

Financing the Green Economy: The Egyptian Experience

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Abstract:

Climate change poses a threat to macroeconomic and financial stability at global level, according to latest data, planet's temperature has risen between 1.06 - 1.26 degrees above pre-industrial levels, which make combating climate change an independent goal of sustainable development strategy. So, achieving this goal has become dependent on what is being achieved in addressing climate problems to reach net zero emissions, which necessitates moving towards green economy through: use clean renewable energy, waste reduction, improving efficiency of using natural resources, and re-absorption of remaining emissions by oceans and forests. Given connection between climate action and economic development, the importance of Egypt's presidency of "United Nations Climate Conference COP -27" which was held in November 2022 in Egypt, emerged to push global climate pledges towards implementation transition to green economy that is compatible with environment, discussed most prominent efforts of Egyptian state to transition towards green economy, which makes it an effective member in facing climate changes. The research paper concluded the importance of shifting to green economy and financing it with green bonds as an innovative financing tool for recent investment in Egypt, which contributes supporting Egyptian economy to achieve balance between increasing economic activity and maintaining sustainable development on one hand and reducing environmental pollution on other hand.

key words:

Green Economy, Green Bonds, Environmentally Friendly Projects, Global Warming, Economic Development, Petersburg Climate Dialogue, Egypt Forum for International Cooperation and Development Finance, United Nations Climate Conference COP -27.

Introduction:

The second industrial revolution in seventies twentieth century contributed to increase harmful emissions and rise global warming, so global concern about climate change turned to a pivotal issue for international community to confront this danger, as first global climate conference was held in 1979, leading to signing of “Convention United Nations Framework on Climate Change”, which has transformed climate concern to actions and commitments undertaken by international community to preserve the planet to improper practices such deforestation and emissions of harmful gases etc., which negatively affects all aspects of life, thus threatens development efforts. So, this research paper concerned with identifying effectiveness of measures to combat repercussions of climate change, presenting some international experiences addition Egypt in issuing green bonds and projects qualify for this type of financing, Egypt’s endeavors to shift green economy, its financing, and some recommendations that may contribute supporting Egyptian Economy to achieve a balance between increasing Economic activity and environmental pollution reduction, as follows:

First: Effectiveness of measures to combat repercussions of climate change:

It became clear, after decades of discussions about climate action, that measures being implemented on the ground are not up to expectations, as speech of Secretary-General of United Nations Organization at the Petersburg Climate Dialogue in 2022 indicated no country is immune from repercussions of climate change, so we must keep building climate-resilient societies and to keep promises made to fund protecting the planet.

It seems that the world’s efforts to preserve the planet from climate change have not reached what is hoped for, as “Intergovernmental Panel

on Climate Change” issued a report in October 2018 on global progress towards preserving a rise in earth’s temperature by 1.5 degrees Celsius, to confirm that achieving this requires rapid and successive measures in long term and in all aspects, to reduce harmful emissions by 45 percent in 2030, to reach “zero emissions” by 2050, based on international agreements such “Framework Convention on Climate Change”, “Paris Climate Agreement”, and other agreements that countries of the world adhere to require trillion investments and financing.

For projects to adapt to climate change in developing countries that contribute a small percentage of harmful emissions globally and benefit least from these funds; as the data of United Nations indicates that most of harmful emissions are issued by the largest developed countries in the world, and that more than 1,200 companies, 1,000 cities, 1,000 educational institutions, and 400 financial institutions are seeking “zero emissions”, have pledged to take measures to reduce global emissions to half by 2030.

Global green finance market is witnessing rapid growth considering development of financial instruments such: bonds, green sukuks, green loans, and green investment funds. This type of financing is used in: renewable energy projects, clean transportation, agriculture, land use, forestry, environmental resources, sanitation, infrastructure, solid waste management, and other projects that support green transition and combat climate change.

Because Egypt is aware of the importance of climate action and its close connection with development, its presidency of the United Nations Climate Conference COP-27 was considered an opportunity to push global climate commitments towards implementation, and to highlight the situation in Africa, which needs the support of the international community to implement climate action plans to reach a green transition.

It considers the differences and capabilities of countries, to promote green investments in Egypt and support energy-efficient projects and develop their renewable sources, European Bank for Reconstruction and Development, French Development Agency, European Investment Bank, and European Union have launched an economic financing program amounting to 140 million euros for Egypt. Loans combine technical support for project development and incentives for realizing investments successfully.

The program is supported by a grant from “National Bank of Kuwait in Egypt”, “Qatar National Bank Al-Ahli in Egypt”, and European Union’s Neighborhood Investment Program provides incentive financing to complement investments that finance comprehensive technical assistance package in conjunction with “European Bank for Reconstruction and Development Shareholders Fund”, European Union has provided €23.8 million grant through “Green Economy Financing Program” to help dismantle many barriers facing private sector that prevent financial institutions, strategic investors, and project managers from operating efficiently in financing sustainable energy projects, it aims to raise awareness of the benefits of green economy investments.

Egypt is a founding member of European Bank for Reconstruction and Development, as it received financing in 2012, which the bank invested 2.3 billion euros in 43 projects in the country including areas of investment: financial sector, agricultural industries, manufacturing, services, infrastructure projects such: energy, sanitation, and transportation support.

Second: International experiences of transitioning to green economy:

Reviewing experiences of countries in transition towards a green economy shortens the time, cost, and effort of economic decision-maker, benefits from successful experiences, and avoids repeating mistakes. In this

section, experiences of some developed countries, emerging countries, and Arab countries, will be reviewed, as follows:

A- Developed countries:

1 -**Denmark:** Copenhagen “capital of Denmark” is working to become a green and carbon-neutral city by 2025, making it a model for European cities to follow. Renewable energy accounts 20 percent of total energy consumption to increase this proportion to 30 percent by 2025, as the government has published plans to build a free fossil energy sector by 2050. There are three experiments in greening of Danish economy: first is related to Denmark’s policy for water consumption and wastewater treatment, second is related to energy policy, third is related to planning. As a result of these policies the economy achieved: all sewage treated, sea water became clean, public swimming pools were created in port of Copenhagen, economy grew 80 percent, energy consumption remained widespread, carbon dioxide emissions fell, and government hopes not depend on fossil fuels by 2050, so it developed its vision with support of 2010 Climate Commission report that was created by the government in 2008, this contributed to development of clean technology industry.

2- **Netherlands:** Innovation agreements were formulated cooperation between companies, research institutes, universities, and government in Netherlands to stimulate innovation and improve economic competitiveness, agreements in energy sector focus on wind energy and solar energy efficiency. “Higher Union of Knowledge and Innovation” presented: a research program to develop innovative products, services technologies, and invested 0.25 euros for every euro invested by the company, so Dutch became pioneers in agricultural innovation. In 2000, Dutch committed themselves to slogan “twice food with half resources”, using greenhouse crops and reducing dependence on irrigation water by

90 percent, also able to dispense with chemical pesticides, poultry and livestock producers have reduced antibiotic use by 60 percent since 2009, thanks to Wageningen University agricultural innovation experiment.

3- **United Kingdom:** United Kingdom adopted a plan through which it seeks to achieve 34 percent reduction in greenhouse gas emissions from 1990 levels until end of 2020 and announced in 2010 new measures that promote energy efficiency in homes and planning to establish green investment banks, it also reduced “congestion tax” in center of the British capital, “London”, to 70 thousand daily cars and about 20 percent of carbon dioxide emissions.

4. **Germany:** Energy revolution is central part of Germany’s Green Growth Vision, as ambitious plan to shift from fossil fuels to renewable energy sources in 2000. After Fukushima disaster in March 2011, German Chancellor ordered close seven reactors, presented plans for disposal progressive of nuclear energy, and clean energy goals without nuclear energy confirmed. German experience shows that the high levels of environmental awareness of its citizens are a political driver of green growth options and illustrates the complexity of energy revolution to implement it, continues to witness increased coal production and greenhouse gas emissions.

b- Emerging and developing countries:

1 -**South Korea** adopted green growth policy in 2008 as national strategy, and contributed to international initiatives to put green growth on global agenda, as a new framework for thinking about greenhouse gas emissions negotiations, accordance to United Nations Framework Convention on Climate Change, and framework a new politician for developing countries at G8 held in Japan 2008, endorsed Ministerial Declaration on Green Growth in June 2009, adopted a national green

growth strategy for period 2009-2013 by allocating 2 percent of their GDP, to investment in several sectors, and “Higher Institute for Green Growth” was established in capital “Seoul”, which became an international organization in 2012, it also entered with Denmark and contributed inclusion of “green economy” on United Nations agenda for sustainable development, which made its way to “Ryody” agreement as gateway to sustainable development.

2 -**Brazil:** Government of Brazil has taken measures to reduce deforestation amazon rainforest by establishing an “Amazon Fund”, which collects domestic and international donations to invested in measures to prevent deforestation. There states are launching initiatives in field of green economy, such state of “São Paulo” and city of “Curitiba”. Brazil has a pioneering experience in field of recycling in some materials which generating 3 percent of GDP, avoiding 10 million tons of greenhouse gas emissions, and half a million people have been employed in field of recycling. law was passed to establish national solid waste policy in 2010, which resulted in a dialogue social including: government, business, stakeholders, and academics in field of waste management.

3 -**Singapore:** Singapore launched its green plan for first time at “World Summit on Sustainable Development” in Johannesburg in 2002, aim: attention quality of life, security of resources, securing a clean, and green image attracting investment. The plan included campaigns to change consumer behavior and invested significant resources in achieving its environmental goals. In 2009, Joint “Ministerial Committee for Sustainable Development” launched “Singapore Blueprint” which sets sustainable development goals 2030 for: energy efficiency, water consumption, public transportation, catchment areas, and green buildings.

4- **Mexico:** Mexico is one of first countries pledge to reduce carbon emissions and greenhouse gases in half by 2050 and is carrying out

several public policies and projects on efficient use of resources, clean energy and others related to green economy, to add 500 megawatts of electric power generated by energy, wind to capacity of electric grid by 2012 with aim: reducing 30 percent of greenhouse gases by 2020, 50 percent by 2050 compared to base year 2000, and reach 35 percent of clean energy generation by 2024.

5- **China:** In its twelfth five-year development plan, Chinese government set ambitious goals to accelerate transition to green economy, as it committed to spending \$468 billion over 5 years on industries such: renewable energy, clean technology, waste management, and set a strategic goal to produce 16 percent from its primary energy from renewable resources by 2020, knowing that five-year plan for the period from 2006 to 2010 included: investments in wind energy, solar energy, and all renewable energy sources, five-year plan that ended 2015 included more measures to promote production and use renewable energy.

6- **Uganda:** Uganda has made great strides to transform its traditional agricultural production into organic production in 1994. Agricultural production represents 42 percent of GDP and 80 percent of revenues, and 85 percent of population works in private sector. Uganda ranked 13th in the world in terms of land area subject to organic agricultural production and ranked first in Africa in 2003. Its organic exports increased from \$ 3.7 million in 2004 to \$ 22.8 million in 2008, addition economic gains for small farmers.

C - Arab countries:

1 - **Tunisia:** Tunisia began steps develop renewable energy sector to reduce dependence on oil and gas by passing a law in 2005 to establish an energy conservation system and introducing a financing mechanism “National Fund for Energy Management”, during period 2000-2008,

\$1.1 billion was saved in bills government energy, in 2009, government introduced a solar energy plan aim of increasing the share of renewable energy sources from 1 to 4.5 percent. Financial and tax support combines exemption from value-added tax, reduction of customs duties, provision of a low-interest bank loan to be paid to “Tunisian Agency for Electricity and Gas”, and government provided support of 20 percent of cost of system. Tunisian solar program contributed during period 2008-2014 to avoiding 214 thousand tons of carbon dioxide emissions.

2- **Morocco:** “Economic, Social, and Environmental Council” adopted, on March 29, 2013, a report on green economy to create wealth and job opportunities, based on several programs such renewable energies and filtering liquid waste. Planned investments have exceeded 200 billion Moroccan dirhams, creating 90,000 job opportunities in 2020. Council’s report recommended taking a set of measures on several axes as: defining a comprehensive strategy for purpose of transitioning to a green economy by integrating various sectoral strategies and programs and ensuring industrial integration that can diagnose: new industrial paths, compatible with natural and human potential, strengthening private financing mechanisms through preferential formulas to green various economic sectors. Can be said Morocco has achieved tangible achievements in several areas as: monitoring air quality, combating global warming, reforestation, and developing renewable energies.

3- **United Arab Emirates:** “Shams Dubai” initiative has been activated to encourage residents to install photovoltaic panels on roofs of their homes, to produce electricity from solar energy in preparation for connecting it to public grid. “Dubai Integrated Energy Strategy 2030” aims to increase proportion of renewable energy to 7 percent by 2020, 15 percent by 2030, largest solar thermal project in the world with a capacity of 500 megawatts. A model sustainable city with low consumption of

water and energy was established so that electricity and transportation are carbon-free sources, which wastewater is recycled for use in irrigation, and consumption of 8 thousand cubic meters of desalinated water per day compared 20 thousand cubic meters per day in traditional city. “Abu Dhabi Future Energy Company” has also established 10-megawatt plant of solar cells aim establishing the world’s first carbon-free city, and highest solar heating system above the ground was built in “Burj Khalifa” 818 meters high to heat 140 liters of water daily.

Third: Egypt’s efforts to transition to a green economy:

Egypt is one of countries most exposed to climate change, although it contributes a small percentage to harmful emissions in the world. It has taken initiative to adhere to international agreements, as it signed United Nations Framework Convention on Climate Change in 1994 and Kyoto Protocol annexed to agreement in 2005. The efforts made by Egypt are to transform into a sustainable development model consistent with efforts to confront climate change, as represented by green transition to achieve economic development in many vital sectors, 12 projects worth \$365 million were launched they are: energy projects, transportation projects, industry projects, agricultural and water projects, this can be explained in follows:

1 -Energy projects:

“National Strategy for Sustainable Energy” launched in 2015, to support the country’s energy export capabilities and implement electrical interconnection plans with neighboring countries that makes Egypt a center for renewable energy in the region and reduces carbon and methane emissions in oil and gas sector. It began expanding hydrogen production considering availability of renewable energy sources and large areas of land for establishment of projects, enhances its transformation

into a regional center for energy trading, that contributes to increasing domestic and foreign investments with aim increasing renewable energy mix by 42 percent by 2035. Witnessed March 2021 signing an agreement between “Ministry of Electricity and Renewable Energy”, “Ministry of Petroleum and Mineral Resources” with Belgian company “Demi” for special studies for a green hydrogen production project.

“Benban station” is considered largest solar energy farm in the world and is a model for cooperation between government, private sector, and international financing institutions, to implement the largest solar energy farm in the world, which includes 6 million solar panels on 36 km², was implemented 40 companies from 12 different countries to generate 1500 megawatts of energy. Since issuance of renewable energy law No. 203 of 2014, government has begun to spread incentives for entry of private sector into field of renewable energy, making Egypt one of the leading countries in Middle East and North Africa in field of renewable energy.

2 -Transport and infrastructure sector:

Transportation sector is one of most important axes of the government’s strategy to achieve green transformation and combat the negative effects of climate change. So, Egypt is working on completing vital projects to transform into safe means of transportation as: expansion of environmentally friendly subway lines, implementation fast train projects, expansion of Electric bus projects, and inauguration first dry port in 6th of October city at cost \$176 million as strategy to increase private sector participation in vital projects.

Addition “Ministry of Environment” cooperation with “Ministry of Finance” and “Nasser Bank” has implemented a project to replace taxis in “Greater Cairo”, aim reducing 264 thousand tons of carbon dioxide emissions annually in electric vehicle industry.

3 -Agriculture and Water Projects:

The state is working to expand water projects that promote sustainable management of water resources and reduce waste, by expanding wastewater treatment plants to make them suitable for agriculture. Bahr al-Baqar drainage system projects have been implemented, which treats 5.2 million cubic meters in north Sinai, reclaiming 1.5 million acres to increase agricultural area 20 percent in 2030, and implementing state's water strategy for period 2017-2037 with investments 900 billion pounds to enhance management of water resources, as government strengthened partnership with private sector to operate 19 desalination plants water during 2020-2025.

These projects aim: sustainable use of natural agricultural materials, focus on integrated agricultural management methods, improve irrigation and drainage systems, and modify cropping structure in favor of crops that consume less water. "Al-Mahsama plant" in Sinai Peninsula is largest plant for treating agricultural wastewater in the world which enabling the state to irrigate 70,000 acres of agricultural land and create thousands of job opportunities.

4 -Industry projects:

Industrial projects are considered one of most important axes of government's strategy to achieve green transformation. So, Ministry of Environment implements industrial pollution control and environmental protection programs for private sector and industrial public business sector, which include 120 projects to reduce industrial pollution through Encouraging transformation towards industries that rationalize consumption of natural materials, redistributing the industrial map of Egypt and settling it in new cities.

The government has taken into account the institutional measures and environmental legislation for companies and new projects as: developing environmental management systems, increasing the trend towards green economic development that is less dependent on carbon, completing the institutional framework for of climate change, intensifying penalties against wrong environmental practices, and launching a ministry Investing in “Egyptian Social Responsibility Index” for companies listed on “stock exchange” which reduces their emissions to comply with environmental standards.

Fourth: Financing green economy in Egypt:

COP-27 Climate Conference in Sharm El-Sheikh came to culminate Egyptian efforts over past years to transition to green economy, as Egypt presided over conference amid global unrest related Russian-Ukrainian war and world’s attempt to recover from repercussions Corona pandemic. based on results of previous session of climate summit that it was held in United Kingdom, Given link between climate action and development, Egypt through its presidency of the conference, sought to advance global climate commitments towards implementation, and consider the map of climate finance distribution globally, especially that while Africa is least continent contributing to harmful emissions, it obtains 5.5 percent of climate financing, as data indicates that climate financing worldwide recorded about \$632 billion in 2019-2020, which is less than the annually required funding estimated at \$4.13 trillion. Data also indicates that transition to a green economy globally is achieving gains estimated \$26 trillion until 2030, and it could produce 65 million jobs.

In preparation for presidency of Climate Conference, Egypt launched strategy for climate change 2050 achieve several goals as: achieving sustainable economic growth by achieving low-emissions development in various sectors, strengthening private sector partnership in financing

green activities, and raising awareness of climate. Egyptian government has made efforts to address environmental problems and prepare legislative and regulatory environment with issuance of environment law and establishment of independent ministry for it and adoption of environmental dimension as a fundamental axis in all economic sectors. In 2030, sustainable development strategy and green projects to be financed or refinanced are determined according to green financing framework that came into force in September 2020.

Green financing aims to achieve economic growth compatible with green transition, preserve environment by reducing pollution, reducing waste to a minimum, and improving efficiency of using natural resources. So, global green finance market is growing rapidly with development of financial instruments such: green bonds, green sukuk, green loans, green investment funds, and green insurance. This type of financing is used in projects: renewable energy, clean transportation, environmental resources, sanitation, infrastructure, solid waste management and other projects that support climate change.

Financing allows its users to reach new investors and achieve a diversity of tools for obtaining financing that help raise awareness of environmental programs as World Bank say: "Green bonds have been shown to be an effective tool in raising awareness and opening dialogue with investors regarding projects that help address challenge of environmental challenges".

Egypt has taken measures to lead transition to a green economy such "National Climate Change Strategy 2050" which launched at activities of "Conference of the Parties" to "United Nations Convention on Climate Change COP - 26", in Scottish city of "Glasgow", which aims reducing emissions in various sectors by increasing share of energy sources renewable and alternative energy in energy mix by: wind

farms, producing energy from waste, expanding use of vital energy by: improving efficiency of thermal power plants, transmission and distribution networks, consumers shifting to using technologies based on cleaner energy sources, addition adopting sustainable consumption and production trends to reduce greenhouse gas emissions from other non-energy-related activities as: agricultural activities, animal production activities, improving infrastructure for financing climate activities by promoting local green banking and innovative financing mechanisms that prioritize adaptation measures such green bonds and participation of private sector in financing climate activities.

The country has identified a set of tools and policies used in implementing “National Climate Change Strategy 2050” such innovative financing tools as: green bonds, traditional financing tools as: soft loans, grants from development banks, submitting projects within framework of Green Climate Fund and new sustainable development mechanism of “Paris Agreement”.

Ministries apply sustainability criteria in defining projects submitted to “Ministry of Planning and Economic Development”, “Ministry of Finance”, involve stakeholders in stages of strategy development, and integrating aspects related to climate change into environmental impact assessment studies in Egypt, example green bonds which are defined as debt instruments issued to obtain funds allocated for financing climate-related projects. Egyptian Ministry of Finance issued first offering of sovereign green bonds in Middle East and North Africa in September 2020, a value \$ 750 million, term of 5 years, return 5.25 percent, which putting Egypt on path of sustainable financing.

Green economy projects representing 15 percent of investment plan in fiscal year 2020-2021, which aim reaching 30 percent of green economy projects during year 2021-2022, percentage 50 percent by 2024-2025. The government approved implementation 691 environmentally friendly

projects in new and renewable energy, transportation sectors, and started issuing green star certificates for hotels that implement environmentally friendly policies.

Clean water come with funds \$5.3 billion which constitutes 20.3 percent of current portfolio, 37 projects in 88 locations in governorates of the Republic, clean energy \$5.9 billion to implement 32 projects in 61 locations representing 23.2 percent of total development funds, also announced launch 32 project by \$5.1 billion to contribute building sustainable cities and communities.

Survival of the world lies in preserving the planet from climate change; so, it is necessary work to support national efforts to enhance climate action through what Egypt enjoys with multilateral. This based on several axes: first represent Egypt in “Cooperation Forum International and development financing” to coordinate efforts and discuss the messages that Africa needs to send to the world before climate summit for a unified vision and provide necessary financing for the continent to promote transition to green economy. Second represent in updating strategies with development partners based on national priorities and Egypt’s vision 2030.

Third is financing to: ensure developed countries fulfill their commitments to climate financing, provide necessary financing from international institutions, stimulate private sector to participate in financing projects to adapt climate changes, create cooperation between governments, private sector, civil society, and multilateral development banks. This done by setting principles to stimulate financing under Egyptian presidency of “United Nations Climate Conference”, aim encouraging financing multilateral development banks to support investments in countries with low credit ratings.

The volume of international cooperation portfolio with international

institutions to achieve adaptation and mitigate effects of climate change amount 11 billion dollars. Among most prominent agreements signed in field of transition towards green economy in Egypt: renewable energy sector reforms that prompted international financing institutions to provide 4 billion dollars to finance Benban solar energy project, which one of largest stations in the world with participation of institutions such: “European Bank for Reconstruction”, “Development and international financing institutions”.

In April 2021, three memorandums were signed between “European Bank for Reconstruction and Development”, “governorates of Cairo and Alexandria”, and “Urban Communities Authority”, to include two governorates for bank’s program to help cities for face environmental challenges and climate change.

Agreement was also signed with “European Bank for Reconstruction and Development” on the same date to inaugurate largest solar power plant for private sector in Egypt, value of \$114 million, adds 200 megawatts, is located 20 km away from Benban station. June 2022, “Suez Canal Economic Zone” signed a memorandum with a German company specializing in energy storage to establish first plant to convert waste into green hydrogen with investments amounting \$ 4 billion.

The government issued first green certificates in Egypt by \$750 million, to finance green projects in transportation and renewable energy sectors as first government green bond issued by a country in Middle East and North Africa, which placed it on the map of sustainable financing in the region. This issuance attracted a new base of investors in Europe, United States of America, East Asia, Middle East, by 47 percent; 41 percent; 6 percent; 6 percent, respectively, which reflects efforts to diversify current investors to use proceeds of green bonds to finance expenses related to environmentally friendly green projects and achieve sustainable

development plan in fields: clean transport, renewable energy, and sewage treatment plant in Port Said.

The government has also included group of green projects that can be financed by these bonds in 2020-2021 fiscal year plan, amounting 691 projects, with cost EGP 447.3 billion, and appropriations about EGP 36.7 billion, 14 percent of total public investments distributed in the plan. Sustainable transport sector won largest share of these projects, 50 percent of credits included in the plan, and Egyptian private sector is preparing to launch “special green bonds” with a value ranging between 120-200 million US dollars.

The Egyptian Program for Financing Green Economy Projects is first mechanism for financing energy efficiency project in 20 years, as providing technical support was limited to institutions financing development projects. The program provides financing to private sector to improve competitiveness through performance technologies in fields of renewable energy. The program supports Egypt’s transition to green economy with €140 million, to financing energy efficiency and small-scale renewable energy investments to help mitigate effects of high energy prices on work of these institutions.

The program works in partnership with several local banks such: Bank of Alexandria, Arab African Bank, and Qatar National Bank. Technology selection tool provides a list of high-performance technologies and materials that have been assessed and approved as eligible for financial support, baseline is adjusted periodically to reflect market evolution in technology advancement, market supply maturity, market penetration rates, and technology costs.

Fifth: most important recommendations:

Transition to a green economy aims achieve several objectives notably: achieving economic, social, human development; environmental protection; securing new growth engines through research; development of technology; sustainable management of local, natural, cultural assets, that enhance local economy and able create new job opportunities, which helps the country in facing effects of climate change, accordingly decision makers consider:

- 1- The Egyptian banks implement to take account environmental impact and evaluate it when making any financing decision for various projects like some green banks in developed countries and give priority in bank financing to completion and implementation of projects environmental protection with setting annual plans to goals for implement environmental responsibility programs of all parties from customers and social groups.
- 2- Establish an automated environmental information system provides a better exchange of information on environmental problems for use in facing environmental risks and emphasizing the idea of popular participation to solve environmental problems through training programs with interest “Ministry of Education and Technical Education” developing educational related to awareness environmental to modification of behaviors.
- 3- Introducing environmental culture among responsible for planning export policies and making economic decisions to introducing environmental dimension in export policies and educate charge of drawing trade policy by concluding agreements with owners of industrial projects to reach environmental protection with least negative effects on investment projects to aim transitioning to green economy.

- 4- Oblige the countries exporting FDI adopt environmental protection standards and measure environmental impact while not allowing establishment factories that emit carbon dioxide except after ensuring technological and scientific control of these emissions by modern technological methods for generating clean from wind and solar energy.
- 5- Commitment to international standards for safest use of chemicals for industrial purposes with obligating waste producing facilities to update and develop production techniques and dispose of these wastes to protect environment with providing scientific support, imposing penalties in case of non-compliance within a specified period, and benefit from experiences of leading countries and cities in field of green economy.
- 6- Preparing a national model for climate change and future projections of its effects and adapting with preparing a comprehensive assessment of expected costs by coordinating efforts between ministries and concerned authorities in the country in field of dealing with climate changes through establishment a national database and strengthen contribution of media in motivating the citizen to adhere a sound culture in facing crises.

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تحويل الاقتصاد الأخضر: التجربة المصرية

أ.د. زينب توفيق عليوة

كلية الاقتصاد والعلوم السياسية

جامعة المستقبل في مصر

ملخص

ساهمت الثورة الصناعية الثانية في سبعينات القرن العشرين في زيادة الانبعاثات الضارة وارتفاع درجة حرارة الأرض بسبب الاحتباس الحراري، لذلك تحول الاهتمام العالمي بالتغير المناخي إلى قضية محورية للمجتمع الدولي لتعزيز العمل لمواجهة هذا الخطر، حيث انعقد مؤتمر المناخ العالمي الأول عام ١٩٧٩، وصولاً إلى توقيع اتفاقية الأمم المتحدة الإطارية بشأن التغيرات المناخية التي حولت الاهتمام بالمناخ إلى إجراءات والتزامات يقوم بها المجتمع الدولي للحفاظ على كوكب الأرض بسبب الممارسات غير السليمة مثل القطع الجائر للغابات وانبعاثات الغازات الضارة وغيرها مما ينعكس سلباً على كافة مناحي الحياة وبالتالي تهديد جهود التنمية، وصولاً لرئاسة مصر لمؤتمر الأمم المتحدة للمناخ COP-٢٧ الذي عقد في نوفمبر ٢٠٢٢ في مصر. لذلك اهتمت هذه الورقة البحثية بتوضيح أهمية الاقتصاد الأخضر وأهم مصادر تمويله مع التركيز على السندات الخضراء باعتبارها إحدى أدوات التمويل المبتكرة في الأسواق المالية التي تستهدف المشاريع صديقة البيئة. ومن ثم؛ تم عرض بعض التجارب الدولية في إصدار السندات الخضراء وبيان المشاريع المؤهلة لهذا النوع من التمويل. وتوصلت الورقة البحثية إلى أهمية التحول إلى الاقتصاد الأخضر وتمويله بالسندات الخضراء كأداة تمويلية مبتكرة للاستثمار حديثة العهد في مصر، والتي تساهم في دعم الاقتصاد المصري لتحقيق التوازن بين زيادة النشاط الاقتصادي وبالتالي رفع معدل النمو الاقتصادي والحفاظ على مستوى التنمية المستدامة من جهة والحد من التلوث البيئي من جهة أخرى.

الكلمات المفتاحية:

الاقتصاد الأخضر؛ السندات الخضراء؛ المشروعات صديقة البيئة؛ الاحتباس الحراري؛ مؤتمر الأمم المتحدة للمناخ؛ التنمية الاقتصادية؛ حوار بيتربرج للمناخ؛ منتدى مصر للتعاون الدولي والتمويل الإنمائي؛ مؤتمر الأمم المتحدة للمناخ COP-٢٧.