As stated in the text of the protocol, 'the Ministry is engaged in ensuring the coherence of the initiatives agreed upon between the parties from the point of view of an environmental culture and ecological transition' and to 'evaluate every other possible form of support for the information and environmental education programmes promoted by the MAXXI Foundation as well as for exhibition activities that have a specific and relevant significance in promoting environmental sustainability, ecological transition, the protection of biodiversity and combating the phenomena of ecosystem degradation'. Among other things, the MAXXI is committed to promote, through its programming, the development and implementation of initiatives and projects in this field.

The protocol has a duration of two years. The development of initiatives related to the protocol shall take place within the organisational and financial resources of the Ministry and shall not entail any new or additional costs for public finance.



Cingolani: 'If it's too hot, we'll have to spend the summer in Germany'

In an interview with *Der Spiegel*, Ecological Transition Minister Roberto Cingolani points out that in Italy there is a real threat of extreme weather events and desertification of large areas of land. To put it bluntly, in the future we may have to spend the summer in Germany if it gets too hot in the Mediterranean.

Editorial Board

Italy aims to become a green pioneer in Europe and wants to invest 70 billion euros to achieve this goal. This is why Prime Minister Draghi has appointed the physicist Cingolani as super minister for the environment. How will he achieve this ambitious breakthrough?

When it comes to environmental issues, Italians are currently dealing with staggering figures. Just recently, Prime Minister Mario Draghi promised at the G7 summit to give \$100 billion a year for climate protection in developing countries, together with the other G7 members. In Italy, 70 billion euros are to flow into a "green revolution". Most of it will come from the Recovery Fund with which the EU wants to combat the consequences of the pandemic. Roberto Cingolani, as Minister for Ecological Transition, is responsible for this. He took office in February with the new Draghi government, after the previous coalition collapsed over the Recovery Fund debate.



SPIEGEL: Professor Cingolani, do physicists have a special talent for power? You remind me a bit of the first Angela Merkel: first a physicist, then environment minister...

Cingolani: "There are many physicists in politics. Perhaps when you have studied quantum mechanics, anything is possible. Even politics. However, Merkel wanted to govern. For me, however, I would never have imagined this path".

SPIEGEL: So why did you do it?

Cingolani: "There are times for classical politics and there are times when technicians like me are needed. Italy is investing around 70 billion euro in the ecological transition. Now a profile like mine can be needed because there was a complex project to be written. When the organisation is in place, classical politics will have to take its place again".

SPIEGEL: What do you intend to do with this amount of money?





Cingolani: “The targets for all of us in Europe are clear: 55% less CO2 emissions than in 1990 by 2030 and zero emissions by 2050. If I want to achieve this goal, I have to approach it as a scientific experiment”.

SPIEGEL: How dangerous is climate change for Italy?

Cingolani: “In our country there is a real threat of extreme weather events and desertification of large swathes of land. To put it bluntly, in the future we might have to spend the summer in Germany if it gets too hot in the Mediterranean. The Mediterranean ... gets too hot. If we don't put a stop to the rise in temperature now, today's primary school children will experience dramatic consequences”.

SPIEGEL: Actually, the EU's reconstruction fund is supposed to deal with the consequences of the pandemic crisis. What does the environment have to do with it?

Cingolani: “After the global financial crisis 15 years ago, huge sums were poured into growth and employment programmes. Choices that today we are forced to slow down for climate reasons. We simply can no longer afford to stimulate growth according to the old industrial and economic models, as we did during previous crises. This is not compatible with global warming”.

“We simply cannot afford today to stimulate growth according to the old industrial and economic models, as we did during previous crises. This is not compatible with global warming.”

SPIEGEL: But these correlations were already known at the time.

Cingolani: “In science, yes, but public awareness was lacking. And politicians don't act unless it seems really urgent. It's a problem of our economic system and the growth mechanism”.

SPIEGEL: Capitalism has to make a change, only renunciation can save the environment?

Cingolani: “When there are big global changes in nature, human beings don't perceive it right away. We were the cause of these changes, not because we harmed the environment, but because we thought our growth model was a good thing. Now I think the time is more mature. The big companies are including sustainability in their balance sheets. If you produce and sell a lot but pollute the environment, it is no longer a worthwhile investment.

SPIEGEL: What needs to happen now? It's not long before 2030.

Cingolani: “That's why I developed a model with the rocket as a symbol. Think of it like this: we are on planet Earth. By 2030 we want to take this rocket to the Moon and by 2050 from there to Saturn. The Recovery plan is like the main engine that gives the initial acceleration to our rocket, which then detaches after take-off. The more correctly we set the initial trajectory, the safer it will be to reach the destination in 2050. Once the initial thrust is gone, the rocket can continue its journey with just the engine and a good pilot.”

SPIEGEL: The EU's reconstruction plan...

Cingolani: “...is that initial acceleration. If we don't provide enough speed now, the rocket doesn't get out of the Earth's gravitational field. That's why, to go back to the initial question, a technician like me can be useful at this stage. We build the engine and set the trajectory so we don't miss the target. The policy pilots



can then control the rocket later without having to understand every detail of how the engine room works.”

SPIEGEL: What plans did you find when Mario Draghi formed his government of national unity on 15 February and appointed you minister for Ecological Transition?

Cingolani: “There was a large collection of proposals and ideas, but no vision. and from that we had to build a project, in eleven weeks, to present it in time to the European Commission”.

SPIEGEL: What are the most important objectives?

Cingolani: “We need two completely different strategies. Firstly, we need to mitigate the existing effects, for example by converting blast furnaces in steelworks, making them run on gas for the time being; this saves 30% of emissions compared to functional technologies. In Germany...”

SPIEGEL: ...with its lignite and coal fields....

Cingolani: “...you have the same problem. We can't close everything down, shut down our society and then starve to death. We still have to find the compromise between development, work and mitigation of problems”.

“Even if the government gives everyone an electric car, it won't do much good until we have completely green electricity.”

SPIEGEL: What's the second strategy?

Cingolani: “Prevention. While we reduce the damage caused by industry, we lay the foundations for an environmentally and economically more sustainable system. Take electric mobility, for example: even if the state gave each of us an electric car as a gift, it would be of little use until we had completely green electricity to power it. So we need to adapt the whole system, massively expand renewable energy, invest in smart grids and charging stations.

SPIEGEL: How do you plan to do that?

Cingolani: “Right now, like Germany, we generate about 30% of our electricity from renewable sources. If we want to get to 72% by 2030, we need to install 8 gigawatts of green energy capacity every year. The problem is that when I asked the power companies how much they install per year, the number 0.8 gigawatts came up.”

SPIEGEL: It won't work at that rate.

Cingolani: “Exactly. We would need a hundred years instead of ten.”

“Before the ecological turnaround, there has to be a bureaucratic turnaround”.

SPIEGEL: What's the reason?

Cingolani: “Bureaucracy. Italy is technically well positioned, we are world market leaders in these sectors. But in our country we don't manage to make rapid progress. If I put 10 gigawatts of green energy gene-





ration out to tender, the tender should be awarded within a year and then the work could start. Instead, it takes six or seven years just for the permit. I have to increase green energy production tenfold, 8 gigawatts per year instead of 0.8 gigawatts per year, and I have to do it now, not when it will be. This can only be done if we achieve a bureaucratic breakthrough before the ecological one. That's why we are now working on a simplification decree, which I call the 'Acceleration Decree', which will be discussed in Parliament in the coming weeks".

SPIEGEL: Italian environmental associations have described your plans as "not green". You are receiving criticism from many quarters.

Cingolani: "Some people want hydrogen instead of gas straight away, but our technology is simply not ready yet. Others are against offshore wind turbines because they don't endanger migratory birds. I remember reading that even in your country, Germany, wind turbines were blocked because they endangered species of earthworms. The environmental movement rejects many things that do not correspond to their ideology.

SPIEGEL: The International Energy Agency, which has long relied on fossil fuels, has just done a U-turn and called for a halt to all investments in oil and gas, effective immediately. The green think tank finds it "shameful" that Italy continues to rely on gas.

Cingolani: "We should produce 72% of our electricity from renewable sources by 2030, until then I can't give every citizen a bicycle with a dynamo to generate the rest of the electricity. The same people who are now making these contentions should give up their mobile phones and streaming services to save electricity. I would like to see more consistency in the debate. After all, we are talking about a green transition and we still need time before we can produce hydrogen in a CO₂-neutral way."

"I can't give every citizen a bicycle with a dynamo to generate electricity."

SPIEGEL: Italy and Germany decided long ago to phase out nuclear power. Now France is proposing new micro-reactors as a solution.

Cingolani: "The other day I spoke with the American climate envoy John Kerry here in my office. He said they are also studying it. And European Commission Vice-President Frans Timmermans told me that in addition to France, nine other member states, mainly from Eastern Europe, are already considering whether such micro-reactors could be defined as green energy."

SPIEGEL: And what do you think?

Cingolani: "We are making huge efforts in Italy for ecological change. If such microreactors, as we know them from submarines, were to be considered green in the future, it would change the rules of the game".

"We decided in a national referendum against large nuclear power plants, OK. But as a physicist, I want to understand what the new technologies could bring."

SPIEGEL: Would a renaissance of nuclear power with microreactors be possible?

Cingolani: "Let's see what happens in the EU. In any case, we have to deal with it. Incidentally, there are



major European and American research programmes on nuclear fusion of hydrogen atoms. Unlike nuclear fission, this does not produce nuclear waste. It is the same principle as how the stars work, it is how the whole universe works. We should participate openly in these experiments. Maybe in 2070 we will be able to create a “star” enclosed in a machine designed for this purpose, generating clean energy for everyone. That would be the dream of mankind.

SPIEGEL: Some Italian newspapers are already calling you minister for nuclear transition, not ecological transition.

Cingolani: “I have also been accused of wanting to put small nuclear reactors in gardens and of accepting the birth of cats with three heads. I find it problematic when you cannot say a few words without being attacked. We decided against large nuclear power plants in national referendums and that’s fine. But as a physicist, I want to understand what new technologies might bring. Let’s keep studying – at most we’ll learn something.

SPIEGEL: There’s not much time for the transport revolution. How does Italy plan to ensure sustainable mobility?

Cingolani: “The first thing we need to do is invest in batteries in Europe. That’s why we need a gigafactory in Italy too. Then we need more recharging stations – at the moment we only have 10,000. In the meantime, we hope that the price of electric cars will come down. But that won’t do much good if people don’t change their behaviour.

SPIEGEL: What do you mean?

Cingolani: “If people continue to drive just to cover three kilometres, there’s nothing I can do about it. It has to start with the culture of young people in schools. And we need to modernise our public transport, for example by buying 5,500 new, cleaner buses and building 240 kilometres of new local transport routes in the big cities”.

SPIEGEL: According to Greenpeace, a fleet of more than 42,000 buses in local transport is too little. And the 240 new kilometres of track would barely be enough for Rome.

Cingolani: “But a start has been made. Moreover, the situation in Italy with its many historic centres, which are hamlets, is not easy. Metros are difficult to build when there are 3,000 years of history in the ground and buses don’t go through many narrow streets. Maybe we need electric mini-mobiles and other creative solutions.

SPIEGEL: Is solving Italy’s historical waste problem part of your green revolution?

Cingolani: ‘Some regions have perhaps the best waste management in Europe. Others don’t. I find it impossible that every day thousands of lorries transport waste from southern Italy all the way to Germany and to incineration plants. At the same time, people are fighting against waste incineration plants in their own country. I would like more intellectual honesty. Those who don’t want these plants should at least cooperate in the sorting plan.

SPIEGEL: Isn’t that happening?

Cingolani: “In some areas, we are still a long way from enforcing proper waste separation and collection,





so people prefer to send all these lorries abroad. In comparison, incineration plants in Italy would really be more ecological”.

“Everyone likes ecological change. But when it becomes concrete, it can be traumatic”.

SPIEGEL: What is your assessment after three months in office?

Cingolani: “Everyone likes ecological change. But when it becomes concrete, it can also be traumatic”.

SPIEGEL: And how do you deal with life as a politician?

Cingolani: “After the change of government, we had very little time to write Italy’s plan for reconstruction. During the day we met with representatives from all the important sectors for ecological change, environmental associations, the car industry, the energy sector, agriculture. And at night we wrote. It was an emergency, for two months I only slept three hours a night. Of course, everything can be improved, but the result is a good plan.

SPIEGEL: Mario Draghi has claimed an international leadership role for Italy in environmental policy. Can he manage it?

Cingolani: “I have said from the beginning that we have to be ambitious here and work globally. We owe it to the European taxpayers who are financing the Recovery Fund. And there is no other way if we want to solve this historic task. The only thing I find disturbing is the disinformation movement, especially on social media, which is difficult to fight. What I fear most is the inability to tell the truth and that ideology often prevails.

SPIEGEL: Do you have a recipe for this?

Cingolani: “Most of these people still have a residue of honesty at the bottom of their soul. But they can no longer have real discussions. We have to talk to the younger generation, the 6-year-olds, the 12-year-olds, and explain to them rationally what awaits them when they have to make decisions in the future as parents or grandparents. That’s the biggest challenge.

SPIEGEL: Is a serious debate on the ecological turnaround no longer possible today?

Cingolani: “I always try to be transparent about our plans. But I’m considered boring. It’s easier to listen to guests on talk shows where there is no fact-checking. And where whoever produces the most decibels seems to be right. But this may only be a problem in Italy.”

“When my service is over, I’ll say hello.”

SPIEGEL: What happens after the recovery plan has started?

Cingolani: “It has to be pursued very seriously. The contract with Europe is very clear on the things that have to be done and must not be changed. However, at the moment we have a technical government. Afterwards the successors will have to take important decisions. But then I will no longer be there. When my service is over, I will say goodbye”.



Claudio Ventura

Circular economy application: the by-product from waste to precious resource

The circular economy model provides for the enhancement and reuse of waste or residues from a production cycle, which can be reused as new resources for new production processes. By not managing them as waste but as by-products, the company will be able to enjoy important economic and environmental advantages.



The circular economy for more sustainable growth

The linear economy model (take-make-use-dispose) which doesn't provide for the recovery, recycling and reuse of waste, is imperfect since it considers the natural resources of our planet to be infinite, but, unfortunately, this is not the case. Since there is a limit to the use of raw materials that are essential for most human activities, the most reasonable solution consists in the search for a development model based on the minimization of waste and the enhancement of by-products, capable of maintaining high profits and at the same time, to make the economy more sustainable. The recycling of waste is certainly a valid tool to reduce the environmental impact of production processes.

However, the concept of circular economy aims at minimizing the production of waste, enhancing production residues. The objective of the circular economy is to minimize waste, since the latter can be valorised and therefore reused, reused and recycled. This would limit not only the extraction of resources from the natural system, but also the reintroduction of waste into the environment.

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The by-product: from waste to earning opportunities

Too often, companies regard by-products as waste. In this way, the environmental impact of the company increases, but also the economic impact, since waste management represents a cost for the company. In this regard, it is first of all worth mentioning the definition of by-product. Art. 184-bis, introduced in Legislative Decree 152/2006, establishes 4 points that the object or substance must comply with in order to be classified as a by-product:

1. The substance or object originates from a production process, of which it forms an integral part, and whose primary purpose is not the production of that substance or object;
2. It is certain that the substance or object will be used, during the same or a subsequent production or use process, by the manufacturer or third parties;
3. The substance or object can be used directly without any further treatment other than normal industrial practice;
4. Further use is legal, i.e. the substance or object meets, for the specific use, all relevant requirements regarding products and the protection of health and the environment and will not lead to overall negative impacts on the environment or human health.

In addition to this definition, fortunately, the Legislative Decree 264/2016 and the subsequent Circular of 30 May 2017 have been added which clarify the definitions and tools available to demonstrate that the object in question is a by-product and not a waste. Once this is demonstrated, the company will be able to manage the object or substance as a by-product, obtaining a clear reduction in costs. The by-product, in fact, translates into avoided waste.

This means that the costs of waste management are reduced.

Managing waste means facing the costs of drafting forms, registers and MUDs, which are not foreseen for by-products. In addition, the company would save the costs of disposing of waste in landfills. The by-product, unlike waste, can be reused within the same production cycle (saving the costs of purchasing new material) or resold to third parties, avoiding waste management costs, and even obtaining a profit.

Therefore, knowledge of the economic and environmental benefits of by-products could encourage the spread of an increasingly "circular" culture among companies, which could create a network for the exchange of production residues, that is, a real industrial symbiosis.



Nature is not a place to visit.
It is home.
(Gary Snyder)

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Sustainable development in the Italian Constitution: a legislative gap to be filled

Maria Concetta Rizzo

Sustainable development is a socio-economic and environmental balance that must be achieved to ensure a better future for next generations. In order to achieve this goal, it is necessary to “harmonise” the three dimensions of sustainability: economic, social and environmental. Recognition in the Constitution is indispensable.

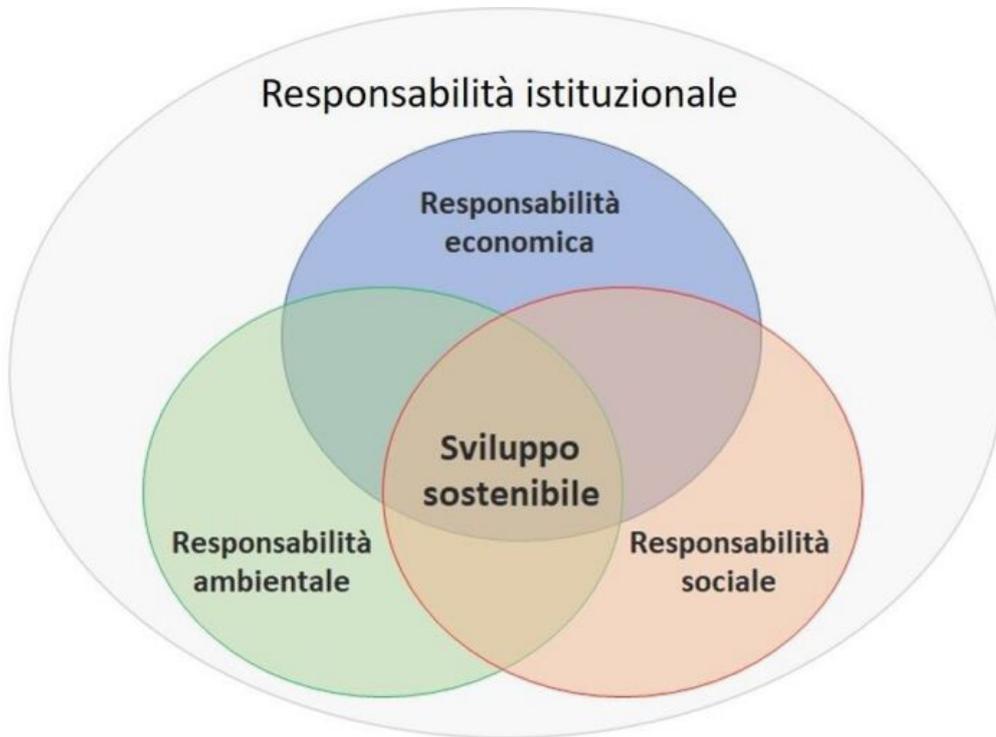


The integration of animal and environmental protection into the Constitution has sparked off a political debate on sustainable development.

In recent days, the Institutional Affairs Commission has approved the integration of environmental and animal protection into the Constitution. The proposed constitutional amendments concern, in particular, Articles 9 and 41 of the Constitution: a new paragraph is added to the second paragraph of Article 9, which is among the fundamental principles, for which the Republic “protects the landscape and the historical and artistic heritage of the Nation”: it protects the environment, biodiversity and ecosystems, also in the interest of future generations. State law governs the ways and forms of animal protection.

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On the other hand, as regards Article 41, which establishes that economic initiative “may not be carried out in conflict with social utility or in such a way as to damage security, freedom and human dignity”, a new paragraph is added: “health and the environment”. Finally, in the third paragraph of Article 41, which states that ‘the law shall determine the programmes and controls appropriate for public and private economic activity to be directed and coordinated for social purposes’, ‘and environmental purposes’ is added.

For the majority in the Senate, this is “a decisive vote that will take our country a big step forward, finally recognising in the fundamental law of our country the protection of animals, the environment, ecosystems and biodiversity, the premise for an epoch-making change that will have to be translated into concrete acts by the State, production and citizens”.

Sustainable Development as defined in the Brundtland Report

The various bills that have been brought before the Institutional Affairs Commission in recent days seem to be flawed because there is no real indication of a constitutional commitment to achieving sustainable development. Probably because, reading them, it seems that the political parties are still unclear about the concept of sustainable development as universally defined in 1987 in the so-called Brundtland Report entitled “Our Common Future”, whose principles of intergenerational and intragenerational equity brought to the attention of the international community led to new developments in the concept of sustainability, which was extended not only to the environmental dimension, but also to the social one. According to the report, ‘sustainable development is development that enables the present generation to meet its own needs without compromising the ability of future generations to meet theirs’.



ECONOMIA SOSTENIBILE >

There can be no sustainable development if sustainability does not include, as defined by the World Summit on Sustainable Development in Johannesburg in 2002, the harmonisation of the three dimensions that characterise it: the economic dimension, understood as the capacity to generate income and work in a sustainable manner to sustain the population, the social dimension, understood as the capacity to guarantee conditions of human well-being (security, health, justice, institutions, democracy, participation) equally distributed by class and gender, and the environmental dimension, understood as the protection of the ecosystem, the capacity to maintain the quality and reproducibility of natural resources. "In the long term, economic growth, social cohesion and environmental protection must go hand in hand" (Commission for the Gothenburg European Council, 2001:2). The term "sustainable", once linked only to its "green" meaning, must now necessarily include economic and social dynamics as well.

The integrated vision of the three dimensions of development must also embrace that of institutional responsibility, which in 2015 led to the birth of the 2030 Agenda for Sustainable Development, a joint commitment by countries to put the world on a sustainable path.

In order to achieve the sustainable goals set out in the 2030 Agenda, it is to be hoped that political institutions will be willing to include sustainable development in its meaning in the Constitutional Charter, since the SDGs themselves include five P's for achieving sustainable development: people (to eliminate poverty and ensure dignity), prosperity (understood both as economic ease and as "harmony with nature"), peace (to promote peaceful, equitable and inclusive societies founded on fair and sound systems of justice), partnership (only collaboration between states and businesses makes it possible to achieve the goals) and planet (as an asset to be protected).

The legislative process and the political debate

The process for constitutional revision laws is normally longer than for ordinary laws. The aim seems to be to quickly schedule the reform for a vote in the House. Subsequently, the bill must be adopted by each Chamber with two successive deliberations at intervals of no less than three months, and approved by an absolute majority of the members of each Chamber in the second vote, as provided for in Article 138 of the Italian Constitution.

The hope, however, is that the current proposal will be revised by integrating it with other proposals put forward in 2018 (Bill 240 and Constitutional Bill 938), which may have inspired Prime Minister Mario Draghi, during his reply to the Senate, before the explanations of vote on the confidence in his new executive, by giving his full support to parliament in including the concept of sustainable development in the Italian Constitution.

In particular, the above-mentioned proposals call for the amendment of Articles 2 and 9, which deal with fundamental principles, and Article 41, including the part regulating economic relations, in the following new version:



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- **Article 2:** The Republic recognises and guarantees the inviolable rights of man, both as an individual and in the social groups where his personality takes place, and requires the fulfilment of the imperative duties of political, economic and social solidarity also towards future generations.
- **Article 9:** The Republic promotes the development of culture and scientific and technical research. It protects the landscape and the historical and artistic heritage of the Nation. It recognises and guarantees the protection of the environment as a fundamental right of the individual and an interest of the community. It promotes the conditions for sustainable development.
- **Article 41:** Private economic initiative is free. It may not be carried out in conflict with social utility or in such a way as to harm the environment, security, freedom or human dignity. The law determines the programmes and controls that are appropriate so that public and private economic activity may be directed and coordinated for social purposes and sustainable development.

The battle to introduce sustainable development into the Constitution in its broadest sense seems set to ignite political debate in the coming months, given the scope of the press release on behalf of the first signatory of Bill 240 in the Chamber of Deputies, Mauro Del Barba, in which he expresses his disappointment at the first yes vote in the Institutional Affairs Committee. According to Del Barba, the alleged inclusion of sustainable development in the Constitution does not actually exist, because “a timid reference ‘also’ to future generations on environmental issues is not enough to affirm, in 2021, that we have understood the epochal significance of what the Brundtland Commission defined with extreme clarity in 1987 and which the whole world is now pursuing in its economic, social and environmental dimensions. We do not need flags to wave, but – he concludes – universally recognised criteria capable of definitively committing Parliament to the pursuit of the well-being of future generations”.

This debate is necessary to ensure that when the Constitutional Charter is amended, this is done in due depth and in a complete and comprehensive manner. There is a bad habit when talking about sustainability or sustainable development: to associate it only with the environmental dimension. If we only include the right to environmental protection in Article 2 of the Constitution, we are not even “halfway through”. Political institutions have a duty to “promote sustainable development”, to be integrated as in the 2018 proposal, in Article 9, but above all to “make the economy,” in particular economic operators (see businesses) “responsible” for not damaging the ecosystem and its biodiversity, and then it must be understood that to achieve Sustainable Development it is necessary to “harmonise” the three dimensions of sustainability: economic, social and environmental.



Cooling your home efficiently and protecting the environment

Editorial Board

With the start of the summer season ENEA provides a series of practical suggestions for cooling your home efficiently, with an eye on the air conditioning system to improve comfort, save on bills and protect the environment.



Pay attention to the energy class – The choice of the air conditioner represents a key requirement to reduce consumption and avoid unpleasant surprises in the bill. Regardless of the technology, models with an energy class higher than A are always to be preferred as, in addition to reducing CO₂ emissions into the atmosphere, they consume much less. The annual energy consumption indicated on the energy label relates to 1400 hours of operation in heating mode and 350 hours in cooling mode, plus energy consumption in other modes such as standby. For example, if we choose a model in class “A+++” we will be able to spend around 30 to 40% less on electricity than we would with a class “B” model.

Choose inverter technology – In an air conditioner with an inverter control system, the speed of rotation of the compressor is constantly regulated and this allows optimal performance in all conditions of use by adapting the cooling and heating power supplied to the actual need. These models, which are particularly functional when you plan to keep the air-conditioning on for many hours at a time, cost more

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than those with on-off technology, but energy consumption and noise levels are lower, resulting in greater comfort in the rooms served.

Keep an eye on incentives – For the purchase of a heat pump air conditioner, if it is intended to fully or partially replace the old heating system, you can choose between: Bonus casa, Ecobonus or Conto termico 2.0 (<https://www.fficienzaenergetica.enea.it/detrazioni-fiscali.html>).

Attention to the position – When installing the air conditioner, it is important to place it at the top of the wall: cold air tends to fall and mixes more easily with warm air, which tends to rise. It is absolutely necessary to avoid placing the air conditioner behind sofas or curtains: the barrier effect blocks the diffusion of fresh air.

Do not cool down the environment too much and pay attention to humidity – Legislation states that during the summer season the internal temperature must not fall below 24-26 degrees centigrade but, most of the time, two or three degrees lower than the external temperature is already sufficient. Often, activating the “dehumidification” function can be enough to prevent the feeling of oppressive heat, as the humidity in the air makes the temperature perceived as being much higher than it really is.

Each room needs its own air conditioner – Installing a powerful air conditioner in the corridor hoping that it will cool the whole house is useless: the only result will be to get a cold shock every time you cross the corridor going from one room to another, as it will be the only room being cooled.

Do not leave doors and windows open – The air conditioner cools and dehumidifies the room in which it is installed by transferring heat and humidity to the outside. The entry of “new” warm air into the room forces the appliance to do additional work to bring the temperature and humidity back to the required levels, with a consequent expenditure of energy.

Insulate the pipes of the refrigerant circuit outside the home – To avoid unnecessary losses, it is necessary to insulate the pipes of the refrigerant circuit outside the home. It is also advisable to ensure that the outside of the air conditioner is not exposed to the sun and weather.

Use the timer and ‘night’ function – With these functions you can minimise the time the appliance is on and increase comfort. They also allow you to switch the air conditioning on and off remotely and keep it running only for the period of time you really need it. The “night” or “sleep” function regulates the room temperature at night in response to changes in body temperature.



Attention to cleanliness and proper maintenance – Air filters and fans should be cleaned at the first start of the season and at least every fortnight, as this is where mould and bacteria that are harmful to health, including Legionella bacteria that can be fatal, most often lurk. It is also important to check the tightness of the gas circuit. It is also important to remember that the regulations require a system logbook and periodic checks for systems with an output of more than 10 kW for winter systems and 12 kW for summer systems.

Have your home checked – Asking a technician to carry out an energy audit of your building is the first useful step in assessing the state of thermal insulation of walls and windows and the efficiency of air conditioning systems. The diagnosis will suggest what needs to be done in a cost-effective manner. In addition to reducing the cost of air conditioning in summer by up to 40%, the measures are even more convenient if you take advantage of tax deductions for the energy upgrading of buildings, the Ecobonus, which allows you to deduct from IRPEF or IRES taxes from 50 to 85% of the costs incurred depending on the complexity of the intervention and the Superbonus, with which the deduction rate increases to 110%”.



The Mediterranean diet prevents cardiovascular diseases

The CNR and Siprec are exporting to Europe a new way of informing pupils about healthy eating and lifestyles to avoid heart disease.

Editorial Board



The Mediterranean Diet is considered a diet rich in benefits for the body. However, the spread of junk food and the consumption of foods far from the Italian gastronomic tradition has alienated many young people from eating the typical products of this dietary style. This inevitably predisposes to cardiovascular risk factors, starting with obesity in adolescence, a problem for which Italy has the sad record in Europe, resulting in the onset of many diseases in adulthood, such as diabetes, heart attack, stroke and some types of cancer.

“It is essential to bring young people closer to the themes of healthy eating and prevention, but it must be done in a stimulating way, to encourage their active participation,” says Rita Bugliosi, a journalist from the press office of the National Research Council in Rome, creator of the more than ten-year old project of popularising science “Scientists and Students”, This is precisely the aim of the project, which has been exported to Europe through collaboration with the Prevention and Protection Unit of the CNR in Rome and the Italian Society for Cardiovascular Prevention (Siprec), thanks to the involvement of the Slovenian Heart Foundation (SloHF) and the European Heart Network (Ehn) in Brussels.



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This collaboration resulted in the project 'Doctors, teachers, students, film-makers, and journalists allied in cardiovascular prevention', published in the journal *Annals of Public Health and Research*. "The study lasted ten months (from September 2019 to June 2020), in order to allow the sequential execution of all phases, and involved pupils from secondary schools in three Italian cities (Bari, Genoa and Rome) and two Slovenian ones (Ljubljana and Maribor)," explains Roberto Volpe, medical researcher at the Prevention and Protection Unit of the CNR, member of the Siprec Executive Board and coordinator of the initiative.



"The project started with preparatory meetings between experts in nutrition and cardiovascular prevention from Siprec and SloHF and science and physical education teachers from participating Italian and Slovenian high schools. Two seminars were organised to provide young people with guidelines for a correct lifestyle and healthy eating habits. The impact of the seminars on the young participants was measured using a multiple-choice questionnaire on knowledge about lifestyle and healthy eating, which was distributed before and after the seminar cycle".

The results of the questionnaire show a general improvement following the seminars. "The Italian students had an improvement of about 58% between the first and second test and the Slovenian students showed a good average score already at the beginning of the first seminar, which improved by 15% in the final test," illustrates Volpe.

In two further seminars, a director explained to the students how to make a short film and the technical skills acquired through the film maker's lessons enabled the students to make short videos with a maximum duration of four minutes.



Citizen Sciences, the participatory science that involves citizens

Maria Giuseppina Ferrulli

Scientists and citizens together to collect and analyze data on the environment, nature and animals



Citizen science projects can be an effective response to current trends: in fact, on the one hand, the world of scientific research has opened up more to issues relating to the environment and citizenship, but it finds several difficulties, especially in obtaining funding and resources to be used in research activity; on the other hand, citizens are on average more educated and can be excellent collaborators in studying the environment in which they live.

Citizen science is a recent term, but it has actually been in practice for more than a century. From 1900, in fact, reference was made to the help of citizens to count birds during the Christmas period, at the invitation of the National Audubon Society in the United States.

With this term we mean both the role of the scientist who has the task of involving the public, as well as the scientific training of citizens, who will be formed by citizen scientists. In fact, a close collaboration is created

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between the scientific community and citizens to carry out scientific research projects and activities: the main objective is the systematic collection of data with the help of citizens and their analysis by specialized personnel. If on the one hand this entails greater possibilities for the analysis and verification of natural phenomena, on the other it also creates a participatory science with greater awareness and knowledge on the part of citizens.

Somehow, the dissemination of scientific knowledge becomes more fully public and “democratic”. Not only that: a more aware citizen is also a much more environmentally conscious citizen; educating and educating citizens has the enormous advantage of improving their approach to nature and environmental issues.

Participants can participate in four different ways, based on the type of research: contributory, collaborative, shared and extreme. Contributory citizen science includes data collection, collaboration in recording environmental parameters by wearing sensors and entering data into specific databases. The collaborative citizen scientist, on the other hand, also assists in the interpretation of the data; if, on the other hand, it is also involved in the definition phase of the problem, it can be defined as shared. Finally, participation in all phases of the project, from problem definition to data interpretation, is defined as extreme citizen science.

Today there are many citizen science projects in place, ranging from astrophysics to medicine, from biology to neuroscience, from computer science to astronomy. We move from environmental monitoring projects in metropolitan areas to the co-creation and management of projects with indigenous tribes in remote areas of the planet.

In Europe, the ECSA (European Citizen Science Association), established in 2014 in Berlin, is responsible for identifying, developing and promoting best practices and excellence in citizen science at a European level. In the world there are also the CSA (Citizen Science Association), of international reach, and the ACSA (Australian Citizen Science Association).

A recent citizen science project is the one carried out by the Department of the Environment of the Municipality of Genoa with the collaboration of the “G. Doria”, of the Department of Earth, Environment and Life Sciences of the University of Genoa (DISTAV) and of the Regional Agency for the Protection of the Ligurian Environment (ARPAL).

With the voluntary help of citizens, the sighting of parakeets and budgies will be recorded (specifying the place, date and time and also sending a photo for a sure identification of the species) which have colonized many areas since the seventies green areas of the city, especially on the coast, but recently also inland and at higher altitudes. The data will flow into the Ligurian Biodiversity Observatory – Li.Bi.Oss., A regional database managed by ARPAL, freely accessible by any user. Obviously, citizens, who will participate in the collection of data, will be updated on the continuation and outcome of the research.

As the bee collects nectar and
departs without injuring the flower,
or its color or fragrance,
so let the sage dwell on earth.



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The Ophiolites of Timpa delle Murge: remains of an ancient ocean

Angelo Rosiello

An important geological site in the Pollino Massif about science, education and environmental risks



© Potito M. Petrone, CC BY-SA 3.0 - Pollino National Park

The calabro-lucanian boundary area geologically represents a key zone for understanding the orogenic processes in this Apenninic sector and, at a bigger scale, the Mediterranean geodynamic processes. The Pollino Massif is a National Park from 1993, characterised by 192.565 hectares between Basilicata and Calabria southern Italian regions and it represents the most extended natural park of Italy. Among the several peculiarities in term of landscape, flora and fauna, there are lots of geological features as for the ophiolitic outcrops, mainly located in the northern sector of the massif.

Ophiolites are rock or rock's suite (from the upper Mantle to the Oceanic Crust until the sedimentary cover) with a mafic and ultra-mafic composition, representing the remains of ancient oceans. This oceanic crust may be included into an orogen, during plates convergence, continental collision and mountain chain formation. In general, converging tectonic plates generate subduction processes, where usually oceanic crust underthrusts beneath a continental lithospheric plate. When subduction ends, because the under-thrusting plate passively drags a continental block, it starts the continental collision, in which some

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patches of oceanic crust may be teared up and tectonically over thrust, with the result that they were included into the orogen. The internal area where this process occurs is named oceanic suture ("sutura" in fig. 1). The ophiolitic rocks (corresponding to the oceanic sutures) represent the proofs of existing ancient oceans interposed between two converging tectonic plates, that reached the continental collision phase

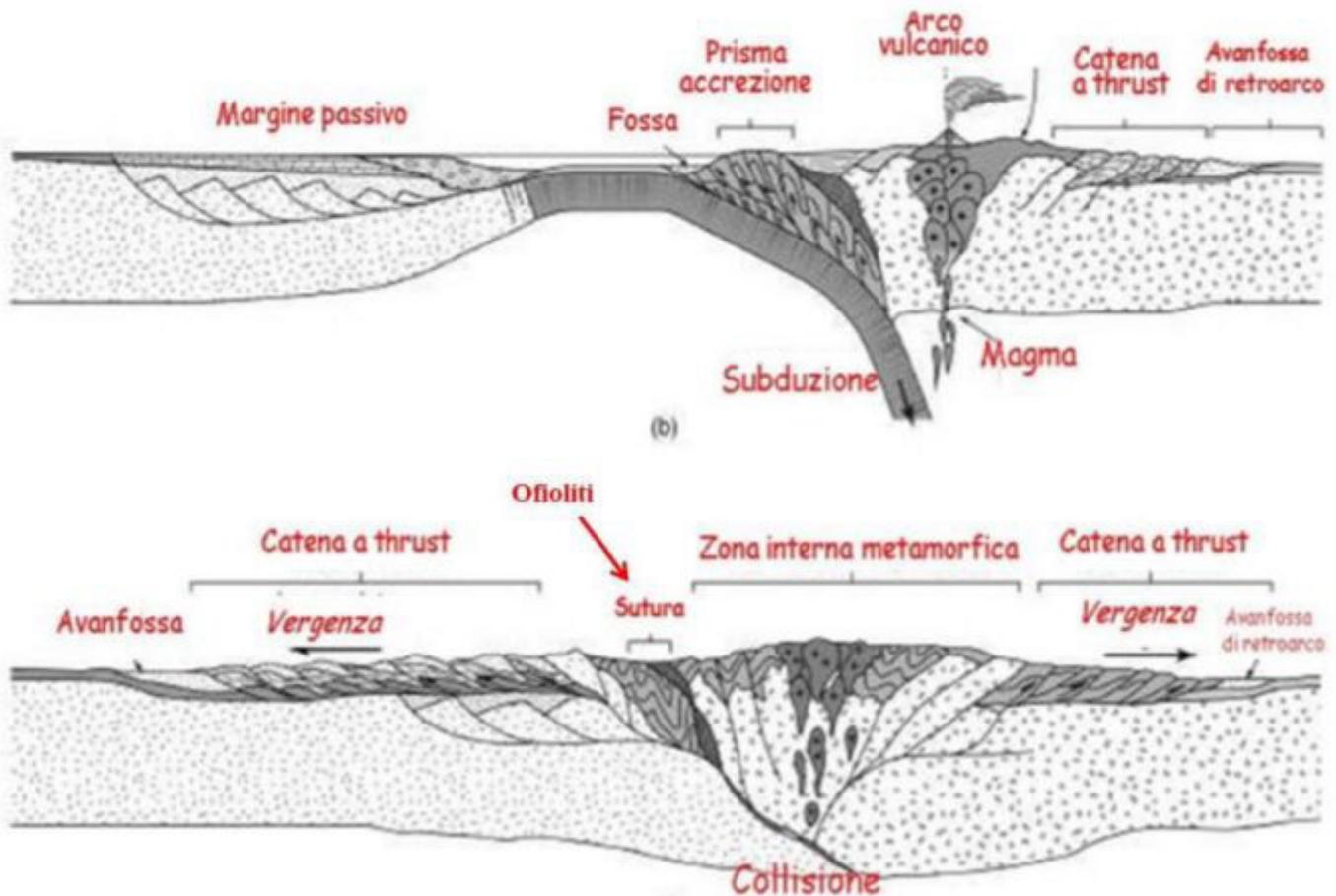


Fig. 1 – Subduction and continental collision schemes, highlighting the suture zone, where ophiolitic rocks outcrop

In the northern sector of the Pollino Massif, extensively outcrop alloctone units of the Ligurides Complex, so named for the correlation with ophiolitic units of the Northern Apennines (Liguria) and representing Cretacic-Paleogenice sequence deposited in the oceanic basin of NeoTethys. These oceanic realms were interposed between European and African Plate during the Jurassic. The subduction of the oceanic crust beneath the Calabrian continental crust (Upper Cretaceous – Oligocene) determines the building of an accretionary prism, which deformed and affected with variable grade of metamorphism the rocks of the sedimentary cover of the NeoTethys, including several remains of the ancient oceanic crust (Ophiolites).



The sedimentary and metamorphic units deformed by the accretionary prism are respectively included in the Northern Calabrian units and in the Frido Unit, so representing the southernmost extremities of the ophiolitic units of the whole Apennines. During the collisional phases, several thrusts progressively overlapped these units and, in some cases, tectonically removed oceanic lithosphere (fig. 2).

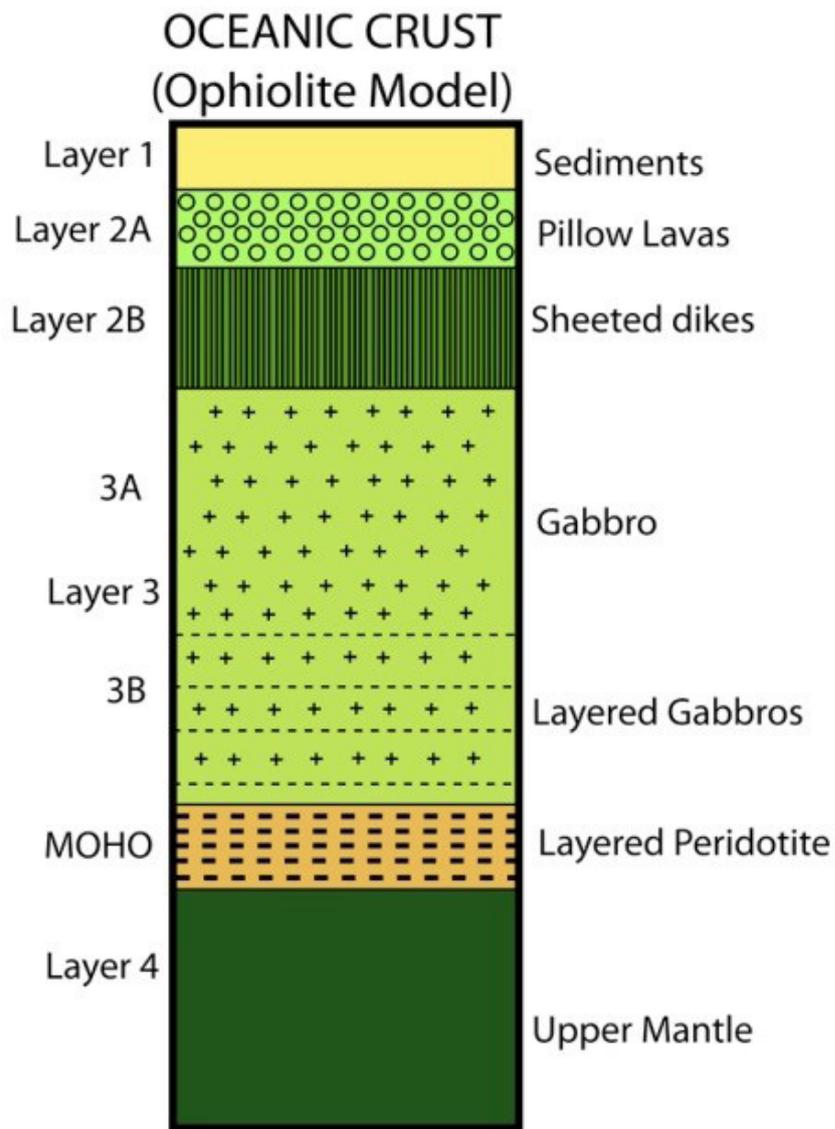


Fig. 2 – Oceanic lithosphere scheme (ophiolitic model).



One of the most spectacular ophiolitic outcrop of the Pollino Ridge is located in Timpa delle Murge (fig. 3), where there is a complete lithospheric suite, from the upper Mantle to the ancient sedimentary cover. In details and from the bottom, there are Serpentinites, dark green rocks in little outcrops as representing the deepest portion of the ophiolitic sequence (metamorphosed Upper Mantle); upward there are Gabbros, intrusive magmatic rocks, with plagioclase and diallage (a green colour clinopyroxen, rich in Calcium, Aluminum and Magnesium). The effusive terms are characterised by pillow lavas (emitted in typical submarine eruptions) and pillow breccias, with variolitic boundaries and with ialoclastic matrix, frequently showing green alteration in Clorite and/or with radiolaritic or calcareous-marly red matrix.



Fig. 3 – Features of the Timpa delle Murge outcrop: a) Pillow lavas, b) Pillow breccias and sedimentary cover, c) gabbros



The overlying sedimentary cover (Timpa delle Murge Formation) is made by red siliceous mudstones (25 cm), green and red radiolarites (1.8 m), red and light red marly limestones with intercalations of marls and calcareous marls (90 cm), red and green mudstones with two intercalations of fine quarzoarenites (4 m) and finally grey-brown mudstones and silty mudstones. At the bottom of the sedimentary cover, there are deformational structures as boudinage and clivage, for the very extensive strain caused by tectonic stresses, and also more recent extensional fault systems deforming the whole rock blocks. This complete ophiolitic suite shows a very good preservation state and represent one of the most famous outcrops of the area, visited both for educational goal both for several scientific researches, regarding the petrography, the geochemistry and the geodynamic.

The northern portion of the Pollino Ridge is characterised by several ophiolitic outcrops, but Timpa delle Murge is the most complete lithospheric sketch of the Liguride Ocean. The geological features of this sector of the Apennines are extensively described in the Regional Geological Guide of the Basilicata region, very recently published (March 2021) and edited by the Italian Geological Society. In this guide are synthesized all the scientific researches of this area until the more recent studies, including descriptions and interpretations in appropriated itinerary, easy to reach and to trek. In details, this area of the Pollino Massif is well described into the n. 8 itinerary, characterised by 8 stops corresponding to the most representative outcrops, each one enriched by the right geological description.

Along this tour, it's possible to travel not only in space but also in time, trekking on the remains of an ocean of Jurassic age (at least 150 million of yaers ago), today visible in few areas in Italy, between Apennines and Alps.

For these reasons, Timpa delle Murge is one of the most important geosite of the Pollino National Park and, considering also the whole ophiolitic rocks outcropping in this sector of Apennines, it needs to highlight several studies on environmental themes for such rocks, containing asbestos mineral (Tremolite and Chrysolite) as potential risks during engineering works realization. Indeed, for these areas are provided particular safety rules in case of earthmoving works, to avoid uncontrolled diffusion of these minerals, dangerous for human health.

Hence, Basilicata can be considered one of the richest regions from a geological point of view, representing a real open sky laboratory.



Sustainable development: sanitising water with biocompatible nanomaterials

With the design and creation of new 'intelligent' biocompatible materials, i.e. capable of performing predetermined actions, new-generation nanomaterials are finding important applications, such as the sanitation of water, contaminated by anthropogenic action.

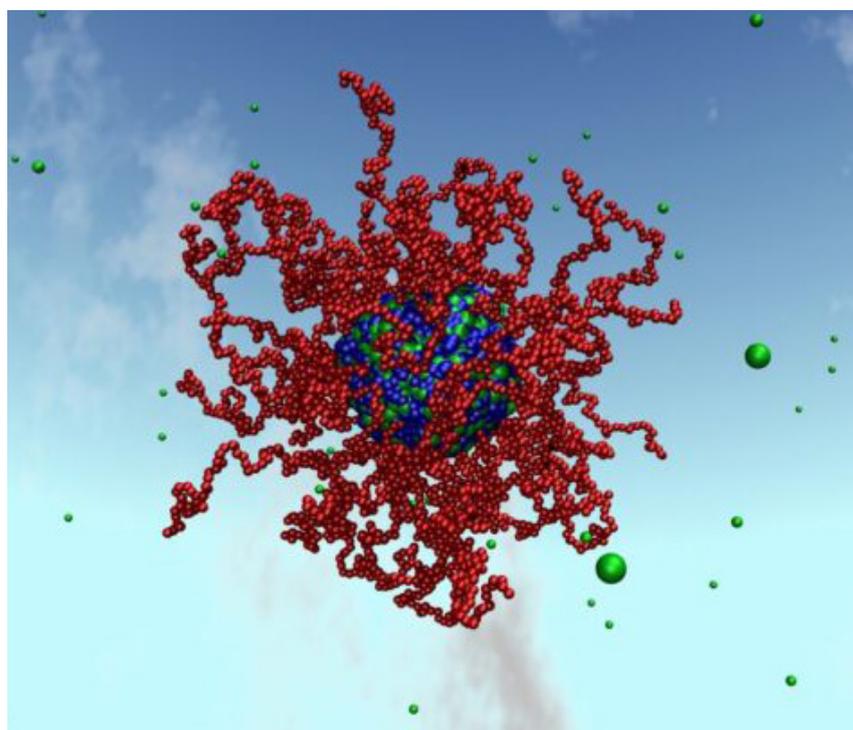
Editorial Board

Innovative magnetic nanoparticles of iron oxide, coated with a biocompatible polymeric coating, capable of removing heavy metal ions from water: the development of materials science plays a crucial role in sustainable development and ecological transition. Thanks to the design and creation of new 'intelligent' biocompatible materials, i.e. those capable of performing predetermined actions, new-generation nanomaterials are finding important applications, ranging from drug delivery in the biomedical field to the sanitation of water contaminated by human action.

The research project led by a group of chemists (Prof. Tecla Gasperi, Dr. Elia Roma) and physicists (Dr. Barbara Capone, Dr. Pietro Corsi) from the Department of Science at Roma Tre University, in partnership with Prof. Erik Reimhult's team at BOKU University in Vienna, comes from this second area.

The long-standing collaboration between the two groups recently led to the publication of a paper entitled Theoretical and Experimental Design of Heavy Metal-Mopping Magnetic Nanoparticles in ACS Applied Materials and Interfaces of the American Chemical Society.

The article reports on the development of innovative magnetic iron oxide nanoparticles coated with a biocompatible polymeric coating that remove heavy metal ions from water. The research is the first step towards the development of materials that can counteract the release of dangerous heavy metals into the environment. Starting from the theoretical design of the material, the group from the Department of Sciences at Roma Tre University developed the synthesis of the functionalised macromolecules. The nano-



© Department of Science University of Roma Tre -Simulations of nanoparticles absorbing heavy metals in solution



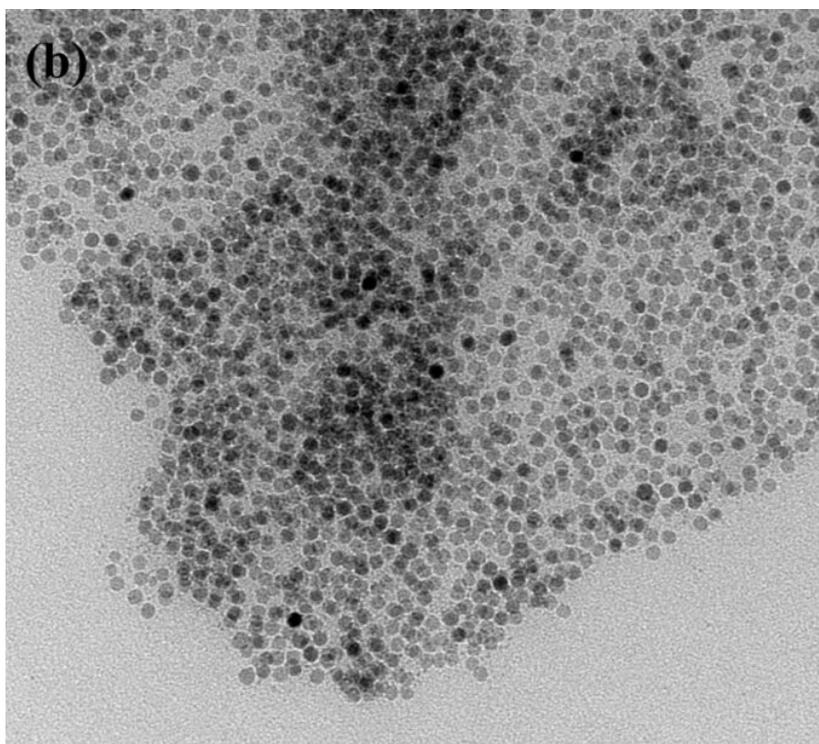


materials were then analysed and their properties studied in collaboration with BOKU Vienna. Their ability to remove pollutants from water was also verified.

The biocompatibility of the material used makes the results even more promising, allowing for potential large-scale use of the new nanoparticles.

WHO figures tell us that one in nine people in the world do not have access to clean water sources," explains Dr Elia Roma. "Every year, more than 840,000 people die from water-related diseases and 750 million people do not have access to clean water.

The situation is even more dramatic in developing countries. The demand for water is increasing dramatically due to a steadily growing global population. At the same time, the water resource is stressed by



© Department of Sciences University of Roma Tre – Image obtained by transmission electron microscopy of nanoparticle

increasing anthropogenic contamination (direct or indirect), leading to pollution of lakes, rivers, seas and groundwater resources.

The issue of sustainable management of water resources is therefore central, as called for in the 2030 Agenda.

"The interdisciplinary collaboration between our group in Vienna – explains prof. Erik Reimhult – and the excellent group from Rome has opened roads still unexplored for us: the unique combination of an innovative theoretical approach and experimental techniques that we have used almost 'pioneering' in the field of materials, such as isothermal titration calorimetry, has allowed to understand how functionalized nanoparticles interact with heavy metal ions. In light of the new knowledge acquired, we can design nanoparticles that can be used for environmental remediation, a topic of priority today".



Which plants do researchers like?

A recent publication in *Nature Plants* revealed that certain morphological characteristics, such as taller stems and brightly coloured flowers, attract more the attention of plant researchers.

Editorial Board



A study, published in the international journal *Nature Plants*, by young researchers from the Water Research Institute of the National Research Council in Verbania (CNR-Irsa), the University of Turin, the Federico II University in Naples, the Museum of Natural Sciences in Berlin and Curtin University in Australia has revealed that for 'field' scientists the choice of species to study may be influenced by aesthetic factors. In the long run, this could introduce a bias into research efforts. But how to quantify this bias?

Plants have played a significant role in the evolution of modern science and their properties continue to be the focus of important research. "In this study, we analysed 280 peer-reviewed articles on 113 plant species typical of the south-western Alps, published in the last 45 years. We found that some morphological characteristics, such as taller stems and flowers with clearly visible colours, are among the traits that most attract the attention of researchers," says Martino Adamo, researcher at the Department of Life Sciences and Systems Biology of the University of Turin and first author of the study.

"We have observed that blue-flowered plants are much more studied than those with poorly pigmented (green or brown) flowers. The height of the stem, which in a sense is the ability of a plant to stand out among the others and thus 'stand out' to the observer, is also an important selection factor. Conversely, and perhaps paradoxically, the risk of extinction of species and their ecological traits do not affect the likelihood of a species being studied," adds Stefano Mammola of CNR-Irsa.

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The Way of the Gothic Line: trekking through history

Maria Giuseppina Ferrulli

175 kilometers long, the Way of the Gothic Line winds between the provinces of Bologna and Modena where a fundamental episode of the Second World War took place



About a month ago, work has begun to create a 175-kilometer route that involves as many as 32 municipalities in the provinces of Bologna and Modena; even if it has not yet been completed, the path can be covered on foot or by bicycle. Consisting of ten stages, the route lends itself to being completed in its entirety or for short distances, allowing you to plan a trip of just one day or of a longer duration.

The “Gothic Line” project was promoted and financed by the Bologna Apennine LAG with the support of the “Bologna Tourist Destination” body, the Metropolitan City of Bologna, the Savena-Idice Union, the New District of Imola, the Union Reno -Lavino Samoggia and the municipalities of Alto Reno Terme and Montese.

The path follows an existing route, which was built during the Second World War by the German military, between 1943 and 1944, to stop the advance of the Allied army. The defense posts are not as impressive as the others found on the national territory because the German military, turning north, decided to build trenches dug into the ground and strongholds of wood and stone, adopting a simpler construction system.

This territory was chosen by the Nazi troops as the Tuscan-Emilian Apennines are rugged and impervious.

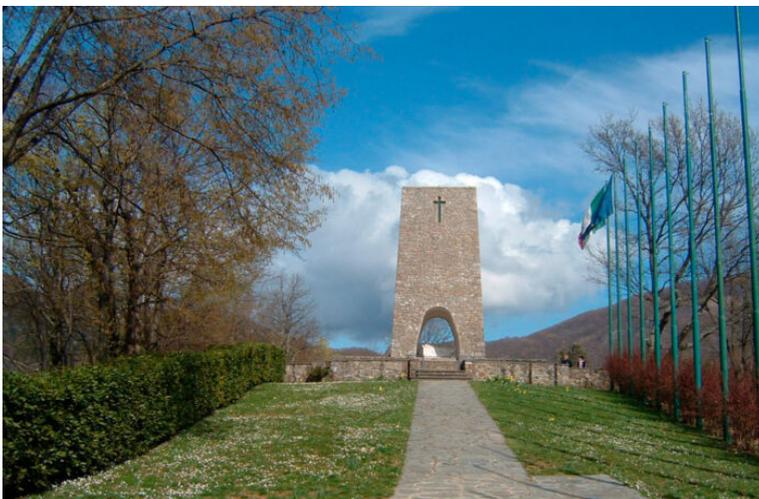
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The itinerary will therefore have a double meaning: on the one hand it will be possible to retrace the traces of the historical period between 1943 and 1945; on the other hand, you can enjoy the magnificent panoramic landscapes of the Monti della Riva, Monte Belvedere, Monte Castello, Monte Terminale, Monte della Spè, Monte Pero and Monte Sole to continue along the Pliocene Contrafforte, the Vena del Gesso and the Senio embankment.

Along the route there is a fundamental stage in the history of the Second World War, that of Marzabotto or that of the Monte Sole Park. These are the places where the famous Marzabotto massacre took place: between 29 September and 5 October 1944, some units of the SS and the Wehrmacht, accompanied by local fascists, killed about 770 civilians, in retaliation against the partisan resistance. The massacre was then regarded as a crime against humanity and one of the most serious war crimes against the civilian population.



Restoring this journey means being able to visit the places of our historical memory and, at the same time, it offers the possibility of discovering the natural and landscape beauties of a vast area between the province of Bologna and that of Modena.

The ridge route will have hiking links to individual municipalities, in order to enhance the specificity of each territory, highlighting its historical, cultural, landscape and food and wine heritage. In many countries there are several historical museums and collections waiting to be visited and known, such as the

Museum of Memories of Italy in Iola (Montese-Modena), the Museum of the Gothic Line and the South African war cemetery in Castiglione Dei Pepoli, the Casa of the Memory of Marzabotto in the historical park of Monte Sole, the War and Gothic Line Museum in Castel del Rio, the monument dedicated to the general of the FEB (Brazilian Expeditionary Force) Joao Batista Mascarenhas de Moraes; meanwhile, the "Linea Gotica" Documentary Center in Vergato is also being built.

The idea is to promote a form of sustainable tourism together with the enhancement of the food supply chains present in the area, thanks to a path characterized by a strong historical-cultural value, breathtaking landscapes and its own specific nature at a naturalistic level. A real thematic trek will be created with a website, a map guide and a map, in addition to the various illustrative panels scattered in each of the municipalities participating in the project.

The route was conceived by Vito Patichia, a long-time member of the CAI, who has been involved for years in the enhancement of the Gothic Line and who has completed projects such as the Via della Lana e della Seta.



Irish 'green' cosmetics at WeCOSMOPROF International

Editorial Board

The global beauty industry exhibition that began on 7th June ends tomorrow 18th June. The Irish niche cosmetics are green, sustainable and innovative, based on natural and pure ingredients, treated with the most advanced technologies.



Cosmoprof has been the world's most important event for the beauty industry for over 50 years. This year, for the first time, all five of the network's international trade fairs have united in a single digital event promoted on a global scale: WeCOSMOPROF International. Since 7th June and until tomorrow 18th June 2021, the first global virtual trade fair has been involving the community of over 500,000 beauty professionals, 20,000 buyers and over 500 exhibiting companies from 120 countries.

Enterprise Ireland, the government's Innovation and Trade agency, the world's no. 1 Venture Capital, has been presenting 11 small and sophisticated cosmetics companies with a unique and original offering in the Ireland Pavilion.

Beauty powered by Irish Nature

And it is precisely the originality of the unique formulations elsewhere that is one of the strong points of Irish cosmetics. With its breathtaking coastline and landscapes surrounded by unspoilt nature, Ireland produces niche cosmetics linked to its territory. Natural and pure ingredients such as seaweed, peat and sea salt are processed using the most advanced technologies, resulting in products that are both green and innovative.

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Ireland, in fact, is a world leader in research and development in the health and dermocosmetics sector. “The steady growth of the natural beauty industry in Ireland is one of the success stories of SME innovation,” says Ruth Sexton, Consumer Products Adviser at Enterprise Ireland. – The sector is dominated by big brands, but our small businesses are capturing a very particular segment of consumers who value natural, sustainable and highly innovative products.”



Beauty powered by Irish Innovation

In this last pandemic year, technologies dedicated to digital events have evolved rapidly, adapting to new market needs. With this in mind and knowing the high level of digitalisation of Irish companies, we created the Ireland Pavilion,” explains John Roche, Italy Director of Enterprise Ireland. – There are many beauty brands in Ireland that have taken advantage of e-commerce. In particular, by exploiting artificial intelligence, augmented reality and virtual reality, young companies have launched services and proposals able to meet the needs of personalisation, safety and transparency of the consumer. Ireland is one of the most advanced hubs in the development of 360° digital solutions. The digital transition is also facilitating the sustainable evolution of the cosmetics industry, especially in the area of research into new extraction technologies, recycling systems and solutions for better management of environmental resources.

Beauty powered by Irish Women

In the Ireland Pavilion 10 out of 11 companies have female founders and managers. Enterprise Ireland has launched a series of initiatives to double the number of female entrepreneurs and managers in the country. A significant and growing number of scalable start-ups in Ireland have female teams. In the Ireland Pavilion there are also five start-ups with unique offerings that combine tradition and nature with innovation and sustainability: from the first toothpaste in a 100% recyclable container to the Tripadvisor of beauty, from the only 100% organic self-tanner to cosmetics made without using, and wasting, water.

< TIME TO RECYCLE



Separate collection: how to recycle glass

What can I throw and not in the glass container? What are the “false friends” that cannot be recycled? The answer to this and other questions in our section in collaboration with SmartRicicla



Glass is an ancient material, it already has 5 thousand years of history and has a practically infinite life: if disposed of and recycled correctly, in fact, it is reborn with shapes and intended uses identical to those of previous lives. Without any loss of material or quality deterioration, glass can be recycled indefinitely.

Glass can therefore be considered in all respects a “permanent material”, capable of perfectly realizing the concept of circular economy. Every year about 10 billion recycled glass containers are produced in Italy, with properties and characteristics identical to those made with raw materials.

Glass has numerous advantages over the use of other materials: it perfectly preserves food, leaving odors and flavors unaltered and is 100% eco-friendly. Glass not only has a low impact on the environment but, if recycled, it allows to contain greenhouse gas (CO₂) emissions, to save energy and to minimize the use of virgin raw materials, of an extractive nature (quarried minerals, such as sand or carbonates) and chemical (soda).

The first phase of recycling begins with a correct separate collection. Attention, therefore, to properly separate the materials paying attention above all to “false friends”, those objects that seem glass but in reality are not, that is, plates, cups or other ceramic objects, glasses or other crystal objects, containers in pyrex,

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TIME TO RECYCLE >

lamps and bulbs; all waste that must be put in the containers of the unsorted collection.

The rules are few and simple, as Coreve (Glass Recovery Consortium) suggests. They invite you to throw only and exclusively the packaging, i.e. bottles and glass jars avoiding to throw in the same bin the plastic bag that contained them, which instead goes in the separate collection of plastics. It is good to empty the glass containers of any food residues and remove all packaging accessories, made of materials other than glass and easily removable (e.g. metal caps, collars, sleeves). There is no need for prolonged washing or other complicated systems to remove labels or other accessories attached to the packaging, if they are difficult to remove.

Once collected, the glass is taken to the treatment plants that transform glass packaging waste into MPS (Second Raw Material), the scrap made suitable to be recycled in the melting furnaces of the glassworks for the production of new glass containers. Modern technologies allow the recovery of fractions of fine material that until a few years ago were destined for disposal. The fine fraction, consisting of the smallest glass fragments, from which the pollutants cannot be removed, can be partially recovered and reused in glassware or in other sectors such as construction.

In collaboration with SmartRicicla we have compiled a list of recyclable materials in the collection of glass and those that should instead be given elsewhere.

WHAT YOU CAN THROW IN GLASS

- cans
- bottles
- jars
- packaging in general

WHAT YOU CAN'T THROW IN GLASS

- dishes
- cups
- glasses and crystal objects
- light bulbs
- neon lamps
- solvent and paint containers
- hemodialysis containers
- mirrors
- plates
- glass objects which are not packaging



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