

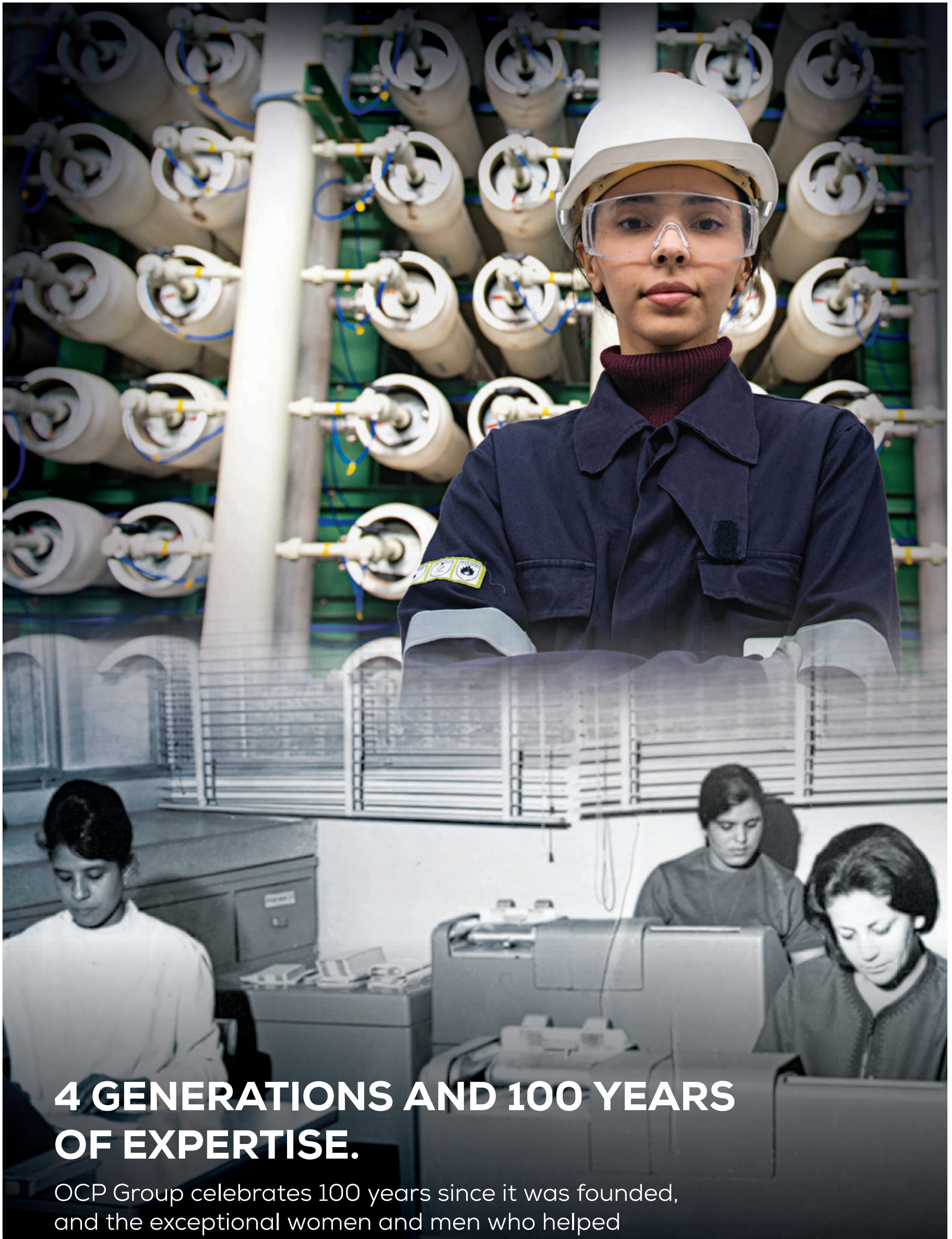
Sustainable Development
L'ECONOMISTE



COP28 in Dubai

A difficult first global stocktake





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A COP28 in Dubai, a contradictory choice?

■ **The United Arab Emirates is an oil state, with growing hydrocarbon production**

■ **But they are developing renewable energies at a rapid pace for export**

DUBAI is going to host the United Nations Framework Convention on climate change, at Expo City Dubai from November 30 to December 12, 2023. The decision to entrust the COP to the oil emirate sparked numerous reactions. The choice is contested, especially since COP28 was supposed to be crucial, since it is the first global review COP, supposed to evaluate countries' climate commitments. A crucial assessment since to date, the sum of commitments made by States leads to 3.2°C of warming in 2100.

Global warming is linked to the unbridled use of energy fossils since the industrial revolution, and the world is seeking to escape this dependence. On June 15, the Secretary General of the United Nations (UN), Antonio Guterres, clearly reminded us: "let's face it. The problem is not just fossil fuel emissions. Those are the fossil fuels themselves, period, that's all."

However, the United Arab Emirates is an oil state. They are the seventh global extractor of black gold and the fifth largest emitter of CO₂ on the planet. Production continues to grow. Abu Dhabi plans to increase its barrel production by 25% by 2027, and has just announced just before the COP the launch of a gas project which aims to produce more than 42.5 million cubic meters of gas per day by 2030.

The Emirates live for and through oil. Fossil energy producers have for several years used the COPs as a lobbying platform. In Sharm Ech-Sheikh in 2022, there were 630 fossil fuel lobbyists, an increase of more than 25% compared to the previous one. Their activity had succeeded in thwarting the most ambitious proposals and in annihilating any concrete measures

on oil and gas. Hence the fear of seeing oil and gas circles greatly influence the Dubai COP. Concern rose a notch when the emirate appointed Sultan Ahmed Al-Jaber, boss of the oil company Adnoc, as president of COP28. He has surrounded himself with a team, part of which comes straight from the oil and gas industry.

Dubai and its presidency of the COP assume. The world is dying of his addiction to oil, why wouldn't we talk about it? The organisation of COP28 in December in the United Arab Emirates will be an opportunity to address the "difficult questions" of fossil fuels, Simon Stiell, executive secretary of the UN Climate, told AFP.

A realism claimed by Sultan Ahmed Al-Jaber, president of COP28. "We cannot unplug the energy system of today before building the system of tomorrow. It's simply not practical or possible," he said at the opening of the Middle East and North Africa Climate Week, a conference organized by the United Nations in Riyadh. "Yes, renewable energy is growing rapidly. But gas and oil remain the largest energies in the energy mix and will be for decades. The future is coming, but it is not here yet," he insisted. "We will bring a pragmatic, realistic and solutions-oriented approach. The world needs every solution possible: it's not oil or gas, solar or wind or nuclear, but all of these at the same time.

In fact, Sultan Ahmed Al-Jaber has become the face of the development of renewable energies in



From November 30 to December 12, Dubai will host the United Nations Framework Convention on Climate Change at Expo City Dubai (Ph. AFP)

his country. In 2006, he founded Masdar, a company specializing in renewable energies. This same company created Masdar City, an area urban green located in Abu Dhabi and which has for several years hosted the headquarters of the International Renewable Energy Agency (Irena). In 2012, this pharaonic project earned Sultan Ahmed Al-Jaber the title of "champion of the Earth" by the UN in the "entrepreneurial vision" category. The United Arab Emirates have begun the rapid development of renewable energies to combat global warming, which they are particularly exposed and vulnerable: explosion of temperatures, decrease in precipitation, and increases in the frequency of

droughts, sea levels and storms. These phenomena have deleterious impacts on infrastructure structures, population health and natural ecosystems. The Emirati government itself wrote in the 2021 UAE State of Climate Report that if the world remains on the current trajectory of global warming of 2 to 3 degrees by 2100, the United Arab Emirates will suffer, a warming of 2.5 degrees in winter to 4 degrees in summer. Such warming would endanger human life in certain regions of the country. A new study has shown that some Gulf regions, where temperatures sometimes reach 50 degrees in summer, could become unlivable by the end of the century. The Emirates know this.

Ismail EL WADI

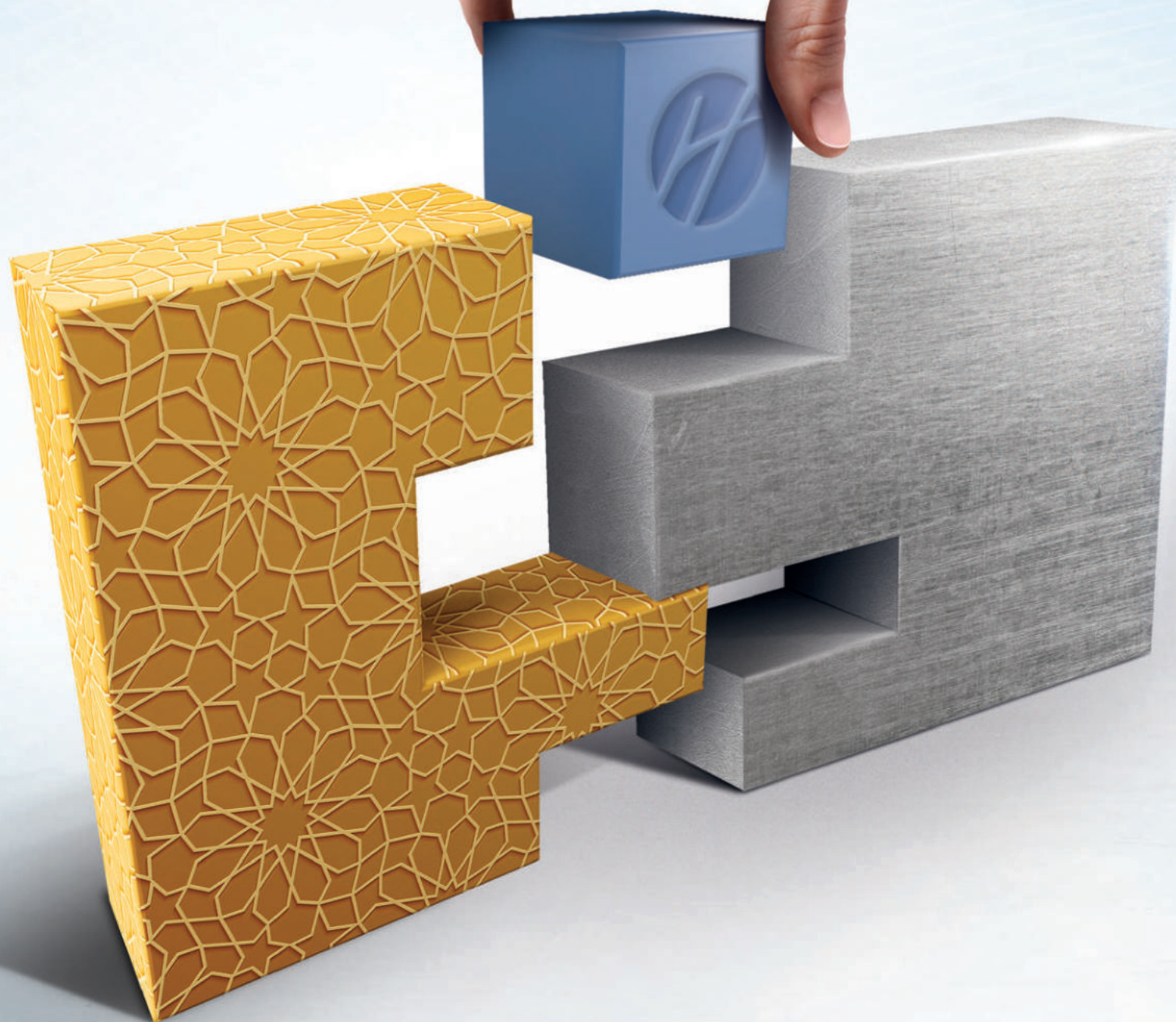
A Regional Energy Outreach

FOR the United Arab Emirates, the COP is beyond the ecological question, an opportunity to increase the country's international influence and promote its renewable energies. The ambitious goal of the Emirates is to become one of the main players in the global market. For green hydrogen, their objective is to reach a market share of 25% in 2030 in the main energy importing countries, such as Germany, Japan, South Korea, India. Masdar is today the spearhead of the Emirates' strategy for their energetic transition. The company is present in around forty countries for projects with a total value of more than 18 billion euros. Masdar alone now produces 20 gigawatts of green electricity and wants to increase

this production to 100 gigawatts before 2030.

In 2021, the Emirates launched an attack on the Middle East. They are implementing solar power plant projects among their neighbors. Masdar signed an agreement with the Iraqi government in October 2021, to build five solar power plants with an initial production phase of 1,000 megawatts. The economic prospects of the hydrogen market are estimated in hundreds of billions of dollars and the Emirates are investing a lot in it. At the end of 2022, Masdar announced a partnership with the German gas giant Uniper for the construction, in the United Arab Emirates, of a green hydrogen plant, made from water and electricity from renewable energies.

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The United Arab Emirates has launched a zero emissions plan for 2050



The Emirates has built the largest single-site solar power plant in the world (Ph. AFP)

■ They have begun their energy transition

■ And they're betting especially on solar power and green hydrogen, which they want to export

THE United Arab Emirates, whose prosperity is linked to hydrocarbon was one of the very first countries to sign a Net Zero 2050. Since then, while the details of the remain confidential, the oil state has set to work. Its approach is above all a techno- and industrial approach: to develop renewable energies, while also seeking innovation.

Triple renewable energies

The United Arab Emirates made a series of announcements a few months before COP28. They announced that they wanted to “triple the contribution of renewable energies over the next seven years”,

to develop the production of hydrogen and accelerate the deployment of electric cars. Around 50 billion euros will be invested in this period to respond to the increase in energy and increase the contribution of installed clean energy capacity to 30% of total energy mix by 2030.

But to reduce CO2 emissions, there is no intention of changing the way of life and discovering sobriety. The inhabitants of the Gulf countries live on hydrocarbons. Among the 12 countries with the highest CO2 emissions per capita in the world are the six countries of the Gulf Cooperation Council: Qatar, Kuwait, United Arab Emirates, Bahrain, Saudi Arabia and Oman. Saudi Arabia so-called devours three million barrels of crude every day to satisfy the energy needs of its 37 million inhabitants, as much as the Brazil and its 214 million inhabitants...

Sultan Ahmed Al Jaber, president of Adnoc, an Emirati oil production company and president of COP28, is betting more on emer-

ging or nascent technologies. The Arab Emirates united have implemented giant projects, launched sometimes daring initiatives to diversify sources of clean energy production, such as photovoltaic panels, concentrated solar energy, green hydrogen production and hydraulic energy pumped. They will invest \$163.4 billion in clean energy until 2050.

Four giant solar power plants

Overwhelmed by the sun, the Emirates want to get clean energy from it. They created the largest single-site solar farm in the world, the Mohammed bin Rached Al Maktoum solar park, of which production capacity will reach five gigawatts in 2030 for more than \$13 billion in investment. Three other giant power plants are planned. The contract for the largest solar power plant in the world, 35 km from Abu Dhabi, with an installed capacity of two gigawatts to power 160,000 local homes, has recently

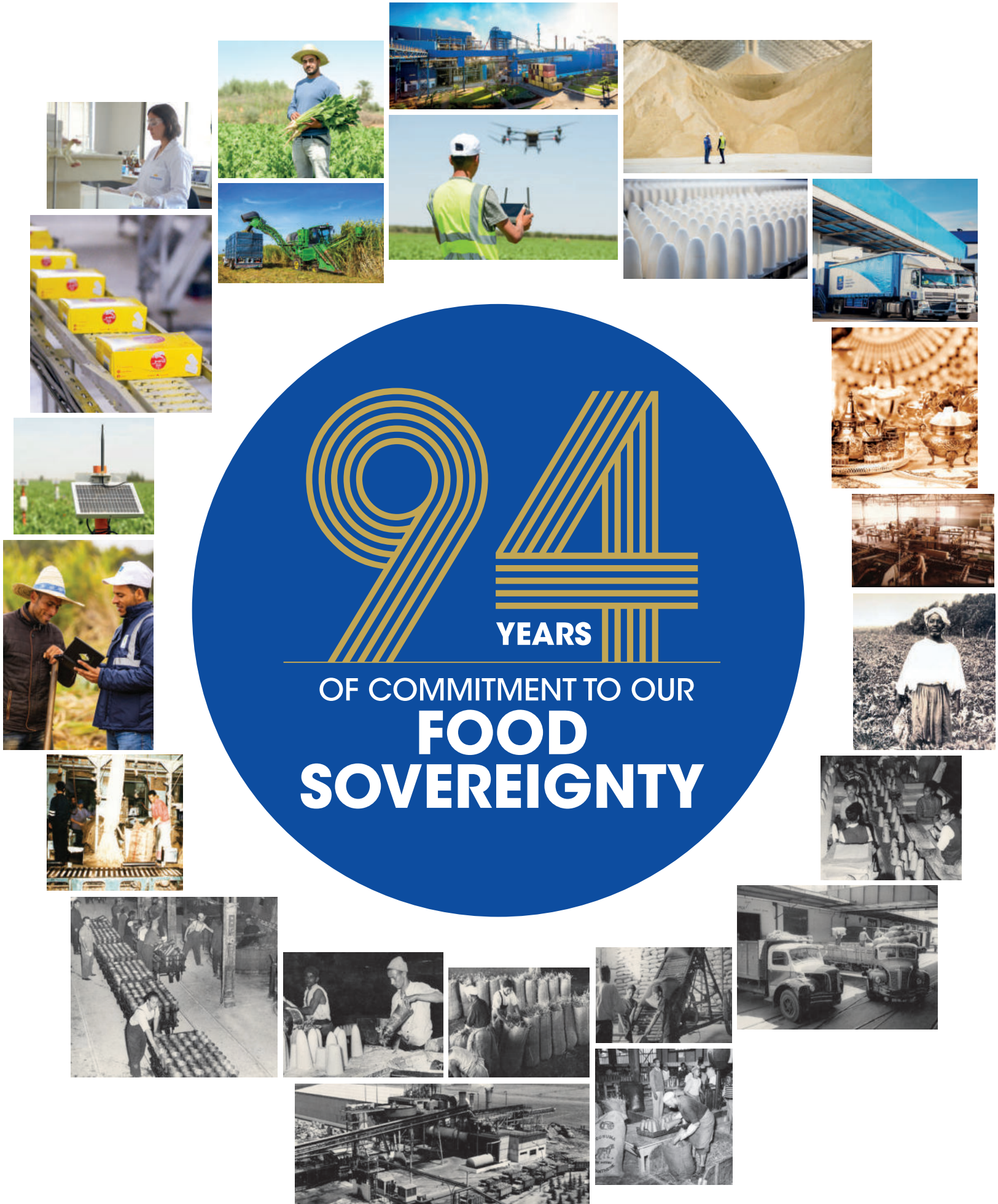
been awarded to a Franco-Chinese consortium. The United Arab Emirates has a Solar Innovation Center where it is testing new production and maintenance technologies.

Dusting panels is, for example, a key element of maintenance. The accumulation of dust on the surface very quickly lowers the efficiency of photovoltaic cells.

More surprisingly, the United Arab Emirates are also planning to build a hydraulic power station in the Hajar Mountains, on the eastern border, towards the Sultanate of Oman. The Hatta hydropower plant will draw based on an interesting local hydrography and will be coupled with a pumping and lifting station, such as Afourer in Bin El Ouidane.

They also operate the Barakah nuclear power plant, but are even more interested in green hydrogen. They aspire to make the country a major producer and exporter of green hydrogen in the next eight years, according to a roadmap announced created during COP26 in Glasgow. □

(Continued on page VI)



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The United Arab Emirates has launched a zero emissions plan for 2050

(Continued from page IV)

GERMAN gas giant Uniper and Masdar recently signed an agreement for the construction of a green hydro plant in the United Arab Emirates, powered by 1.3 gigawatts of solar energy, which is to come on stream in 2026.

Decarbonize transport

Beyond clean energy production, the Emirates are seeking to decarbonize uses. The Roads and Transport Authority of Dubai (RTA) recently unveiled a “Zero-Emissions Public Transportation in 2050” strategy in Dubai to minimize its carbon footprint in public transport, waste management, buildings and related facilities. All buses and taxis should be electric or powered by hydrogen. Municipal waste would have been more sent to landfills, which will reduce carbon dioxide emissions by 10 million tonnes. The zero-carbon plan aims to increase the efficiency of energy consumption by individuals and organizations by 42 to 45% compared to 2019. Well, more ambitious, but probably more uncertain, the Emirates are embarking on offsetting carbon emissions CO₂, in particular by storing carbon



Sultan Al Jaber, Managing Director of the UAE's Abu Dhabi National Oil Company (ADNOC) and President of this year's COP28 climate conference, speaks at the 'UAE Climate Tech' conference at the Dubai Energy Center 'Abu Dhabi May 10, 2023 (Ph. AFP)

in underground formations, or by replanting forests. This very ambitious plan to reduce greenhouse gas emissions, however, has a bias. The Emirates, like all the Gulf countries

which have built their prosperity on the export of oil and gas, today categorically refuse to take sole responsibility for CO₂ emissions linked to the production of hydro-

carbons intended for export to Asian countries or Europe. These emissions are therefore not taken into account in their zero carbon objectives. □

Masdar, the armed wing of the Emirates in the energy transition

MASDAR was established in 2006 by the United Arab Emirates government to begin diversifying energy resources. The company embraces the Emirates 2050 clean energy strategy. Its projects include solar power plants, rooftop panels in Dubai, the Smart Dubai initiative and independent photovoltaic solar power producer Al Dhafra in Abu Dhabi, which aims to become the world's largest solar power plant.

The company has also invested in wind projects and waste-to-energy plants. Above all, Masdar deployed in 40 different countries where it has invested more than 30 billion US dollars in solar and wind projects. Also, it is launching into green hydrogen. It established partnerships with energy companies, airlines and universities with the aim of producing up to 1 million tonnes of hydrogen drug per year by 2030.

In 2008, it developed Masdar City in Abu Dhabi, an eco-city with an experimental vocation in the fields of renewable energies, clean transport and waste management.

Masdar City aims to become the first city with a life “without carbon emissions and without waste”. The developing city building is supposed to accommodate 40,000 inhabitants in 2030. □



Masdar City, near Abu Dhabi airport, aims to be the first city with “carbon-free and waste-free” living (Ph. DR)

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A first global assessment



The global assessment goes beyond an inventory of the climate situation, it assesses the effectiveness of the actions taken by all countries (Ph. DR)

■ **The first global assessment started in 2021 and will close at COP28 in Dubai**

■ **A complete inventory of actions implemented under the Paris Agreement**

FOR more than 30 years now, the international community has been meeting every year at the bedside of the climate, seeking to put in place a concerted and binding mechanism that commits a large majority of States to concrete action plans to reduce their greenhouse gas (GHG) emissions.

In 2015, the Paris Agreement marked a significant step forward by acknowledging the principle of climate change, adjusting the temperature increase target to +1.5°C (and no longer +2°C) and, above all, establishing a legally binding international treaty for the parties. Each country is thus required to define its own quantified target

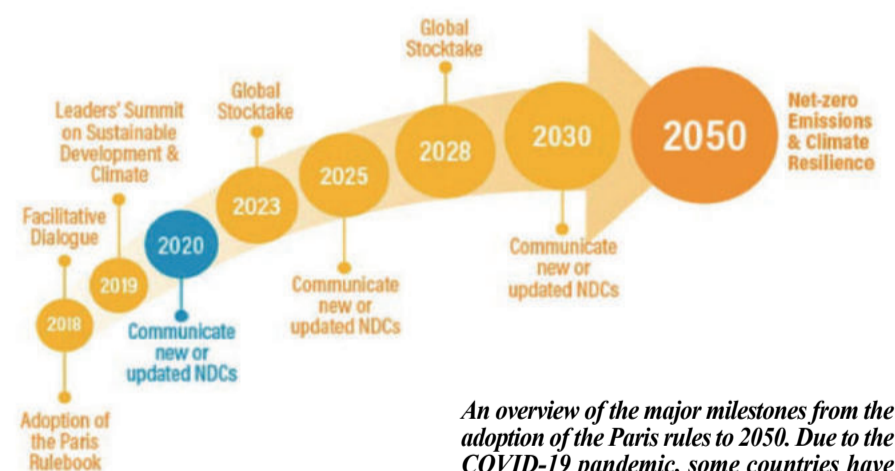
ACCORDING to decision 19/CMA.1 on the implementation of the Paris Agreement, the global stocktaking «[is] a process led by the Parties (countries signatory to the Agreement), conducted in a transparent manner and with the participation of non-Party stakeholders» (paragraph 10). Its aim is to examine the global climate action and support situation, identify gaps and work together to agree on solutions for 2030 and beyond.

In concrete terms, the global assessment has three dimensions: information gathering and preparation, technical evaluation and review of results. Information gathering and technical assessment were carried out in parallel, in order to share the best scientific data available, and to take stock of all dimensions of the fight against global warming.

In addition to the countries that signed the Agreement (or «Par-

Three dimensions

Ambition Mechanism in the Paris Agreement



Source: World Resources Institute

An overview of the major milestones from the adoption of the Paris rules to 2050. Due to the COVID-19 pandemic, some countries have communicated their NDCs in 2021.

ties»), «more than 137 stakeholders submitted contributions on their actions and their support for the objectives of the Paris Agreement, in total more than 170,000 pages of written submissions were received, and we had more than 252 hours of meetings and discussions», explains Harald Winkler, co-facili-

tator of the technical dialogue for the global review. The final phase, reviewing the results, will be completed at COP28 in Dubai.

It is at this time that the results of the technical assessment will be presented and their implications discussed and reviewed with all the parties to the Paris Agreement.

of the Paris Agreement



In 2015, the Paris Agreement marked a significant step forward by acknowledging the principle of climate change, adjusting the temperature increase target to +1.5 degrees Celsius (and no longer +2 degrees Celsius) and, above all, establishing a legally binding international treaty for the parties (Ph. AFP)

and the roadmap to which it is committed. Unfortunately, geopolitical tensions, the withdrawal of the United States under President D. Trump, the outbreak of war in Ukraine and an economic crisis linked in part to the energy issue have relegated the climate cause to the back burner of global concerns. Yet the situation is critical, and one natural disaster after another keeps reminding us of this.

In 2021, the United Nations has launched a vast process of global stocktaking of the actions undertaken by the signatory countries of the Paris Agreement. This inventory and assessment work will be shared and finalized at COP28 in Dubai

■ Why a global assessment?

Every five to eight years, the IPCC (Intergovernmental Panel on Climate Change) publishes a report on climate change that is widely covered in the media and whose rather gloomy findings are known to all.

So, what is the contribution of a global assessment approach to this IPCC report? It's important to understand that the two approaches are not on the same level and are complementary. In fact, they do not serve the same purpose.

The IPCC collects and analyzes



all the scientific data and indicators on climate change, while the global assessment evaluates the actions taken by the parties as part of the commitments made in the Paris Agreement.

Of course, the Global Assessment is based on the work of climate experts. The 6th IPCC report, published in 2023 and covering the period 2015-2021, is one of the main scientific bases for the global assessment.

■ What does this global assessment involve?

The Paris Agreement operates on a five-year cycle, during which each party implements the actions to which it has committed as part of what is known as the «Nationally Determined Contribution». The global review is a process which should enable the parties to see where they are making progress, and where they are not, in order to adapt their objectives and action plan accordingly.

The global review is therefore logically scheduled every 5 years. This is an in-depth assessment and inventory, based on extensive information gathering and meetings with experts and stakeholders to assess the impact of actions taken by all countries.

The report of this «technical dialogue», as the United Nations calls it, for the global assessment published on September 8 by the United Nations Framework Convention on Climate Change, is unfortunately without appeal: «Global emissions are not in line

with mitigation trajectories consistent with the temperature objective of the Paris Agreement. The window of opportunity to keep the 1.5°C warming limit within reach is rapidly closing».

■ How can we take action?

The Global Assessment goes beyond just taking stock of the climate situation; it sheds new, more operational light that will enable each country to assume its responsibilities by committing to more ambitious deadlines and targets... commensurate with the stakes.

Of course, as Simon Stiell, the UN's Executive Secretary for Climate Change, points out, «the Global Assessment will end up being just another

report if governments and those they represent cannot examine it and understand what it means for them, and what they can and must do next».

This phase of ownership and action is at the heart of COP28's objectives: «to keep +1.5°C within reach, we must act with «ambition and urgency» to reduce emissions by 43% by 2030,» said COP28 President-designate Dr. Sultan Al Jaber. «I am convinced that we can achieve all this while creating sustainable economic growth for our people, but we urgently need to break with the status quo and unite as never before to move from ambition to action and from rhetoric to concrete results.»

Climate diplomacy is made particularly complex by the context of international tensions, the opposition between developed and developing countries over responsibility for the situation and the financing of solutions... and, of course, the sum of each country's short-term interests. But today, nobody disputes the need to act to combat climate change!

Julie CARCAUD



Which energy transition? Should we focus



Morocco is now recognized as a model for renewable energy development (Ph. DR)

■ Decarbonizing the economy mainly involves green electricity production

hydroelectricity, wind power, solar power, biogas and heat recovery. In concrete terms, decarbonizing the economy mainly involves producing «green» electricity from renewable

energies and massively electrifying uses that today rely mainly on fossil fuels.

Morocco is now recognized as a development model for energy tran-

sition on a continental scale. Its goal of producing 52% green electricity by 2030 should be achieved by 2027, thanks to the development of solar and wind power. The Kingdom has

■ Real energy efficiency efforts are offset by a «rebound effect» linked to increased consumption

WITHOUT energy, there's no transport, no industry and above all no electricity! While energy is the driving force behind the economy and growth, it is also the main cause of climate change! In 2022, fossil fuels (oil, gas and coal), which emit the most CO₂, still account for 82% of the global energy mix. That's why urgent action is needed to speed up the energy transition. But how to go about it is a matter of debate between advocates of technological innovation and supporters of «sobriety». Will COP28 in Dubai succeed in reconciling them?

When we talk about energy transition, we are talking first and foremost about radically changing the energy mix to replace fossil fuels with renewable energies with low greenhouse gas emissions: geothermal energy, green hydrogen, biomass,

IF we look at greenhouse gas emissions not just today, but cumulatively between 1750 and 2021, the picture is clear: just 10 countries account for 70% of emissions, with the United States well in the lead. In just over two centuries of capital-intensive industrialization, Western countries have built an extremely energy-intensive lifestyle for their populations, and are now asking the whole world to make the sacrifices they did not. The countries of the South, and in particular the African continent, whose per capita GHG emissions remain extremely low, are now bearing the full brunt of the effects of global warming, and are feeling the historical injustice of having to commit to reducing their carbon footprint... their energy consumption and therefore potentially their economic growth. This is all the truer today, when a large proportion of their

A debate set against a backdrop of historical injustice



The countries of the South, and in particular the African continent, whose per capita GHG emissions remain extremely low, are now bearing the full brunt of global warming, and feel the need to commit to reducing their carbon footprint as a historic injustice (Ph. AFP)

populations still live in conditions of «subdued sobriety», with no motorized transport, no air conditioning, no air travel and sometimes no electricity. In this way, the energy transition

reveals inequalities on both a global and a national scale, so rethinking the consumption habits of wealthier populations is also essential to rebalance towards a «fairer» planet. □

on technological innovation or sobriety?



Morocco's national energy efficiency program targets the building, industry, transport, agriculture, and public lighting sectors, which together account for 90% of the country's energy consumption. Through 80 concrete measures, the program aims to achieve energy savings estimated at around 20% by 2030 (Ph. D.R.)

also designed a «Morocco Green Hydrogen Offer» and launched the project for a reference plant for the production of hydrogen entirely powered by green electricity and desalinated water.

While research and technological innovation have made it possible to improve the deployment, efficiency and cost of renewable energies, the energy transition implies industrial, technical and social transformations on such a scale that they will take time to produce their effects. A real technological breakthrough is underway, and its timeframe is incompatible with the climate emergency! For several decades now, technological innovation has also focused on energy efficiency, with the aim of improving the performance of machines, buildings, vehicles and industrial processes, while reducing energy consumption.

Morocco's national energy efficiency program targets the building, industry, transport, agriculture and public lighting sectors, which together account for 90% of the country's energy consumption. Through 80

concrete measures, it aims to achieve energy savings estimated at around 20% by 2030.

Unfortunately, the gains generated by energy efficiency are often offset by an increase in usage, which ultimately translates into higher consumption. This «rebound effect» considerably reduces the progress linked to technological improvements. The most telling example is transport: even though motor vehicles of equivalent size consume less and less fuel for the same journey, the number of kilometers covered has continued to rise, and this has not led to a reduction in overall fuel consumption.

Beyond the energy transformation, it's the sustainability of a way of life that's at stake: if all humanity lived like an American, it would take almost nine planets Earth to satisfy its needs!

According to the Intergovernmental Panel on Climate Change (IPCC), sobriety is «the set of everyday measures and practices that avoid the demand for energy, materials, land and water, while ensuring the well-being of all human beings within the limits of the planet». It therefore calls into question the needs of societies and individuals, and the way in which they are satisfied, and implies a deep evolution in individual and collective behavior.

Energy sobriety refers to the voluntary and organized reduction of energy consumption, and concerns society as a whole: it's not necessarily a question of doing less, but of doing «just enough» and tracking down the superfluous or wasteful.

Today, more and more voices are being raised in favor of «chosen sobriety». And yet, when we speak of sobriety, some people refer to «restriction» or «degrowth». By proposing to replace certain energy-intensive activities with others that are more sober, sobriety opens the way to new sectors of activity and leads to the replacement of energy, often imported, by local labor, particularly in the service sector. What's more, public policies aimed at reducing energy consumption can have other positive effects on the economy, through levers such as increasing household purchasing power or improving business competitiveness. □

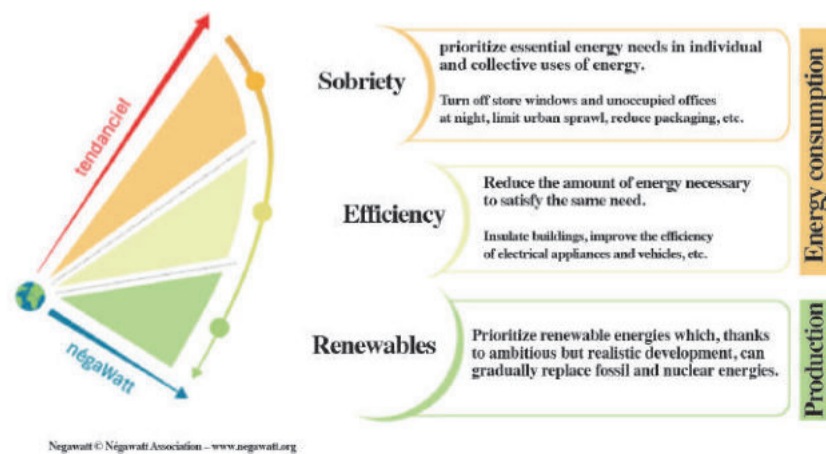
Julie CARCAUD

Three types of sobriety

THE Negawatt Association brings together energy experts and works on energy scenarios for a successful transition. It identifies three ways of demonstrating sobriety:

- **Dimensional sobriety:** using the right equipment for the right purpose (for example, choosing a bicycle rather than a motor vehicle for short journeys);
- **Sobriety of use:** using the right equipment for the right purpose (for example, turning off ventilation or beverage dispensers in offices when empty, or switching off public lighting for part of the night);
- **Cooperative sobriety:** this means pooling the use of equipment (e.g. carpooling or car-sharing).

For more information, visit www.negawatt.org. □





Morocco's energy transition focuses



■ Morocco is ahead of schedule in wind and solar energy

■ But decarbonization of businesses and reform of the institutional framework are progressing more slowly

MOROCCO is committed to achieving carbon neutrality by 2050. It took the plunge early on, and these initial efforts are now bearing fruit.

The Ministry of Energy Transition is deploying an ambitious long-term low-carbon strategy. It focuses on the development of renewable energies, energy savings and the decarbonization of the economy, particularly industry, which accounts for 30% of national greenhouse gas emissions.

The UK has a long way to go. Imported coal contributes 30% of the country's electricity production, with the two power plants at Jorf Lasfar and Safi. Transport, with an 87% diesel fleet, is entirely dependent on the use of fossil fuels. With the energy transition, Moroc-



Morocco has exceptional wind and solar energy potential, estimated at around 500 terawatt hours. Onshore wind power has a potential of 350 terawatts/hour, while solar photovoltaics have a potential of 150 TWh. Offshore wind power has the same potential (Ph. DR)

co is set to experience an electrical revolution. The World Bank, which analyzed the situation in low- and middle-income countries (Scaling Up to Phase Down Report), asserts

that the energy transition will lead to an unprecedented expansion and transformation of electricity infrastructure. It estimates that solar photovoltaic capacity is set to double

or triple over the next decade in Morocco, and that onshore and offshore wind generation capacity installations are set to follow a similar trajectory, with growth of between

on solar and wind power

30% and 500%. Morocco has exceptional wind and solar energy potential, estimated at around 500 terawatt hours. Onshore wind power has a potential of 350 terawatts/hour, and solar photovoltaics a potential of 150 TWh. Offshore wind power has the same potential.

This potential is available 5,000 hours a year for wind power, and at least 2,500 hours a year for solar power. If fully exploited, this potential would make Morocco a major energy producer, ahead of Venezuela and just behind Nigeria. These resources are also five times greater than its overall energy de-

mand (not just electricity).

Morocco has been identified in several studies, notably by the World Energy Council and Frontier Economics, as one of the countries with the most competitive renewable energy potential in the world, due to the size of its deposits and their availability over time. Solar and wind kWh in Morocco are among the cheapest in the world.

Aware of this potential and of a highly promising international environment for Morocco, with its geographical proximity to the European market, Morocco adopted a proactive strategy very early on,

reflected in the success of major wind and solar power projects. By starting to decarbonize its electricity, Morocco has set itself on an advanced trajectory. The target of 52% renewable energy in total installed capacity by 2030 should be reached by 2027, or even exceeded (55%) given the size of the current project portfolio. All energy sources combined could reach 19.4 terawatts. This pleasing prospect could lead the country to review its nationally determined contribution (NDC), which formalizes the country's commitment to the international community.

Alongside the success of wind and solar power, Morocco is currently working on a gas plan to make this versatile, low-carbon energy source an essential part of the country's energy transition and decarbonization strategy. Natural gas is the ideal complement to renewable energies, whose intermittent nature means that they need complementary, flexible sources. Natural gas is also essential for decarbonizing the country's fuel-intensive industry, which runs on fuel oil and other carbon-based fuels. □

Ismail El WADI

Green hydrogen, private-sector involvement...

MOROCCO is also working on green hydrogen, which could help to decarbonize energy sectors and uses that cannot be directly electrified, such as heavy transport (ships, aircraft, long-distance trucks) and certain industrial applications (industrial heat at very high temperatures). Its potential could make it one of the world's benchmark players, and this potential can be realized in the short term.

The decarbonization of industry requires the commitment

Morocco's energy sector is in turmoil. Numerous strategic studies and roadmaps are being prepared: a new ONEE production master plan to 2040, a Power-to-X (green hydrogen) roadmap, a biomass-energy strategy, a roadmap for the exploitation of marine energies, a revision of the law on self-generation of electrical energy, a national energy efficiency strategy 2030, a national climate plan 2030...

Overhauling the context is just as decisive as building production

l'électricité (ANRE), created in 2018, which only became operational in 2021.

Finally, decarbonizing industry requires the commitment of private-sector players and the development of skills that have yet to be built up. CGEM has joined forces with the Fondation Mohammed VI pour la Protection de l'Environnement to train its members in carbon accounting and the use

of a greenhouse gas assessment tool that will be essential in tomorrow's economy, as the carbon content of an industrial product will have to be assessed and certified in a credible and internationally recognized way. The Carbon Border Adjustment Mechanism (CBAM) introduced by the European Union (EU) came into force in 2023. □



The decarbonization of industry requires the commitment of private players and the development of skills that have yet to be built (Ph. L'Economiste)

of private players and the development of skills that have yet to be built (Ph. L'Economiste)

A first joint declaration of intent on the development of green hydrogen, dubbed Power-to-X, has been signed with Germany for 2020.

capacity. The transition is still hampered by delays in the preparation of implementing legislation, resistance from monopoly players such as the Office national de l'eau et de l'électricité (ONEE), and the existence of a national regulator, the Autorité nationale de régulation de

And technological innovation?

THE energy transition undertaken by Morocco to decarbonize its economy is, for the moment, primarily a matter of large-scale projects: wind farms, solar power plants, green hydrogen... But it is also taking place at the level of small businesses and civil society. The French Ministry of Energy Transition and Sustainable Development has launched a call for projects for 2023, aimed at carriers of innovative projects in the fields of waste recovery, rational water use, renewable energies, energy efficiency and green buildings.

This is the Cleantech Maroc program, a national version of the Global Clean-tech Innovation Program run by the Global Environment Facility (GEF), the United Nations Environment Programme (UNEP) and the World Bank.



(GEF) and the United Nations Industrial Development Organization (UNIDO). 28 startups were selected in the first session. The program invested 4.4 million dirhams and trained over 120 entrepreneurs in clean technologies. The 2nd session aims to support 30 green projects. □



Green hydrogen: The trump

For over a decade, the Kingdom has invested heavily in making hydrogen a major, affordable alternative energy source (Ph. DR)



For over a decade, the Kingdom has invested heavily in making hydrogen a major, affordable alternative energy source (Ph. DR)

■ Wind and solar resources, Morocco's assets

■ Industrial Decarbonization, Production of Green Fertilizers... the Prospects of Green Hydrogen

■ A market worth billions of dirhams

SURGING oil and gas prices have accelerated the global race to green hydrogen. Some sixty countries now have strategies for developing this alternative fuel to oil. Among them is Morocco, which has taken a significant lead and is already positioning itself as a major player in this energy transition in North Africa. The key to this transformation lies partly in green hydrogen, produced from renewable energies from the Kingdom's abundant wind and solar resources. The aim is not only to use it locally, but also to supply it to Europe.

«Morocco could export nearly 7 million tons of hydrogen equivalent by 2050. In the region, it is expected to be one of the main players in the hydrogen market, leveraging its solar and wind energy potential, port

infrastructure and pipeline connection to Spain,» confirms Deloitte in a study titled «Green hydrogen: an accelerator of the transition to carbon neutrality», published in August 2023. «It's a multi-billion dirham

winning market», adds a Moroccan expert. Aware of this strong potential, the Kingdom has been investing heavily for over a decade to make hydrogen a major, affordable alternative energy source. Today,

Green Ammonia as Well

GREEN hydrogen is the solution to decarbonize industry, especially sectors that use derivatives of fossil energy (grey hydrogen), such as fertilizer producers and refineries. Thus, OCP Group has implemented a green strategy aimed at ensuring its autonomy in the supply of green ammonia and renewable energy. An investment plan involving a budget of 130 billion dirhams for the period 2023-2027 has been put in place to achieve carbon neutrality before 2040 and increase fertilizer production from 12 million tons to 20 million tons. «OCP is strengthening its capacity to produce green hydrogen and green ammonia to decarbonize its products



and secure its supply chain», said Mostafa Terrab, CEO of OCP, during the presentation of the group's green strategy. The goal is to pro-

duce 200,000 tons of green ammonia by 2026, and then 3 million tons by 2032, according to Terrab's estimate. □

card of renewable energies



The Green Energy Park is a testing, research, and training platform for solar energy located in the green city of Benguerir. It was developed by the Research Institute in Solar Energy and New Energies (IRESEN) with the support of the Ministry of Energy, Mines, Water, and the Environment, as well as the OCP Group. A unique model of its kind, it is the first platform of its kind in Africa (Ph. DR)

an offer is available in response to royal directives calling on the government to rapidly and qualitatively implement the «Morocco offer» for green hydrogen. «We need to make the most of the assets available to our country, and respond as effectively as possible to the projects put forward by global investors in this promising sector», declared the King of Morocco in his Throne Speech of July 30, 2023 (cf. www.leconomiste.com).

As a result, an ambitious roadmap has been drawn up to implement the Kingdom's strategy in the green hydrogen sector. This will be reflected in the launch of the «Morocco Bid» project in 2024, the main aim of which is to fully exploit national resources and meet the expectations of investors in this promising sector. Indeed, major operators from the UK, France, Germany, India and Australia are beginning to set up operations in Morocco.

After an exhaustive analysis of the potential of green hydrogen, the construction of large-scale green

production units, using surplus solar and wind energy, is therefore on the agenda. «Eight green hydrogen and ammonia production sites on 1.5 million hectares of public land are planned», announced the Ministry of the Economy and Finance last August. As for transport and sto-

rage, the country plans to develop dedicated infrastructures, including pipelines and reservoirs, to ensure the distribution of this resource. This resource will be used in particular to supply industry and reduce dependence on fossil fuels, while helping to reduce greenhouse gas

Cost Control

MOROCCO, which currently generates nearly 40% of its electricity from clean energy sources, has all the cards in hand to succeed in its venture regarding green hydrogen. However, to establish a competitive green hydrogen industry, it is essential to control the costs of electricity production to outpace competing countries. To be competitive, the 'Morocco offer' must maintain a production cost of no more than two dollars per kilogram of green hydrogen.

Furthermore, the production of green hydrogen requires a significant amount of water, and the national hydraulic potential is impacted by severe droughts. To ensure low-cost green hydrogen production, Morocco is focusing on the construction of seawater desalination units.

Several plants are under construction with the support of the GIZ, the German Agency for International Cooperation, and the KfW, which has invested nearly 700 million euros in the water sector in Morocco. □

emissions. Finally, in terms of clean mobility, Morocco also plans to integrate green hydrogen into the transport sector by developing hydrogen-powered vehicles and setting up a recharging infrastructure. To boost these ambitions, several agreements relating to the development of green hydrogen were signed at the 3rd edition of the «World Power-to-X Summit», held in Marrakech last September.

These agreements aim to promote innovation, consolidate training and foster the success of the energy transition, involving

International Partners

MOROCCO is not working alone in its quest for green hydrogen. The country has established strategic partnerships with international players, notably the European Union, to support its initiative. Additionally, a strategic agreement has been signed with Germany to promote green energy. Specifically, the development bank KfW will finance the construction of a green hydrogen production unit with an investment of 300 million euros. These partnerships facilitate investments and encourage technological cooperation, contributing to Morocco's integration into the global green hydrogen economy. According to projections, the Kingdom is on track to become the leading producer of green hydrogen in Africa by 2025. □

various institutional and private partners, including the Solar Energy and New Energies Research Institute, the Office of Vocational Training and Work Promotion, the Green H2 Cluster, the Regional Center of Renewable Energies and Energy Efficiency, Guelmim-Oued Noun Regional Council, Huawei, Green Energy Park and Eco-Stream Nederland BV. □

F.E.O.



How is Morocco investing in the energy of the future?

■ **Industrial investments, research, training... the pillars of the Moroccan strategy**

■ **Companies called upon to develop win-win partnerships**

- **L'Economiste: Why can Morocco become a major player in this promising sector?**

-**Mohammed Yahya Zniber:** The policy of the Kingdom, initiated by His Majesty King Mohammed VI, has allowed our country to have a clear and effective policy in renewable energies, a very intelligent policy on port infrastructure, and also a forward-thinking and ambitious water policy. Backed by extensive renewable energy resources and extremely competitive costs, Morocco plays a major role in the field of green hydrogen and its derivatives.

Furthermore, the extensive experience that the country has gained in vocational training policies will bring undeniable strength through the quality of skills possessed by Moroccan technicians.

- **What role will the Green H2 Cluster play in this process?**

-It is this set of things that the Cluster Green H2 Morocco seeks to promote through extensive networking and detailed promotion of the various links in the value chain. But obviously, preaching in the desert is not effective, which is why the state's support role will be crucial.

-**What are the Green H2 Cluster's short-term priorities and projects for promoting the green hydrogen sector in Morocco and abroad?**

-The role of the Cluster Green H2 is not that of a one-stop-shop for investment (single window); there are public institutions for that. Non-exhaustively, our role is to bring together different actors of different natures and make them interact: industrial companies, energy and water producers, research centers, universities, offices, and vocational training institutes, legal firms, financing organizations. From this, a set of ideas and concepts will emerge that will enable us to be a source of



«Backed by extensive renewable energy resources and extremely competitive costs, Morocco plays a major role in the field of green hydrogen and its derivatives», stresses Mohammed Yahya Zniber, Chairman of the Green H2 Morocco Cluster (Ph.DR)

proposals, a hub for startup creation opportunities, technical and legal training programs, a meeting place for exchanges with international organizations of similar nature, as well as a platform for encounters between various national and international companies and organizations that could lead to industrial or research partnerships.

-**How do you intend to encourage innovation in this field while maintaining the competitiveness of green hydrogen?**

-The Cluster Green H2 includes research centers that are already working to develop technologies, evaluate them to better understand the technical and economic aspects. For example, Iresen and UM6P, both members of the cluster, are already involved in activities related to electrolysis processes and ammonia production. Additionally, the cluster initiates discussions and

studies on various topics related to the value chain, organizes events and workshops, fostering an inclusive approach to sharing and cross-learning.

-**Hydrogen could enable Morocco to develop a real chemical platform. Could you explain how hydrogen can be the catalyst for this industrial transformation, and what advantages it offers over other energy sources?**

-The use of hydrogen in chemistry is not a novelty. Far from it, as this product is widely used in various industries such as ammonia production for fertilizers, petroleum refining for desulfurization, and methanol production. What is changing now is the public policies in terms of the environment that impose the decarbonization of industrial sectors. Currently, what is requested is to manufacture the same products, but with green

hydrogen, whose energy source is obviously renewable as well. This is where Morocco has an opportunity since the renewable energy potential of our country provides a competitive advantage due to some of the lowest costs worldwide.

-**The question of costs is indeed crucial...**

-The challenge obviously remains the cost of manufacturing these products compared to today's costs, and that is where technological innovation in electrolysis and renewable energy, as well as in chemical engineering processes, can play a fundamental role, coupled with global public policies in terms of decarbonization and regulation.

Moreover, hydrogen can also play a significant role in energy storage, especially in the case of the large-scale development of renewable energies. □

Interviewed by Fatima EL OUAFI

Involving the entire industrial sector

IT is crucial to raise awareness throughout the industrial sector about the importance of the hydrogen value chain,» says the president of the Cluster Green H2 Maroc. «When we see the extent of the possibilities for industrial development around green hydrogen in this case, we can only commit ourselves to putting in place all the regulatory, financial, technological tools through innovation, training, and investment encouragement to enable the entire Moroccan industrial sector to participate in this new

economy,» explains Mohammed Yahya Zniber. While the state and financing organizations play a crucial role initially, he adds that Moroccan industries must also invest in various areas offered by the industrial hydrogen value chain and not hesitate to seek necessary partnerships to achieve this.

It is essential for investment funds to play a strong role in supporting these developments, especially by strengthening the equity of SMI-SMEs to enable them to meet the financial investment requirements. □



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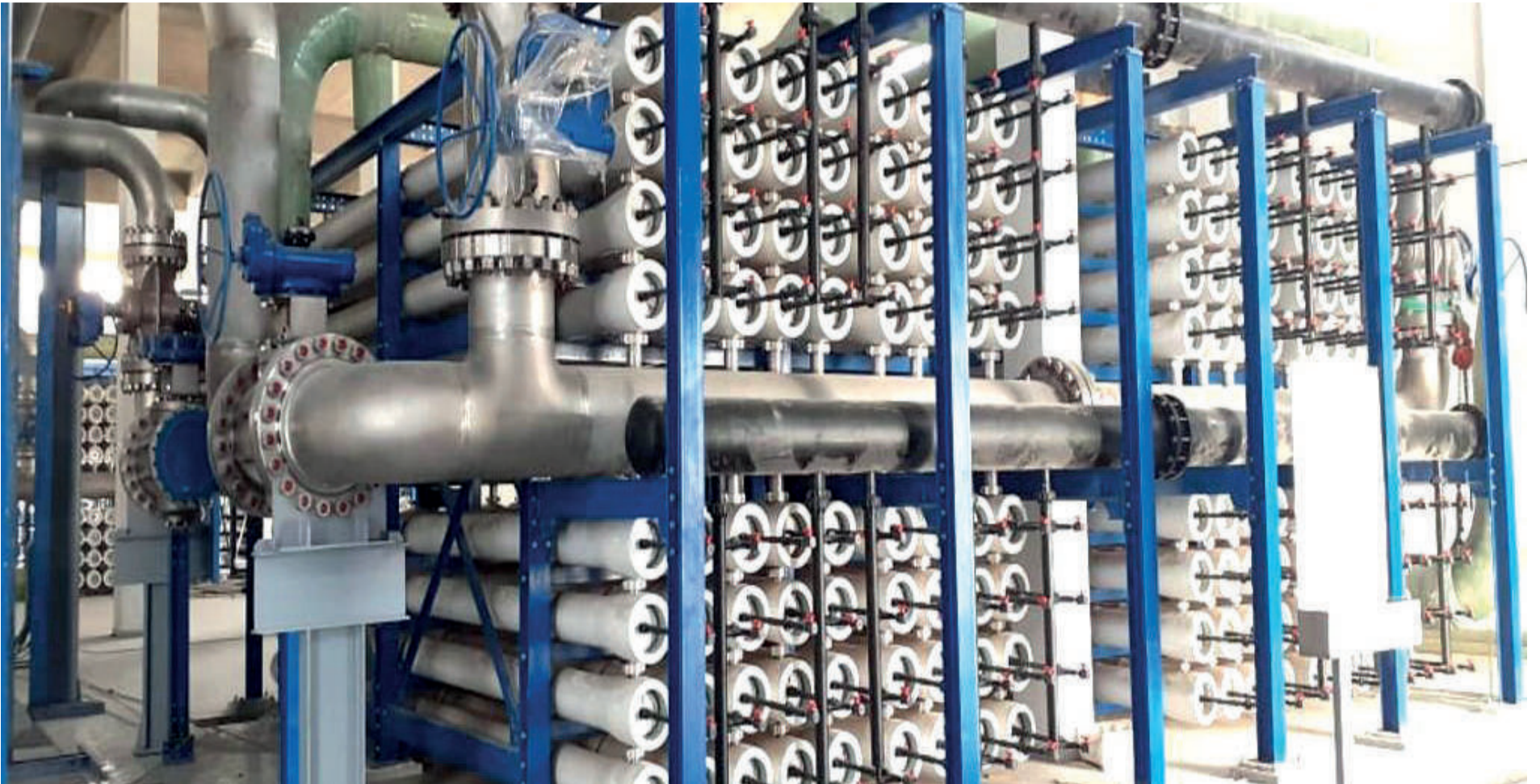


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Carbon neutrality: Morocco



■ **Already 37% of local energy production achieved from Renewable Energy Sources**

■ **Goals: 52% by 2030 and carbon neutrality by 2050**

■ **78 billion dollars, the cost of decarbonization according to the World Bank**

MOROCCO has made the fight against climate change a national priority. By adopting a long-term low-carbon strategy, the country has everything it needs to achieve carbon neutrality by 2050.

In 2022, the country's greenhouse gas emissions decreased by 10% compared to 2015. This reduction is attributed to various factors, including the development of renewable energies. More than 50 renewable energy projects with a production capacity of 4,000 megawatts have been completed, while 60 others are underway. These projects have already covered 37% of the local energy production from renewable energies



Morocco aims to significantly accelerate the development of renewable energies to achieve decarbonized electricity production, with an ambitious target of 80% by 2050 (Ph. AFP)

(EnR), with the goal of reaching 52% by 2030. '78 billion dollars of investments are needed to firmly anchor Morocco on a resilient and low-carbon trajectory by

2050,' emphasizes the World Bank in a Climate and Development Report published in November 2022.

Morocco's commitment to sustainable development is evidenced

by the enactment of the framework law No. 99-12 establishing the National Charter for the Environment and Sustainable Development in 2014, and the development of the

on the right track

National Sustainable Development Strategy (SNDD), adopted in June 2017. According to the Ministry of Energy Transition and Sustainable Development, Morocco, with ambitious climate goals in the short and long term, aims to strengthen its global climate leadership by having a Long-Term Low Emission Development Strategy (LT-LEDS). This strategy enables the country to envision profound transformations in its economy and society towards a carbon-neutral world. «For the Kingdom, it is a long-term strategy known as the 'National Low Carbon Development Strategy by 2050 (SNDBC),' which revolves around carbon frugality, economic competitiveness, green jobs, decentralized energy transition, and the reduction of energy poverty and spatial inequalities,» notes economist and

public policy specialist Abdelghani Youmni. The ambition of Morocco's SNDBC is to significantly accelerate the development of renewable energies to achieve decarbonized electricity production, with an ambitious target of 80% by 2050. How? By increasing the electrification rate in industry, construction, and transport, while assessing the potential of green hydrogen to decarbonize industry and road transport.

In order to successfully carry out this strategic project of co-designing the low-carbon development strategy by 2050, the Department of Sustainable Development has implemented a participatory and inclusive process involving institutions, research and innovation institutes, local authorities, the private sector, and civil society. Which sectors are particu-

larly concerned? 'These include renewable energies for 80% decarbonized electricity by 2050, compared to the current 11%. It also involves promoting circular economies with low-carbon logistics, as the transportation of goods is the primary source of pollution. Additionally, there is a need to encourage sectors for the treatment and valorization of household and industrial waste, of which only 16.5% are recycled each year. As for the mobility sector, it is necessary to target it with means of transportation that promote multimodality and green energy. Finally, the promotion of Smart Cities as a model for the future city, such as Zénata, a resource-efficient and intelligent city where the strong integration of ecological public policies will incorporate digital transition technologies

into all socio-economic sectors,' responds Abdelghani Youmni.

Furthermore, Morocco has well-prepared for the implementation of the 'Carbon Border Adjustment Mechanism,' known as the carbon tax, by the European Union (EU) starting on October 1, 2023. As a pioneer in energy transition, the country is indeed in a favorable position to cope with this new regulation, which will take effect at the EU borders in early 2026 and targets imports of steel, iron, aluminum, fertilizers, electricity, and hydrogen. According to the World Bank, decarbonization could enable Morocco to become an exporter of green energy and green hydrogen, turning the kingdom into a hub for green industrial investments and exports, especially towards the European Union.

F.E.O.

«Decarbonization is a competitiveness lever»

-L'Economiste: Morocco has a transitional period to declare its carbon footprint before having to pay the carbon tax for exports to Europe. What will be the impact on exports?

-Abdelghani Youmni: Although Morocco does not currently have a carbon tax or a CO2 emissions trading system, it is nevertheless engaging in this carbon adjustment and climate justice mechanism starting from October 2023, in accordance with the provisions of Article 7 of the framework law No. 69-19 on tax reform, with a transitional period of 3 years for declaration and effective implementation of the tax. Moroccan companies affected in these preliminary phases are those operating in the steel, cement, fertilizer, electricity, and hydrogen sectors.

In the initial phase, our exports, 65% of which are destined for the European Union, will be minimally affected. However, this tax will impact industrial imports from Europe, creating what is referred to as carbon inflation.

-Is this a constraint for companies?

- Companies will have to prepare for this paradigm shift and seize the opportunity of decarbonization as a lever for competitiveness and the attractiveness of global value chains, forcing them to co-industrialize in order to achieve carbon neutrality.

While for emerging and newly industrialized countries, the carbon cost input is a new cost, in Europe, companies have been required to purchase carbon credits to offset their emissions since 2005.

-What do these measures represent for Moroccan exporters?

-It is both an advantage and a disadvantage, an opportunity and a constraint. The carbon border adjustment mechanism on imports



«Decarbonization is a necessary condition for building future ecosystems with Europe and beyond», emphasizes Abdelghani Youmni, economist and specialist in public policies (Ph. DR)

is the counterpart to the European carbon market, but it is now also applied to production outside the EU.

It is a competitiveness factor

and a form of green protectionism that aims to be a weapon against climate dumping practiced by giants of industries such as China and India.

Rightly so, companies in the old continent fear price distortions with non-European competitors who do not adhere to carbon constraints. However, we believe that carbon taxes and proximity imports will quickly become widespread.

-So, companies must reduce their carbon emissions...

-Certainly. Decarbonization is a necessary condition for building future ecosystems with Europe and beyond. Especially since our industry and productions have five unbeatable comparative advantages: proximity within 15 km; skilled and cost-competitive workforce; an average age of 27 years, compared to 47 years in Europe; and highly developed road, port, airport, and digital infrastructure.

Interviewed by
Fatima EL OUAFI

How Morocco captures climate finance

■ An ecosystem dedicated to green finance

■ Plenty of international funds to achieve the sustainable development goals

MOROCCO is a pioneer of green finance in Africa. From 2016, the country committed, on the sidelines of the COP22 in Marrakech, to align its financial and banking sector with the sustainable development objectives. This ambition was translated into a series of measures, in particular the creation of a roadmap for green finance on a regional and continental level, the adoption of a new Investment Charter and the positioning



Morocco provides all the conditions to receive investments and financing to achieve its climate and sustainability objectives (Ph. DR)

Water stress: The support of the World Bank

MOROCCO received, last July a financial support of \$350 million from the World Bank to support the National Drinking Water Supply and Irrigation Program (PNAEPI) for the period from 2020 to 2027. Concretely, this program aims to save 25 million m³ of drinking water in the water distribution networks, the equivalent of the annual consumption of the provinces of El Jadida and Sidi Bennour. This initiative will also make it possible to reuse 52 million m³ of treated wastewater, thus achieving 52% of the PNAEPI objective of having 100 million m³ of treated wastewater for reuse by 2030.

The World Bank has estimated that Morocco is one of the countries most affected in the world by “water stress” due to the persistent impacts of climate change. This water shortage situation imposes significant economic constraints, which are expected to worsen as the country approaches the absolute threshold of 500 m³ of water per person per year by 2030. □

of the Casablanca financial center as a hub for climate finance. Today, Morocco is the first country on the continent with the largest number of entities accredited by the Green Climate Fund (GCF), a financial mechanism of the United Nations. These are the Agency for Agricultural Development, CDG Capital, Attijariwafa bank and Masen. For its part, the Moroccan Capital Market Authority (AMMC) has put in place a guide for promote and support the development of obligations green and sustainable bonds (Green bonds and Sustainability bonds).

Therefore, Morocco meets all the conditions to receive investments and financing to achieve its climate and sustainability objectives. Only for Morocco, the GCF has approved by the end of 2022, nine national projects and programs for a total amount

of more than 221 million of dollars on the financial level, Morocco is notably supported by a multitude of partners who are confident in the carbon-free future of the Moroccan economy, among them the European Bank for Reconstruction and Development and its partners who have signed a financing line of 360 million euros between 2022 and 2025 to move industries towards sustainable models and to enable the Moroccan State to support other companies in offsetting the surcharges generated by the adoption of new green technologies. as indicated Abdelghani Youmni economist and public policy specialist. concretely, the EBRD supports partner banks such as Société Générale Maroc, Crédit du Maroc and Banque Centrale Populaire to help companies invest in more ecological solutions. The objective is to promote

investments in the areas of renewable energy, energy efficiency and water conservation, waste reduction and treatment, green technologies and adaptation to climate change. Since 2012, Berda has invested in the kingdom more than 3 billion euros in 860 million in favor of the green economy. that's not all. other development financial institutions, the KfW Development Bank or the IFC contribute to financing projects in the field of water, renewable energies and green energies. The German development bank KfW plays a significant role in financing numerous projects in different sectors including renewable energy and energy efficiency in the field of water supply, sanitation and irrigation. These investments represent an amount of 3 billion euros. □

F.E.O.

Support from IFC

THE International Finance Corporation (IFC), part of the World Bank group, which has supported the kingdom's economic growth since the 1960s, has stepped up its investments in

the green and inclusive economy, by supporting the decarbonization of industry, the development of green finance. Positioning itself on green hydrogen, the IFC recently granted a loan in the amount of \$106 million to OCP to finance its solar power plant development program, while contributing to the transition to more environmentally friendly food

systems on a global scale. Furthermore, a green loan of \$45 million was granted to Ciments de l'Afrique (CIMAF) to support the production of cement with a low carbon footprint in Africa. In addition, a risk sharing mechanism amounting to 36 million dollars was put in place in collaboration with the Banque Centrale Populaire (BCP) and the Moroccan Company of Drip and Pumping (CMGP), specialized in the production and distribution of irrigation systems. This mechanism aims to promote sustainable agriculture in Morocco, particularly in regions affected by earthquakes. □



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Fossil fuels, largely forgotten despite



The world has never consumed so much oil and therefore never produced so much (Ph. DR)

exploitation projects should be launched after 2021". However, Conferences of the Parties (COP) and international meetings follow one another without any concrete progress being made. in this area.

Oil consumption still on the rise

In 2021, at COP26 in Glasgow, the parties timidly committed to an objective of reducing the use of coal, the most CO2 emitting energy, but no mention was made of gas nor petrol. In September 2023, at the G20 summit in New Delhi, the final declaration simply calls for "accelerating efforts towards reduction of electricity production from coal", without addressing the question of gas and oil. And meanwhile, the demand for fossil fuels is continuously increasing! With 102 billion barrels per day

■ **Their release is essential to achieve carbon neutrality objectives**

■ **Economic and financing issues that weigh heavily on developing countries**

FOR a long time, it is the shortage in stocks which dominated the question of our dependence on fossil fuels... Today, the debate is of a completely different nature! The exit fossil fuels is an essential step in reducing greenhouse gas emissions and combating global warming. The global stock take report published under the auspices of the United Nations Framework Convention on Climate Change sums up the situation clearly: "The world is not on trajectory to achieve the long-term goals of the Paris Agreement [...] Limiting warming to 1.5°C and achieving carbon neutrality will require [...] the exit of all fossil fuels without CO2 capture." The International Energy Agency (IEA) drives home the point: "to achieve carbon neutrality in 2050, no new oil or gas

AT COP27, many states campaigned for a text that would call for reducing all fossil fuels and not just coal. But this point was "watered down at the last moment", regrets Alok Sharma, president of COP26. Many point the finger at the countries most dependent on oil and gas extraction, but the inertia of climate diplomacy on this subject is not just the fault of petrol-states. Some countries suffer from schizophrenia when it comes to commitment concretely in the exit from fossil fuels and we sometimes see a serious gap between the communication posture and reality! The United States, for example, claims to be at the forefront of the fight against global warming, while exploiting extremely polluting shale gas on its territory which it exports throughout the world. carbon neutrality in 2050, no new oil or gas exploitation projects should be launched When we talk about interests, we cannot ignore the influence of lobbyists who participate in the work of the COPs.

503 fossil fuel lobbyists participated in COP26, and 636 were pre-

Very diverse national interests



sent at COP27, which represents an impressive force of opposition to the objectives of the energy transition! after 2021. However, Conferences of the Parties (COP) and international meetings follow one another without any concrete progress being made in this area. Oil consumption still rising sharply in 2021, at COP26 in Glasgow, the parties timidly committed to an objective of reducing the use of coal, the energy emitting the most CO2, but no mention was made. been made from gas or oil. In September 2023, at the G20 summit in New Delhi, the final declaration simply called for "accele-

rating efforts towards reducing electricity production from coal", without addressing the issue of gas and oil. And meanwhile, the demand for fossil fuels is continuously increasing! With 102 billion barrels per day on average in 2023, the world has never consumed so much oil and therefore never produced so much.

In this context, calls are growing to ask the UNFCCC secretariat for a code of conduct for all participants to ensure that climate policymaking is not compromised by actors with conflicts of interest and seeking to commit to slowing down or preventing climate action. □

their contribution to climate change



A coal-fired power plant in Adamsville, Alabama, in April 2021 (Ph. AFP)

on average in 2023, the world has never consumed so much oil and therefore never produced so much.

Despite the recommendation of the International Energy Agency, exploration continues. Shell said it was abandoning its commitment to reduce its oil production in order to meet the ever-increasing demand of its customers. The Total group has announced an offshore project off the coast of Surinam. English Prime Minister Rishi Sunak has decided to grant new licenses to explore oil resources in the North Sea. The interests of the fight against global warming do not weigh heavily against the commercial interests of large industrial groups... and the economic interests of fossil energy producing countries.

What rate for fossil fuel production?

“The speed at which will occur phasing out fossil fuels will de-

pend on how quickly we can phase in carbon-free alternatives, while ensuring energy security, accessibility and affordability,” says Sultan Al Jaber, Chairman of COP28, in response to growing pressure from the international community to define a precise agenda. The current transition, made obligatory by the climate emergency, is expected to bring about profound changes in less than 30 years.

The economist Jean Pisani-Ferry warns of the consequences of excessive acceleration of the timetable: “climate action has become a major macroeconomic issue, but the macroeconomic foundations of this action are far from being as rigorous and precise as they need to be today to provide solid foundations for the public debate and appropriately guide the action of leaders. One of the major challenges of this transition is its financing. Emerging and developing economies account for two-thirds of the world’s population

but only concentrate one-fifth of investments in clean energies. The investments made each year in the entire energy sector fell by around 20% between 2016 and 2021 mainly due to difficulties in mobilizing the funds necessary to finance projects. According to the International Energy Agency, annual investment spending on renewable energy should increase more than sevenfold by the end of the decade for the planet to have a chance of reaching carbon neutrality by 2050.

For now, energy investments in economies emerging and developing countries rely heavily on public sources of financing. Rich countries have committed to releasing 100 billion dollars per year... but this effort must be reinforced by more ambitious financing from banks and multilateral institutions and above all the mobilization of private capital. □

Julie CARCAUD

Boga to put an end to fossil fuels



AT the initiative of Denmark and Costa Rica, the Beyond Oil and Gas (BOGA) coalition was created during COP26. Today it brings together 21 countries and regions which are actively calling for concrete planning for the exit from fossil fuels. Boga considers in particular that the question of the gradual cessation of oil and gas production has not received sufficient attention in global climate discussions. Its action is structured around four main objectives:

- Strengthen global climate ambition by aligning oil and gas production with the Paris Agreement goals and pursuing efforts to reach 1.5°C.

- Seize and build on the momentum provided by early movers in the oil and gas phase-out to encourage others to act.

- Place the issue of fossil fuel supply on the international agenda, and promote dialogue on the need for a gradual, managed and fair reduction in oil and gas production.

- Create an international community of practice that can help governments achieve their commitment to a fair and equitable end to oil and gas production.

To learn more: <https://beyondoilandgasalliance.Org/>. □



The «loss and damage fund» has still not been launched

■ **Announced at COP27, it is not operational a year later**

■ **Negotiations are still stalling on a number of points**

THE creation of a «loss and damage» fund, signed by the 196 countries meeting in Sharm-Es-Sheikh (Egypt), is a «historic» step forward from COP27 that was unanimously welcomed. The fund is intended to provide financial assistance to countries affected by the irreversible damage caused by climate change (cyclones, floods, etc.). The countries of the South had been calling for this for over thirty years.

This fund is intended for «particularly vulnerable» developing countries, the definition of which has yet to be established. No one will object that it benefits small developing islands and least developed countries (LDCs), a group of 46 states listed by the UN according to gross domestic product (GDP) or human development indicators. It includes countries such as Afghanistan, Bangladesh, Haiti, Madagascar and many small islands. But other countries are claiming to be eligible, such as Pakistan, which chaired the Group of 77 at COP27 in 2022 and had just suffered catastrophic flooding. The World Bank estimated the cost of rebuilding after the countless damage to be 30 billion dollars, too high for a country whose wealth is higher than that of the LDCs (least developed countries), but unsustainable for an economy already suffocated by debt.

The costs of climate change are soaring. Scientists estimate them at between 290 billion and 580 billion dollars a year until 2030, and up to 1,700 billion dollars in 2050, for the economic consequences in developing countries alone. This is a worrying figure for developing countries, which have been blamed for climate change and have already been accused of failing to meet the commitment made by developed countries at the COP in Copenhagen in 2009 to contribute

\$100 billion a year by 2020. Southern countries expect the damage caused by global warming to be financed by industrialized countries and international financial institutions, including the International Monetary Fund and multilateral development banks.

«It is primarily up to the industrialized countries, which have consumed two-thirds of the carbon budget over the last 150 years, to ensure that the rise in temperature is limited to 1.5 °C», wrote Bilawal Bhutto Zardari, Pakistan's Foreign Minister, in a 2022 letter to the UN.

Developed countries do not deny their responsibility, even if they are still reluctant to pay. But they point

responsibility of the Gulf States, major exporters of oil and gas, and themselves major CO2 emitters.

Developed countries are accused of wanting to retain control of the fund by requesting that it be housed within the World Bank, seen as being in their hands, rather than in a new independent structure, called for by many developing countries, but which would take longer to set up and be more complex to replenish with fresh money. The Green Climate Fund, the main financial mechanism for North-South flows, is an independent fund with a board of twenty-four members, half from developed and half from developing countries. «We can't fall behind



«It is primarily up to the industrialized countries, which have consumed two-thirds of the carbon budget over the past 150 years, to ensure that the increase in temperature is limited to 1.5 °C», wrote Bilawal Bhutto Zardari, Pakistan's Foreign Minister, in a 2022 letter to the UN (Ph. ONU/Eskinder Debebe)



An aerial view of the devastation caused by catastrophic flooding in Pakistan in 2022. Photo taken during a visit by UN Secretary-General António Guterres, September 10, 2022 (Ph. ONU/Eskinder Debebe)

the finger at the responsibility of other countries, notably China, the world's biggest CO2 emitter since 2010, India, Brazil and other emerging nations. They also point to the

by taking years to agree on governance», Sultan Al Jaber, President of COP28, lectured participants at the Aswan meeting in October to prepare for the establishment of

the loss and damage fund. «The eyes of the world are on you to come up with clear, firm and solid recommendations before COP28 on how to implement the loss and damage fund and how to replenish it», he told the negotiators. Once negotiations on the location of the fund have been completed, it will be necessary to quickly estimate the amounts needed to finance climate change compensation and then top up the fund.

In addition to traditional financing and grants, aid to affected countries could also take the form of debt cancellation, swaps and restructuring, new allocations of special drawing rights in the World Bank, direct support for reconstruction projects, and private or mixed investments. □

Ismail EL WADI

Which countries are responsible for CO2 emissions?

SCIENTIFIC studies now make it possible to go back 170 years. On this basis, it appears that wealthy countries - including the USA, Canada, Japan and most of Western Europe, which account for 12% of the global population - have been responsible for 50% of greenhouse gas emissions since the Industrial Revolution. In contrast, a country like Bhutan, which leads a group of 47 nations known as the Least Developed Nations, recalled that its

country absorbed more carbon dioxide from its forests than it emitted. But it was also exposed to risks such as flash floods and landslides caused by melting glaciers.

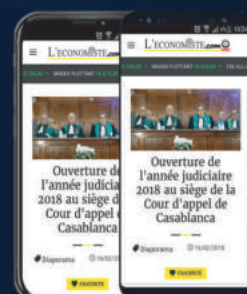
Last but not least, sizes are changing. China, which sided with the poorest countries in their demand for the creation of a «loss and damage» fund, is now in difficulty after its extraordinary growth, which has resulted in it emitting 31% of humanity's greenhouse gases... □

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From one COP to another, the difficult

■ The key dates to fully understand the commitments, the standoffs, and the issues

■ Within the COPs, more than 30 years of laborious process

■ In Egypt, geopolitics is likely to weigh with all its weight

FOR a little over thirty years, the countries of the world have been meeting at a summit, organized by the United Nations Framework Convention on Climate Change, to organize the fight against climate change. From summit to summit, the conferences have sought agreement on the adoption of a legal instrument or a legally binding outcome, as well as financing mechanisms, particularly for the most vulnerable countries. The challenge of the COPs is to reach an agreement on the reduction of greenhouse gas (GHG) emissions. The negotiators take as their working basis the reports of the IPCC (Intergovernmental Panel on Climate Change) which compile all current scientific knowledge.



Thousands of people attended the Earth Show on May 30, 1992 in Rio de Janeiro before the opening of the Earth Summit which ran from 03 to 14 June, 1992 (Ph. AFP)

These annual meetings are an opportunity for States to take stock of their actions in favor of the climate and to discuss what should be done to avoid irreversible disruption of the climate system.

Still, the results, from year to year, are disappointing, mixed but sometimes crowned with success, without however preventing GHG

concentrations from increasing. Here is a review of the main high masses that punctuated the global climate negotiations. □

- 1992: The Rio Earth Summit, the genesis

The United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992 at the Rio Summit.

It entered into force in 1994 and has been ratified by 197 Parties (196 States and the European Union). Its goal: to stabilize concentrations of greenhouse gases "at a level that prevents dangerous anthropogenic (human-induced) disturbance of the climate system". At this Summit, the action program for the 21st century was created (Agenda 21). Two conventions were also initiated, that on biological diversity and that concerning the fight against desertification.



- 1995: Berlin, the 1st COP

It was the German capital that hosted the first Conference of the Parties. It was the COP that had set the format for future COPs. Its mission was to reduce greenhouse gas emissions by setting quantified targets for each country and region of the parties that have ratified the United Nations Framework Convention on Climate Change (UNFCCC).

- 1997: the Kyoto Protocol, the major turning point

COP3, which took place in Japan,



was a major turning point in the fight against global warming. Indeed, for the first time, a legally binding treaty was put in place. Called the Kyoto Protocol, it mainly aimed at regulating CO₂ emissions. The Protocol imposed on 37 developed countries emission reductions of an overall average of -5% compared to 1990 over the 2008–2012 period. The other countries did not commit to quantified objectives but were involved in the process through incentive mechanisms. However, the United States refused to ratify the protocol, considering that it would slow down the country's economy. In the following years, negotiations continued, and the US continued to veto the Protocol.

- 2001: The Marrakesh Accord

At the end of COP 7, the Marrakesh accord



provided for assistance from developed countries to developing countries. Following this agreement, the Kyoto Protocol was opened for ratification by the various States.

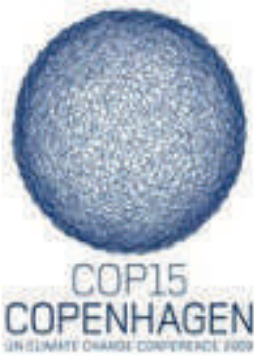
- 2006: The Bali roadmap

Meeting after meeting, the United Nations understood that the Kyoto protocol was largely insufficient, and that they had to find a new battle plan. The negotiations were tense and marked by the persistent stubbornness of the United States to refuse any compromise. But the US ended up accepting the roadmap which aims to sign an emissions agreement before the end of 2009.



construction of global climate diplomacy

- 2009: The failure of Copenhagen



COP15 in Copenhagen, Denmark, had revived great hopes, but its failure was striking. It did not result in any commitment from the various States. The only agreement found, without a timetable or quantified objectives, was the wish to limit global warming to 2 degrees Celsius.



Opening of the World Climate Conference, February 1979
(Source: World Meteorological Organization)

- 2010: Cancun

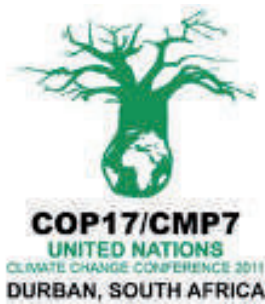


After twelve days of stormy negotiations, COP16 managed to salvage what remained of the legitimacy of the COPs, after years of procrastination. Rather than imposing contentious joint resolutions, each country was asked to notify what it was prepared to do.

The 2-degree Celsius target remained unchanged. The summit notably marked the creation of a committee for adaptation to climate change, supposed to help the poorest countries.

- 2011: Durban prepares the Paris Agreement

A legally binding treaty still failed to be imposed. However, the Durban roadmap forebode the Paris Agreement. The Kyoto Pro-



ocol was extended. A "green fund" intended to help developing countries deal with global warming was created. Similarly, a negotiation procedure, baptized the Durban Platform, will have to draw up a legal commitment applying to all the signatory States.

- 2012: Doha and the limits of the Kyoto Protocol

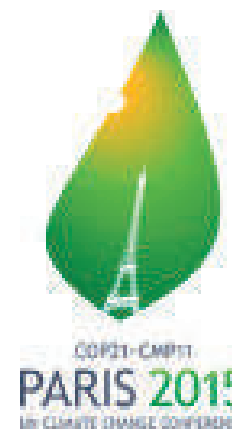
The Protocol was extended at the 2012 Doha conference for a second commitment period, imposing a target of reducing global greenhouse gas emissions from developed countries by at least 18% from 2013 to 2020 compared to 1990 levels. The final compromise was driven by the European Union, which was the first to communicate in April



2012 its goal of reducing its greenhouse gas emissions by 20% for the second commitment period. Tossed about from all sides, the Protocol ended up showing its limits. Four countries withdrew: Russia, Japan, New Zealand, and Canada. Once again, to replace and succeed the Protocol, it was necessary to find a binding legal instrument applicable to all.

- 2015: The Paris Agreement, the historic turning point

COP21 marked a historic milestone, with the adoption of the Paris Agreement, ratified by 195 countries. This international recognition of the concept of climate change inaugurated for the first time a legally binding international treaty whose goal was to limit global warming to a level below 2 degrees Celsius, preferably 1.5 degrees, compared to the pre-industrial level.



for years to come.

The promise of 100 billion US dollars made to poor countries at the Copenhagen COP was also reaffirmed. This ambitious agreement laid the foundations for international climate policy

- 2016: The COP for Action was born in Marrakech

The challenge of COP22 was to be part of the continuity of the Paris agreement, with the aim of obtaining commitments from countries on concrete actions, managing funding and ensuring a real conversion of economic models. At the end of the Summit, 111 countries ratified the Paris Agreement underlining its historic importance. Some of them have also started to postpone their long-term decarbonization strategies.

In Marrakesh, the so-called "COP for action" accelerated the progress made under the Paris Agreement in terms of finance, new initiatives, ambition, and solidarity between nations and continents.

At the initiative of the King of Morocco, the first African Action Summit was held, which enabled the continent to act on its firm desire to take care of its destiny, to speak with one voice, and to join forces to fight climate change and strengthen its resilience. Similarly, one of the great advances of Marrakesh is the participation of non-state actors and of the private sector in the dynamics of climate change.

- 2017: The withdrawal of the US and the issue funding undermined COP 23



The international climate conference, which took place from November 06 to November 17,

Clearly understanding the two main themes of COP28

- Energy transition: To date, only the phase-out of coal has been discussed and agreed at the COPs. But oil and gas are putting up resistance, aided by the massive presence of an ever-growing number of lobbyists. The question has been raised, but will the States manage to agree on announcing the end of hydrocarbons? Nothing could be less certain.

- Losses and Damages associated with climate change: Extreme events and slow-onset events in developing countries which are particularly vulnerable to the adverse effects of climate change. For the first time, a fund has been set up to deal with the problem. But the necessary funding has yet to be found, at a time when the cost of global warming is set to soar,

From one COP to another, the difficult construction of global climate diplomacy

2017 in Bonn under the presidency of the Fiji Islands, was the second conference of the Parties since the Paris Agreement. COP23 started in rather special circumstances, after the announcement of the withdrawal of the US from the Paris Agreement, under the mandate of Donald Trump. The discussions did not make much progress, undermined by the question of funding.

- 2019: Very mixed results in Madrid

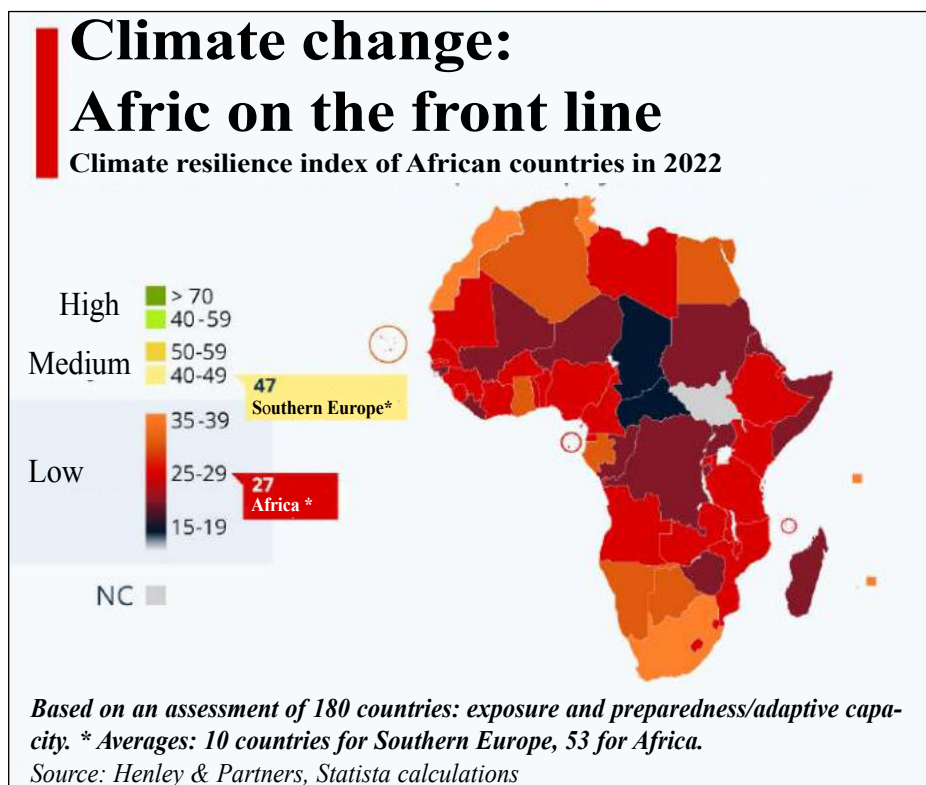


The annual climate summit (COP25) ended on December

15, 2019 in Madrid with a result below expectations, far from the climate emergency. This was mainly due to the failure of the negotiations concerning the framework of the carbon market and the very relative success of the objective set, that of giving a strong political message in terms of ambitions. "I am disappointed with the outcome of COP25", UN Secretary General Antonio Guterres said in a statement. "The international community lost an important opportunity to show increased ambition on mitigation (reducing greenhouse gas emissions), adaptation, & finance to tackle the climate crisis", he said.

- 2021: In Glasgow, Covid, and timid progress

The goal of COP26, delayed for one year because of the pandemic, was to set stricter rules to keep global warming below 2 degrees Celsius. Once again, the Summit made only timid progress. Rich countries failed to deliver the US\$100 billion needed for climate in 2020 to help vulnerable developing countries transition to low-carbon economies and adapt to climate change. However, for the first time in the history of the Conferences of the Parties, the Glasgow decision contained an agreement accepted by all the States relating to the acceleration of the global energy transition by means of the abandonment of coal and the reduction of fossil fuel subsidies.



Environment and Energy ministers of some 50 countries met in Kinshasa from October 03 to 05, 2022. Several themes were discussed including the mitigation of emissions, climate finance, and the issue of Loss and Damage, i.e. the damage caused by extreme weather events. Great expectations thus remain attached to this very special COP27. Especially since time is running out in the face of the climatic disasters that follow one another.

- 2023: Dubai, a COP in an oil-rich state

The COP was held in a country that owes everything to fossil fuels, which are the main cause of global warming. This obviously controversial choice has the merit of not sidestepping the issue. Sultan Al



- 2022: Very complicated context in Sharm el-Sheikh

It is in Egypt, in the seaside resort Sharm el-Sheikh, that



the COP27 will take place from November 09 to 18. Against a backdrop of war in Ukraine and soaring energy and food prices, energy security will be at the heart of discussions, and above all of diplomatic tensions. This summit will also be held against a backdrop of disasters and climatic madness: unprecedented droughts, water shortages, forest fires in the world, heat waves, floods, and other issues. To prepare for the formal COP27 negotiations, the Envi-

Jaber, who was presiding over the COP and is a head of the Emirates' oil company, fully accepted the challenge.

The exit from oil is not for tomorrow, he said. Will his position hold up against a COP determined to tackle the issue? In Dubai, people are also waiting to see how the Loss and Damage Fund works. Voted in Sharm-Ech Sheikh, it is still not operational. □

Myriam EZZAKHRAJY



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