BRICS Business Council

BRICS INDIA 2021

BRICS BUSINESS COUNCIL ANNUAL REPORT

"Intra-BRICS Cooperation for Continuity, Consolidation and Consensus"

INDIA | 2021

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FOREWORD

The world continues to face challenges of the pandemic with rebound of covid-19 waves across several countries. Nations have suffered significant human and economic costs, and considerable policy efforts will be needed to restore normalcy of pre-covid times. The global growth is projected at 5.6 percent in 2021[1]. However, the global economic recovery has been rather uneven, with advanced economies seeing faster recovery while developing countries are still to catch up. Moreover, there are several downside risks to this recovery, including slow progress on vaccinations in many countries, possibility of further outbreaks of covid-19, as well as rising inflation.

With travel restrictions continuing across large parts of the world, global trade, investments, and tourism have suffered. BRICS countries have also been affected. Amidst the current global economic scenario, there is a need for new approaches, mechanisms and models to strengthen intra-BRICS economic co-operation. Bold and strong policy efforts are required to address the near as well as medium term challenges. A collaborated effort of both public and private sector, within as well as amongst BRICS nations is the need of the hour.

The pandemic has pushed back the gains made towards achievement of sustainable development goals over the last many years, be it in the areas of poverty reduction or reduced inequalities. There is a need for greater multilateral co-operation and a co-ordinated comprehensive response to build back better.

The Sustainable Development Agenda 2030 provides a roadmap that has gained even greater relevance today to address the key global challenges and create solutions with tangible outcomes for shared prosperity. The post-pandemic recovery is an opportunity for economies to align and integrate their developmental work even more deeply with the SDGs. The role of private sector is as important as the role of the government in this endeavour. In meeting the world's development challenges, businesses in all five BRICS countries have come up with innovative solutions. They are also undertaking active part in ensuring access to affordable, quality products and services around health, education, water and sanitation, energy, and finance, to low-income and under-served communities.

BRICS economies have set high standards in global cooperation. Sustainable development has been the underlying theme for strengthening BRICS co-operation. One of the focus areas for BRICS co-operation during India's Chairship includes 'Solutions for meeting Sustainable Development Goals'. The BRICS Business Council accordingly launched the BRICS Solutions for SDGs Awards 2021 to recognise the work being done across BRICS countries in achieving the SDGs, especially through innovative solutions. More than 280 applications were received from the five BRICS countries, across the seven award categories namely Zero Hunger (SDG 2), Good Health and Well Being (SDG 3), Quality Education (SDG 4), Gender Equality (SDG 5), Clean Water and Sanitation (SDG 6), Affordable and Clean Energy (SDG 7), and Innovation in Industry and Infrastructure (SDG 9).

[1]Global Economic Prospects, June 2021, World Bank

The BRICS Solutions for SDGs Awards 2021 will help in exchange of knowledge, best practices, and innovative solutions in the area of SDGs. It will also foster greater collaboration amongst BRICS economies towards meeting the sustainable development agenda.

Another key element in the post-pandemic strategy for strengthening BRICS co-operation for sustainable development is trade. Historically, global trade has enhanced economic prosperity and facilitated poverty reduction. As the BRICS economies tread the path of recovery and accelerated growth, trade shall remain the centrepiece. Efforts must continue to lower the cost of cross-border trade, reducing barriers to trade as well as to promote ease of doing business.

The emphasis on intra-BRICS trade as a key area of economic co-operation among the BRICS countries is reflected in the Ministerial Joint Statements and BRICS Summit Declarations over the years. The BRICS Business Council has endeavoured to contribute to intra-BRICS co-operation, by identifying areas of co-operation amongst the business communities of the BRICS countries, and through suggestions to the BRICS governments for strengthening trade and investments ties.

This year, under India's Chairship, the BRICS Business Council organised a virtual trade fair, to bring together business houses, entrepreneurs and other relevant players on a common digital platform and to provide a thrust to intra-BRICS economic engagements. The digital technology has been leveraged optimally to continue business engagements despite the challenge posed by the pandemic.

The virtual trade fair covered over 20 sectors. Besides established companies, many start-ups and innovators from BRICS countries showcased their offerings. Many of the B2B meetings are expected to result in new business being transacted amongst companies in BRICS countries and will promote closer collaboration, which is a key objective of the BRICS Business Council.

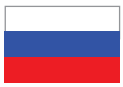
We, the Chairpersons of the BRICS Business Council (BBC), are honoured to submit the BBC Annual Report 2021 to the governments of the BRICS nations. This document outlines some necessary policy responses at the intra-BRICS level and recommends key actions to support their implementation.

The BRICS Business Council firmly believes that businesses can play a pivotal role in strengthening the BRICS co-operation as well as facilitate achievement of sustainable goals and targets in every sphere. It is in the direct interest of businesses to help bring solutions to global sustainability challenges. It is critical that new forms of innovation and co-operation continue to be explored to accelerate the transition towards more sustainable growth.

We, the BRICS Business Council Leaders, have thus issued a Joint Statement for Business Co-operation towards achieving the Sustainable Development Goals. The text of the Joint Statement is annexed to this Annual Report.

The Annual Report includes 59 recommendations that reflect the work of the Council over the year. We look forward to discussing the key recommendations of this Annual Report with the BRICS Leaders and remain committed to support their implementation.

New Delhi, 31 August, 2021

	**Mr. Jackson Schneider** (Federative Republic of Brazil)
	**Mr. Sergey Katyrin** (Russian Federation)
	**Mr. Onkar Kanwar** (Republic of India)
	**Capt. Xu Lirong** (People's Republic of China)
	**Ms. Busi Mabuza** (Republic of South Africa)

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2 ABOUT BRICS BUSINESS COUNCIL

BRICS Business Council (BBC) was launched during BRICS Heads of States Summit held on 26-27 March 2013 in Durban, South Africa.

The primary objective of BRICS Business Council is to strengthen and promote economic, business and investment ties among the business communities of the BRICS countries and ensuring regular dialogue between business communities and governments. The BRICS Business Council aims to contribute to intra-BRICS co-operation, especially by identifying areas of co-operation from the perspective of the business communities of the BRICS countries and suggesting initiatives and actions to the BRICS Governments to address the key challenges and foster greater trade and investments ties.

The BBC comprises 25 senior industry leaders – 5 from each BRICS country. Chairpersons and members of the council have regular face-to-face and teleconference / web conference meetings. With on-going pandemic situation, all meetings of the BRICS Business Council were held virtually in 2021.

Over time, the Council members have identified a set of focus sectors and to bring in greater industry engagement, Working Groups have been set up in each of these areas. There are nine Working Groups that function under the aegis of the BRICS Business Council. The Working Groups formed are in the areas of [1] Energy and Green Economy; [2] Infrastructure; [3] Manufacturing; [4] Skills Development; [5] Financial Services; [6] Digital Economy; [7] Agri-Business; [8] Aviation; and [9] Deregulation.

Leading companies from across BRICS countries contribute to discussions in the Working Groups and share their recommendations with the BRICS Business Council for submission to the five Governments.

The Chairship of BRICS Business Council is held by the member countries on a rotational basis. In 2021, India has the Chairship of the BRICS Business Council, and from January 2022, China will assume the Chairship of the BRICS Business Council.

3 BRICS BUSINESS COUNCIL MEMBERS

BRAZIL

Mr. Jackson Schneider
President & CEO
Embraer Defense & Security

Mr. Harry Schmelzer Jr.
President & CEO
WEG

Mr. Lorival Luz
CEO
BRF

Mr. Paulo Guimarães
Director
Banco do Brasil

Mr. Eduardo Bartolomeo
President
Vale

RUSSIA

Mr. Sergey Katyrin
President
RFCCI

Mr. Igor Shuvalov
Chairman, State Development Corporation VEB.RF

Mr. Kirill Dmitriev
CEO, Russian Direct Investment Fund (RDIF)

Mr. Sergey Chemezov
CEO
Rostec Corporation

Mr. Oleg Belozerov
CEO – Chairman of the Executive Board, JSC Russian Railways

INDIA

Mr. Onkar S Kanwar
Chairman & Managing Director
Apollo Tyres Ltd

Mr. Jai Shroff
Global CEO
UPL Ltd

Mr. Pankaj Patel
Chairman
Cadila Healthcare Ltd

Mr. Sanjiv Puri
Chairman & Managing Director
ITC Ltd

Mr. Dinesh Kumar Khara
Chairman
State Bank of India

CHINA

Capt. Xu Lirong
Chairman, China COSCO SHIPPING Corporation Limited

Mr. Lyu Jun
Chairman
COFCO Corporation

Mr. LU Yimin
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Mr. Siqing Chen
Chairman, Industrial and Commercial Bank of China

Mr. DAI Houliang
Chairman, China National Petroleum Corporation

SOUTH AFRICA

Ms. Busi Mabuza
Chairperson, Industrial Development Corporation

Dr. Ayanda Ntsaluba
Executive Director
Discovery Holdings

Ms. Bridgette Motsepe Radebe
Chairperson
Mmakau Mining

Mr. Elias Monage
Chairperson
Afika Group

Dr. Stavros Nicolaou
Senior Executive
Aspen Pharmacare Holdings Limited

4 BRICS BUSINESS COUNCIL WORKING GROUPS STOCKTAKING

ISSUES WITH CONSENSUS

AGRI-BUSINESS

Members of BRICS Business Council Agri-Business working group highlighted the importance of enhancing collaboration in areas of food & nutrition security, precision technologies for climate smart agriculture, enhanced use of digital farmer service platform, cooperation in agri-biotechnology, augmenting technologies to improve quality and reduce post-harvest losses, building regional corridors for Agri start-ups, adoption of agroforestry programs and expanding trade among BRICS nations. To foster action and collaboration on these fronts, establishment of knowledge and networking platform is proposed to push boundaries of innovation and enable sharing of best practices and creation of knowledge repository.

1. Ensure food and nutrition security by exploring innovative mechanisms for strengthening food production and adaptability of the food supply system

Context

Food demand is expected to grow at 2.5 percent per year, and per capita consumption is set to increase on a growing population base. BRICS nations have great capacity for agricultural production owing to varying climates and land abundance. If worked on efficiently, BRICS nations can make a remarkable impact on food and nutrition security and set an example for rest of the world. This is even more important given the Covid-19 pandemic induced additional burden on agriculture and food systems. India has achieved self-reliance in food grain production. India has become the world's second largest producer of both wheat and rice and is the largest exporter of rice. India produced a record harvest of 102.4 million tonnes of wheat and 120 million tonnes of rice during the year ended March 31,2021. Bumper harvest of these two staples has played a crucial role in ensuring food security in India. China has successfully improved the food security situation by breakthrough in Hybrid rice technology and wheat yield, and the rice and wheat production stabilized at high levels of 210 million tonnes and 134 million tonnes respectively in 2020, making it the largest producer in the world. In Brazil, projects like zero hunger and coffee harvest have been increasing due to implementation of advanced technologies. In South Africa, food security has been bolstered through a range of technological, infrastructural and support interventions, including extended social security payments to the most vulnerable of society (nearly 1/3 of the population) to improve their access to staple food. South Africa is a net exporter of food and agricultural products with a positive trade balance approaching US$ 5.0 billion.

Actions that can be taken to foster food and nutrition security are as under. BRICS countries have different agro-climatic conditions and different priorities regarding food security. Food choices and eating habits have changed dramatically over the last fifty years influenced by a range of factors.

- BRICS countries should explore innovative mechanisms for strengthening food production and adaptability of the food supply system according to the global food and nutrition preferences.
- A Working Group can be formed to organize effective dialogues and exchange experiences of BRICS nations in formulating various policies and programs for food and nutritional security. Based on conclusions of such dialogues, several recommendations for strengthening food security co-operation among BRICS countries could be made.

Benefit

The BRICS countries have rich land resources, accounting for about one third of the world's total land area. Efficient food and nutrition security programs in BRICS nations can be instrumental in ensuring affordable nutritional food and enabling equitable access. Food security can subsequently lead to better productivity, which in turn will ensure a higher and steady economic growth.

2. Explore creation of a common platform and a BRICS Network to facilitate exchange of best practices and experience in precision technologies for sustainable and climate smart agriculture

Context

Demand for food is increasing exponentially with each passing year. The overall global food demand is expected to increase in the range of 59- 98% by 2050. To meet this demand, agriculture in 2050 will need to produce almost 50% more food and feed than in 2012. However, in the long run we need technologies that will help us produce enough food in a manner that not only protects the environment but also has resource use efficiency as a focal point. One efficient and impactful way of achieving this goal is widespread adoption of precision technologies at farm level. Such precision technologies are also a major component of climate smart agriculture practices that lower environmental impacts of agriculture while making it more resilient to stresses such as - soil erosion, water scarcity, overuse of nutrients, among others.

Globally, nations are considering soil and water as primary focus areas for climate change mitigation. The World Economic Forum estimates that if 15-25% of farms adopt precision agriculture, global yield could be increased by 10-15% by 2030, while greenhouse gas emissions and water use could be reduced by 10% and 20%, respectively. Therefore, precision technologies for water as well as soil and nutrient application should be the core tenet of sustainable and climate smart agronomical practices to be adopted by BRICS nations.

In Brazil, fifteen years ago, the most widely used model in citrus-growing properties was the Pivot, which launched water jets from a distance in the field. Today, around 25% of the total area uses drip irrigation. Due to this and other adopted solutions, the sector managed to reduce the use of water from 3-6 litres/hectare to 1-3 litres/hectare. A study elaborated by Fundecitrus in partnership with the Instituto Agronômico (IAC), linked to the government of the state of São Paulo, has calculated that after studies and investments in application technology, the water saved in the citrus belt in the last 20 years would be enough to supply, for 365 days, a city of 500,000 inhabitants, such as Hanover, in Germany, or Copenhagen, capital of Denmark, or Sacramento, in California (USA).

In 2014, India launched a Natural Mission for Sustainable Agriculture to improve Soil Health, Rainfed Agriculture and Climate Change & Adaptation. India too is fast adopting the use of precision technologies for economising water use, promoting efficient farming practices by use of modern farm machinery such as precision seeders, self-propelled sprayers, etc., and use of modern technologies for soil health monitoring. Data-centric models are built on machine learning and artificial intelligence (AI) models, which can predict events such as weather abnormalities, pest attacks, crop yield in advance and with more accuracy. Coupled with precision farming, the resources conservation technologies like zero tillage and residue management are helping to reduce the cost of cultivation by 25 to 30% over conventional farming practices. India is using such precision technologies for sustainable and profitable farming.

In 2019, China put forward the development strategy of "digital countryside" for overall planning of digital technology and rural development, paying special attention to the extensive application of new generation information technologies such as big data, IOT, AI, cloud computing and 5G in villages in order to transform traditional villages through digital revolution.

Sinochem Group proposes and rolls out the MAP (Modern Agriculture Platform) Model based on practical conditions and development trends of Chinese agriculture. This model provides a package solution featuring "from online to offline, from seed to sale". Offline service provides farmers with seeds, pesticides, fertilizers, agricultural machinery, agricultural testing, farmer training and planting technology programmes, as well as agricultural finance, food storage and agro-diesel. Online service provides farmers with standard and precision planting programmes, meteorological and pest forecasting and growth management, procurement/marketing programmes and credit programmes. After more than 3 years of development, 363 MAP centres and more than 900 MAP farms have been built and operated offline in 28 provinces and 499 counties, and 3036 MAP rural service stations have been developed to directly serve 775 thousand hectares of cultivated land. The online digital agriculture system provides digital agriculture services for 660 thousand registered farmers, 630 thousand farms and 6.6 million hectares of cultivated land. MAP improves the efficiency of land, fertilizer and pesticide utilisation by 2.77%, 3.19% and 9.04% respectively, while engendering 13% reduction in carbon emissions. At the same time, the quality of agricultural products increased by 2.06 times, with an average increase of 15-20% in agricultural income.

Action: BRICS countries can explore the possibility of establishing a common platform to share:

- Best soil management practices, such as automated soil analysis technologies that can provide customised agronomy as a result of soil nutrients analysis.
- BRICS network team could be created for sharing best sustainable agriculture practices in a few select value chains and advanced technologies in water and fertilizer use efficiency. This may relate to use of irrigation intelligence software solutions, use of super absorbent polymers, application of Artificial intelligence for advanced solutions to optimise irrigation in farmers' fields, use of low Cd phosphate fertilizers. Such network team could consist of Government, Academia, Private Sector, Policy Research Institutions, and Farmers.
- Study on how BRICS nations have utilised technology based on Artificial intelligence and satellite images to enable farmers to micromanage their crops- taking into consideration weather patterns, and data collected from sensors.

Benefit

Precision agriculture is imperative to grow more food from limited resources such as constant arable land, depleting water resources, deteriorating soil health, amongst others. Precision farming technologies can be used to increase yield, reduce waste and cost of production. Such technologies can be used to assess real time sensing of soil, water and crop conditions and thus provide better information to farmers to make decisions and maximise the benefits of agriculture inputs such as agrochemicals, irrigation, etc. Leveraging the availability of precision agriculture technologies can be a way forward for BRICS countries in enhancing farm productivity, decreasing cost of production and minimising environmental impacts. Sustainable agriculture practices unlock potential to mitigate Carbon or GHG emissions.

3. Strengthen BRICS co-operation in Agri Biotechnology

Context

The world is facing a dual challenge of feeding the rapidly growing population while also addressing sustainability goals, focusing on producing more using less resources. In this context, biotechnology is an essential tool to meet and sustain the global food and nutrition requirements, and will require continuous evolution of impactful regulatory policies towards investment in biotech research. Hence, the BRICS nations need adequate policy context for uplifting the confidence of researchers and enhancing the reach of biotechnology innovations at ground level. This will help farmers improve crop yields, particularly for those crops where conventional technologies have not helped in raising

productivity to a level that meets demand. A robust regulatory system built upon science-based risk assessment and biosafety norms is imperative.

Action: BRICS nations should deepen co-operation in seed biotechnology to continue pursuing beneficial traits, use of bio stimulants and biofertilizers, taking advantage of knowledge dissemination and strong scientific base. Such co-operation should create synergy and leverage expertise among BRICS nations for development of new and more efficient technologies in the sector.

Benefit

Agricultural biotechnology plays a fundamental role in shaping the future of agriculture and boosting biodiversity. It has proven useful in decreasing the use of crop protection products for pest and disease management. It also offers the prospects of making crops tolerant to drought, salinity and other abiotic stresses. The use of biotechnology can significantly raise productivity in a variety of crops and therefore promise better lives to farmers and their families, especially in developing countries. Biotechnology tools can also improve the nutritional quality of plants during plant growth and contribute to food security. Fortification of food to improve nutrition intake also shows promising results in some crops.

4. Facilitate exchange of information on utilising Digital Farmer Service Platforms and application of digital technologies in agriculture in BRICS countries

Context

Empowering farmers with appropriate technologies is an imperative to make them future ready. Presently, lack of awareness and fragmented land holdings make it difficult for new age technologies to reach farmers. It is crucial for BRICS countries to implement innovative technologies to provide smart digital farmer service platforms, which are farmer engagement platforms that connect them to the agricultural value chain. Such digital platforms can be used for farmer centric agri financing, smart agronomic farm advisory, supply chain services, warehousing and market access to small-holder farmers. Digital farmer service portals can unlock multiple benefits for the farmers. In the long run, such technologies can enable farmers to access information and help them make informed decisions.

Models like J farm, ITC e- choupal are a few successful examples where digital technology is applied to enhance the ability of farmers to make decisions. In Brazil, Fundecitrus has developed free digital tools to enable more assertive and sustainable pest and disease management. This relates to the Integrated spraying system, which is a tool that provides information to citrus growers to calculate the volume of syrup and the dose of product in spraying for the control of main citrus pests and diseases. Another application is the Flower Rot Prediction System, that collects meteorological data in orchards, classifies the risk of occurrence of the disease, and sends alerts to citrus growers. A few other such digital tools developed in Brazil for citrus growers are phytosanitary alert, external control system for greening.

Digital farmer service platforms also enable effective e-commerce in agricultural products and inputs. E-commerce platforms can shorten agricultural value chains, promote market access, reduce transaction costs, improve price transparency, and provide new business opportunities for farmers. Chinese farmers receive mobile application skills training, and many farmers have begun to sell agricultural products to consumers on online platforms. Since 2019, there have been over 1.6 million rural live broadcasts on Taobao, and sales of agricultural products have exceeded $ 900 million. In Russia, big producers such as PhosAgro and major banks participate in development of marketplaces and digital ecosystems providing small to medium size farmers with easy access to all kind of products and services under the transparent and guaranteed conditions.

Action: BRICS nations should share such lessons and experience of using platforms for Digital farmer services adopted in their respective countries. BRICS nations can also share this innovative approach of

using Digital farmer service platforms to extend outreach of innovative financial products suited to the agriculture sector, which is often cyclical in nature and varies according to crop and region.

Benefit

There is huge potential of leveraging digital technology to close gaps in the agriculture value chain. Availability of information regarding irrigation scheduling, right input and fertigation use, weather-based information, advisory regarding pest and disease prediction will make farmers better equipped. Such platforms also exponentially enhance effectiveness of market access for both agri output as well as inputs. In a nutshell, availability of accurate, timely and reliable data and its integration to agriculture can support effective decision making. Digital platforms and use of digital technologies can be used as key tools for agricultural transformation in BRICS nations by way of providing input, productivity, and market services to farmers.

5. Enhance BRICS co-operation in promoting technologies to reduce post-harvest losses and improve quality of post-harvest produce

Context

While increasing agricultural productivity is critical for addressing global food demand, it is equally important to ensure availability of quality food through reduction in post-harvest losses. Given the significant role of post-harvest technologies in contributing to global food security, it is important to have new age technologies that not only reduce post-harvest losses but also maintain quality of post-harvest produce. These may relate to -

- **Scientific storage mechanisms:** New technologies such as hermetic storage, grain quality monitoring through sensor-based technology, small silos and warehouses operated through ICT and Internet of Things (IoT), use of block chain technology among others is the need of the hour.
- **Technologies to enhance shelf life of perishables:** Fruits and vegetables (F&V) and other perishable produce need optimal post-harvest technologies to maintain their storage stability and extend their shelf life. Focusing on new technological innovations for shelf-life enhancement of perishables is crucial.
- **Traceability solutions for agriculture and food supply chain:** Traceability solutions play an important role in redefining standards for food safety and gaining consumer confidence. Post covid, concern for food safety has gained more importance. By using such technologies, business entities can share complete production cycle with consumers to win their trust. Secondly, as the cost of basic IoT sensors is decreasing, the traceability concept is becoming more viable.

India's agriculture produce export body, Agriculture and Processed food products Export Development Authority (APEDA) has implemented a traceability system comprising technologies such as Grapenet, Tracenet, Meat.net and Basmati.net. To elaborate further, GrapeNet is a web-based certification and traceability software system for monitoring fresh grapes exported from India to the European Union. APEDA can trace details of the consignment right upto the farm plot level. In 2019, Brazil has extended the mandatory traceability of fresh fruits and vegetables which is a boost for consumer transparency. Also, Russia's Chestny ZNAK TM project which is its first nationwide digital track and trace system launched 3 years back, is set to become the cornerstone of agricultural digitalization. By 2024, the system is expected to cover most of the commodity and consumer goods traded throughout Russia.

Action: BRICS countries should lead the way by adopting the best practices and sharing technological advancements in reduction of post-harvest losses. BRICS countries should enhance cooperation to work together to improve the traceability of agriculture products too. Advancements in pathogen

testing, hyperspectral imagery, and machine learning can change the way testing is done and can substitute laboratory inspection methods.

Benefit

By investing in scientific storage, shelf-life enhancement and traceability solutions through incorporation of advanced technologies, losses can be minimised in Agri-food value chains. This would eventually lead to better performance by BRICS nations in terms of production and trade.

6. Explore setting up of BRICS regional corridors for broad basing Agtech Innovations

Context

Worldwide Agtech start-ups are attempting to solve a multitude of challenges prevalent in the agricultural value chain encompassing suboptimal productivity, low efficiency in the supply chain, lack of access to markets, institutional credit, crop insurance, quality inputs and market linkages. Interestingly, every ninth Agri start-up in the world is from India, whereas less than five global Agtech companies have ventured in India as compared to more than 25 Indian Agtech companies with a global presence. Under the Maitri 2019 program, India and Brazil are set to foster agriculture start-ups by providing them access to the global market. The selected start-ups from India and Brazil will be mentored and they will build solutions that are relevant to the Indian and Brazilian market.

Action: Agriculture being a key domain of focus, BRICS countries could have a regional corridor for cross border exchange of ideas, knowledge, and support to help grow the Agtech ecosystem. Secondly, exchange of policy initiatives (e.g. policy pertaining to Intellectual Property) by BRICS Nations for Agtech development will help to explore possible cooperation. BRICS nations could also share the innovative efforts made by Agtech Start-ups during the Covid pandemic, to keep the Agri and food supply chain rolling in their respective countries. Such a corridor can aim at catalysing Agtech development through linkages and knowledge exchange.

Benefit

Building such regional corridors can provide catalytic support for cross border engagements, promote research and knowledge sharing and build cross border incubation support for Agtech Start-ups.

7. Consider setting up of a BRICS Agroforestry Forum

Context

Agroforestry, essentially a mixed cropping system, implies co-existence of farm and forests which can achieve both natural resources and socio-economic sustainability. It is essentially a land management system that is intensive and seeks positive interactions between trees, shrubs and crops to achieve an ecologically balanced and productive output from the land. Resilient forest management practices that are low cost are much needed with the growing burden on land in each of the BRICS nations.

Action: BRICS nations can form a BRICS Agroforestry forum which can deliberate on technology, wasteland development, innovative financing, experience sharing, impact assessment methodologies and techniques, which can be key to measuring the success of low carbon development models. A study on use of silviculture models could also be explored by BRICS nations.

Benefit

Adoption of agroforestry programs by BRICS nations can be beneficial for environment and livelihoods as well as critical from national perspective. Agroforestry practices can contribute to landscape restoration, soil & moisture conservation, carbon sequestration, reduce pressure on forests and build

climate smart agriculture. Agroforestry programs also support livelihood as an additional income source, suitable for rainfed farms and ideal for small and marginal farmers. As a nation, one can improve forest cover, give a boost to allied industrial growth and ensure food and wood security. More importantly, adoption of the agroforestry model can help nations realise the set objectives of SDGs.

8. Create conducive and sustainable conditions for expanding agricultural trade amongst BRICS nations

Context

There is a need to expand intra-BRICS agricultural trade and enhance cooperation among BRICS nations. This collaboration will also position BRICS countries as strong entities to enhance trade with other regions. In China, the economy and society have already recovered from the effects of COVID-19, and the agricultural imports from BRICS countries are showing growth momentum. Compared with 2019, China's agricultural imports from Brazil and Russia increased by 19.6% and 13.9% respectively in 2020. In China, in the first four months of 2021, the agricultural imports from India and South Africa have grown by 98.8% and 23.5% respectively compared with the same period last year. South Africa's global competitiveness in the fruit and nuts sectors, especially citrus fruit, as well as maize, beef, wool, mohair and wine, are well documented and exports to certain BRICS countries can be increased. Co-operation and collaboration among BRICS countries will also strengthen their position for enhancing trade relations with other regions, especially to Africa where South Africa acts as a gateway to, especially the SADC region. It is suggested that BRICS nations should work hard to reduce trade barriers, further smoothen the trade of agricultural products between the BRICS countries, and remove unreasonable obstacles, since placing unjustified obstacles to the free flow of goods tends to jeopardize people's access to quality, nutritious food and therefore should be avoided. Few suggestions for action are as under:

Action:

- Integration in the global Agri-value chain by adopting best agricultural practices along with creating awareness and demand creation in BRICS nations for value added products is imperative.
- To diversify the Agri export basket of BRICS nations, it is vital to develop an institutional mechanism that lays emphasis on smooth market access, harmony in food standards, labelling and elimination of non-tariff barriers. It should also encourage convergence of policies related to quality standards that are set for the export market.
- Co-operation and collaboration among BRICS countries will strengthen their position for enhancing trade relations with other regions. Trade organisations of each BRICS countries can serve as coordination agencies to understand issues impeding intra-BRICS agricultural trade and coordinate with their respective Ministries to raise awareness and evolve policy resolutions towards significantly enhancing trade.
- For improving ease of doing business, implementing digital sanitary and phytosanitary international health certificates are effective means to foster Agri trade and augment the availability of safe, quality food. Therefore, BRICS-related authorities should reinforce their efforts and cooperation in reducing intra-BRICS agri-trade-related issues through digitalisation and harmonisation of international health certificates, etc.

Benefit

While there are continual developments in ways of production in each of the BRICS nations, trade stands as the prime driver, and growth in trade will help build the economies further. Sharing of best practices and encouraging setting quality standards for the export market can ease a lot of the trade related financial burden and provide much needed impetus.

AVIATION

1. Enhance sources of financing for development of Aviation Infrastructure including creation of Aviation Infrastructure Fund

Context

Civil Aviation industries of the BRICS countries need to develop / enhance sources of financing for development of aviation infrastructure. With revenues of airlines as well as airports taking a beating in the wake of the pandemic, this is a critical area for consideration by all countries. The present situation warrants creation of a dedicated fund for financing of infrastructure in the aviation sector.

A broad roadmap for the same would involve the following:

- Identification of infrastructure development requirements in form of key projects across the countries in the aviation sector
- Assessment of quantum of investment of the above projects and the financing already available through various sources
- Gauging the funding requirements based on the above investments and available financing - through a gap analysis
- Estimation of the overall fund requirement
- Identification of sources of financing which can be proposed for the creation of the fund
- Creation of an annual funding or drawdown schedule for each country based on investment requirements
- Engaging with international / multilateral financing agencies for commitments in the creation of the fund
- Mapping of the overall investment requirements would be subject to a prioritisation, which would have to be agreed by all the BRICS countries

Benefit

Creation of an Aviation Infrastructure Fund would enable the aviation industries to raise financing for important and critical infrastructure requirements. The consolidation of funding requirements across the geographies would also enhance negotiating ability of the countries, through a natural diversification.

2. Share best practices in financing and leasing of aircrafts

Context

Economic and traffic growth are two of the key indicators of growth in commercial aviation globally. The increase in passenger traffic over the past few years and the predicted growth in the post pandemic era will necessitate most airlines to substantially augment their respective fleets. This, consequently, requires a high level of finance to cater to the ever-increasing demand for aviation assets.

Typically, airlines do not have the internal cash available to self-finance acquisitions of new or used commercial aircraft, and most airlines seek financing from a variety of sources, including traditional bank debt, export credit guarantees, tax leases, capital markets and operating leases. Commercial banks, lessors and export credit agencies account for the majority of aircraft financing, and the use of capital markets has expanded considerably over the past decade.

Activity in the operating lease sector restored momentum lost in the aircraft finance sector during the liquidity crisis, and the subsequent downturn in the finance sector and in the wider economy. Two of the main funding sources in the aircraft leasing market are through capital markets and bank debt. Funding can also be obtained using cash or export credit. North America is one of the main regions for commercial bank debt used for Boeing deliveries.

In addition to the above, the role of Export Credit Agencies would also be critical in the future for aviation financing.

Significant thrust has been laid on making India a leading centre for Aircraft leasing. This year's Union Budget of India provides for incentives and tax holidays on capital gains for aircraft leasing companies setting base at GIFT City, located in Ahmedabad, Gujarat in India. This has yielded tangible results as two global aircraft financing and leasing companies and two domestic aviation related firms have expressed interest in setting up aircraft leasing arms at the International Financial Services Centre (IFSC) therein.

There is thus, a huge potential for attracting investment in Aircraft financing and leasing business among the BRICS countries.

Benefit

A robust aircraft financing and leasing environment will provide the much-needed backbone for expanding aircraft fleets for airlines in the BRICS countries. With the increase in air transport demand expected over the next few years, this would prove to be a critical component for the development of the aviation sector as well as the overall economies of the BRICS countries, which would also create employment and livelihood opportunities.

3. Explore establishment of BRICS Aviation Skills Academy

Context

Supported by strong economic growth, the global aviation industry has been witnessing robust growth in demand. Further, in the future, passenger demand is expected to see strong growth as well. Due to the expected traffic growth, airlines will have to significantly augment their aircraft fleets to cater to the demand. In addition to this, the industry would also require a commensurate quantum of skilled manpower to sustain the envisaged aviation growth. However, this poses a challenge in terms of the current scenario, where there is a severe shortage of the required skillset. Furthermore, the current aviation training capacity is grossly insufficient to meet the above growing demand, including pilots, as well as other aviation sector professionals. With advancements in technology and the ever-changing requirements for their operations, it is also important to constantly re-skill the existing manpower on a periodic basis. The present infrastructure globally is inadequate to meet this requirement.

Considering the above, there is a need to establish a BRICS Aviation Skills Academy to address this skills deficit. The following could serve as the objectives for the academy:

- Offer comprehensive package of training and development programs across all functions and hierarchical levels to bridge the current and emerging competency gaps
- Focus on creating new knowledge through research and aim to ensure regulatory and safety cooperation between the BRICS countries
- Organisation of international scientific conferences about the BRICS countries aviation regulations and other events that are relevant to achieving the objectives of the institute
- Consulting in the areas of aviation safety and regulation for promoting the economic interests of BRICS member nations

The aviation skills academy will not only serve as a platform to train aviation staff but also be a hub for aviation research and sharing / dissemination of best practices.

As a first step, an inventory of aviation training institutes across BRICS countries can be compiled. South African Chapter of the BRICS Business Council has prepared an inventory of training academies in South Africa.

Benefit

A common academy would help in leveraging economies of scale, significant cost savings, provide flexibility to meet local demand supply gap and development of best practices. The BRICS Aviation Skills Academy will be a centre of excellence to foster coordination and collaboration amongst the BRICS nations, in the field of aviation through education, research, consulting and business development initiatives.

4. Share experience of the BRICS Countries in enabling privatisation of airports

Context

Governments are undertaking privatisation of airports to leverage private sector participation in order to improve the efficiency of operations and scale up infrastructure. This has resulted in increased focus on leveraging technology to improve efficiency based on the existing infrastructure. This has reduced processing times, thereby increasing the capacity of airports. Standardisation of approach and procedures across markets can lead to a higher level of participation and wider collaboration.

There has been substantial activity in the privatisation of airports across the BRICS countries, with privatisation of 6 airports in India and the latest round of privatisation in Brazil being some of the prominent developments in the recent past. Other countries too, have experience in privatisation in the sector.

There is a need for a higher level of standardisation of privatisation and the procurement process to achieve the same. International bodies such as ACI have also stressed the need for the above and some of the key recommendations in this segment are the following:

- Improve the Bid Process and ensure timely land and environmental clearance through transparent Bid Process with adequate time for bidding
- Increase Predictability of Airport Charges Trajectory
- Leveraging the entrepreneurial nature of airport business by ensuring appropriate autonomy of private investors in running airports, ensuring clarity in land monetisation, minimising restrictions such as on investment in JVs / subsidiaries
- Ensuring bankability of airport investment
- Ensuring enough flexibility in concession agreements to deal with severe unforeseen events

The growth in aviation sector would have to be supported by a proportional growth in airport infrastructure capacity and the same can be achieved through increased private sector participation, for which the above recommendations would be a much-needed enabler.

Benefit

Privatisation has brought and continues to have the potential to bring large benefits to all stakeholders including Government, Lenders, Investors, Passengers, Airlines and Employees. The airlines have got the ability to grow exponentially through quality infrastructure. The lenders have debt in a secure and

performing infrastructure asset. The investors get regular dividends and also see equity value growth and make returns in the process of divesting full or part equity, either at the airport entity level or at the holding company.

5. Exchange best practices of BRICS countries in cargo operations

Context

There has been a substantial increase in cargo infrastructure across major airports, especially in the light of adaptation of passenger carriers to freight based operations across the world in wake of the Covid pandemic. There is a need to leverage this change as a pivot to boost productivity and efficiency in this segment to cater to the new requirements. It is estimated that for the next 20 years, the global FTK (freight tonne kilometres) will maintain an annual growth rate of 2.6%[2].

Over the last couple of years, there have been advancements in cargo handling processes and infrastructure across airports in BRICS countries, with major developments as highlighted below:

- Airports have now started catering to specific sectors by providing them a conducive ecosystem, with airports such as Delhi and Mumbai catering to agri-products and pharmaceutical industry, respectively and focusing on developing requisite infrastructure for each sector. This should be promoted across countries.
- Airports are pursuing 'paperless operations' in cargo for sustainability, with airports becoming Electronic Air Waybill compliant. This will aid in sustainable operations in the sector.
- Integrated truck management system has been developed, which has led to faster turnaround and lowering of operational costs.
- Airports have also commenced multi-modal facilities, leading to seamless integration between different modes of transport.

The above has led to carriers commencing cargo freighter services in addition to providing belly cargo services. One example is of Spicejet in India, which has commenced freighter operations under its cargo arm SpiceXpress.

In addition to the above, BRICS countries should also aim at standardisation of rules for aspects such as customs clearances, which will enable smoother cross border trade.

Benefit

Initiatives by airports in areas catering to specific sectors, 'paperless operations' in cargo, integrated vehicle management systems and multi-modal facilities, which are already being adopted in some airports, can lead to higher throughput and sustainable operations, both in the medium as well as the long term. Further, facilitating trade by easing rules in certain areas would lead to higher economic activities.

[2]COMAC Market Forecasts 2020-2039

DEREGULATION

1. Take measures towards building resilient supply chains

Context

The Covid-19 pandemic made us realise the frailty of our supply chain networks. In no time, a significantly large proportion of the supply chain networks were snapped, and production processes were brought to a near halt. While the worst is certainly behind us, going ahead, it will be critical to strengthen our supply chains and make these more resilient even as we adjust to a new normal. Further, growing uncertainties in the global environment are also expected to keep supply chain networks under pressure in the times to come.

The post pandemic supply chain networks are being defined by new trends such as greater flexibility, redundancy, exponential growth of the e-commerce sector, enhanced digitisation levels, etc. Even as companies in our respective countries adapt to these new realities, it is critical that BRICS as a group remains committed to collaborating at business & government level towards strengthening our supply chain networks. In this context, the following points may be noted -

- The future has become highly uncertain. Amidst such an environment, clouded by vulnerabilities, it is important that we have robust supply chain networks for critical goods (like medical supplies, vaccines, life-saving pharmaceuticals, related technology, food & food products, etc.) amongst our countries. BRICS nations should strive to build an understanding on unhindered trade in supplies of 'essential items' in times of uncertainty. BRICS nations must engage with each other to develop a common understanding of what constitutes essential items and explore creation of a common list that should have their trade simplified.
- The supply chains are becoming increasingly data centric. The traditional physical supply chains are being supplemented by the digital supply chains, enabling real time planning and thus greater flexibility. Data has become a critical input in global supply chains and it is critical that issues pertaining to cyber threats are addressed in a collaborative manner by the BRICS nations.
- In the context of supply chains, the concept of a 'GVC Passport' is being explored by some international institutions. The GVC Passport will be a one stop solution providing accreditation by appointed authorities for various financial compliances/requirements across the entire global value chain. This will limit the documentation and re-certifications required for the same financial requirement at multiple locations, and ensure greater efficiency/speed across the entire value chain and benefit all players, including paving the road to enhancing SME participation with local and national authorities, banks, etc. BRICS countries can work together to explore the concept of GVC passport to the extent it can be applied within BRICS value chains in greater detail.
- Even as digitisation takes a center stage, strengthening our transport networks / logistics and addressing the challenges of border agencies on a continuous basis will remain imperative to have seamless supply networks in place. Reduction in formalities and documentation requirements, better alignment of fees and charges imposed, simplification of goods declaration procedures, etc can be some steps going forward. BRICS nations should continue the endeavour to exchange information about their good practices implementing the WTO Trade Facilitation Agreement.
- For supply chains to work effectively, availability of information is vital. Sharing information amongst BRICS countries on a regular basis on aspects such as any changes in trade procedures or any emergency measures / restrictions imposed is important.

Benefit

The global supply chains are no longer straight forward or linear. The level of integration in manufacturing and between countries today represents a very closely knit mesh. Taking steps together to strengthen the trade networks and supply chains and making them more robust will help BRICS countries to better handle any difficult situation that may arise in the future. It will also build mutual trust and benefit trade flows by bringing in greater certainty.

2. Promote the role of digital economy tools to support intra-BRICS trade

Context

The exponential increase in digitisation witnessed due to the Covid-19 pandemic has made it more vital for BRICS countries to deepen engagement in this area. Trade facilitation remains at the core of enhancing business ties amongst BRICS countries and digital economy tools can support seamless intra-BRICS trade.

Digitisation has the potential to widen the ambit of opportunities for trade and enable greater inclusivity by making it easier for smaller enterprises to be a part of the trading ecosystem. However, it is equally important to acknowledge that unprecedented growth in digital technologies can create challenges that must be addressed. It is also important to take steps to bridge the digital divide within and between countries and focus efforts on capacity building particularly for MSMEs for adopting new technologies and integration into the digital eco-system.

Towards leveraging digital economy tools for promoting trade, the following areas should be further examined by the BRICS countries.

- Paperless trading - Decreasing the use of paper and enhancing adoption of digital documentation to the extent possible and in a phased manner.
- Electronic authentication - Use of signatures in electronic formats to be promoted by national regulating bodies.
- Digitising trade finance - This can enable reduction in costs, streamline processes and improve transparency.
- Consumer protection - Experience sharing in the field of consumer protection in e-commerce and building consumer trust in online commerce.
- Knowledge sharing - Mapping and sharing information on new and emerging technologies and best regulatory practices for trade.

Benefit

Trade has been an important driver of global economy and a turnaround in trade will be critical to ensure sustainable recovery in the post covid phase. Leveraging digital economy tools to promote trade, taking steps to reduce the digital divide and focusing on capacity building of MSMEs to partake in the digital eco-system will give impetus to growth and ensure greater inclusiveness.

3. Engage in global discourse on promoting people's mobility to ensure evolving mechanisms are not discriminatory towards developing countries

Context

Facilitating mobility of people has been an important agenda for the BRICS Business Council. This issue has gained even more importance in light of the Covid-19 pandemic. It has been over one year since

the Covid-19 pandemic hit the global economy. Our countries are gradually returning towards normalcy albeit at different speeds. However, the health threat is not fully mitigated. Amidst this situation, physical mobility of people especially across borders continues to remain impacted. Nonetheless, with the vaccination drive gradually progressing, travel activity is seeing some improvement.

In different regions and countries, we are seeing discussions on Vaccine Passports in context of travel. As these discussions progress, it is important that BRICS countries engage in these discussions and ensure that any frameworks being developed are all-inclusive and a non-discriminatory approach is adopted with regard to the same. Factors such as different pace of vaccination in different countries, evolving studies on efficacies, lack of equal access to vaccines, both in terms of availability and affordability, especially in developing countries, should be duly accounted for so that any proposed solution is not discriminatory and disadvantageous to developing countries. Any discussion on the movement of people should happen under the guidance of WHO and all vaccines that have been approved and are aligned with the WHO requirements must be given consideration.

BRICS nations should continue to hold consultations to facilitate and promote safe travel and offer people travelling across countries clear information on testing requirements and other measures they need to adhere to for travel. Our five countries should consider evolving a set of protocols to validate and authenticate passenger travel requirements.

Benefit

Ease of travel for people from developing countries including BRICS.

4. Strengthen Micro, Small and Medium Enterprises for overall development

Context

Micro, Small and Medium Enterprises (MSMEs) have been a critical driver of growth in our nations and have been an important contributor towards alleviation of poverty and overall development. As per estimates, the MSME sector accounts for between over 20% (Russia) to 60% (China) of GDP and generates significant direct/indirect employment in our countries.

However, Micro, Small and Medium Enterprises (MSMEs) are largely informal, and a large proportion of workers employed by MSMEs come from the vulnerable segments of the labour force. The impact of Covid-19 has been particularly grave on these enterprises. Nonetheless, our nations were swift to respond, and a slew of monetary and fiscal measures were announced offering support to these enterprises.

Governments and central banks of the BRICS economies announced emergency relief packages and adopted measures including deferral of taxes, liquidity injection and emergency credit support (especially to SMEs), loan moratoriums, employee wage subsidies for SMEs, waiving/ reduction of administrative fees, upgrading government digital services, etc. These measures cushioned SMEs to some extent. However, an important lesson for us has been to further strengthen these enterprises and cushion them from such crisis events in future. In this context, BRICS nations can work together in the following areas -

- A positive fall out of the Covid-19 pandemic has been the huge wave of digitisation that we are witnessing. This provides a big opportunity to bring a greater number of small enterprises under the ambit of the formal sector. In fact, the past year witnessed significant digital on-boarding of SMEs. Experience sharing on promoting formalisation of SMEs can be extremely useful for our countries.

- Supporting greater representation of small and medium enterprises in international trade through targeted trade facilitation measures for these enterprises. Unfamiliar and burdensome procedures at customs remain a dampener for smaller firms and they often have difficulty recognising regulatory changes. Also, knowledge of quality standards is critical for SMEs. In order to achieve greater engagement of SMEs, programs which would enable these firms to better understand the significance and adherence to standards could be developed. Experience sharing on such capacity building initiatives for SMEs will be useful and will help aid expansion of trade for these enterprises.
- The landscape for SME lending is fast changing and fintech firms are emerging as a great source of formal lending for small enterprises. SMEs can derive tremendous benefit from fintech applications in lending, trade finance and payment systems.

Benefit

SMEs constitute a critical part of our economies. A more targeted approach towards facilitating business and trade among SMEs will lead to significant empowerment of these enterprises.

5. Establish Mutual Recognition Agreements (MRA) on Authorized Economic Operator (AEO) Programs

Context

Individual BRICS countries may voluntarily seek to facilitate cross-border trade through MRAs for their AEO programs, on a bilateral basis. This procedure will substantially ease customs bureaucracy and reduce time and costs in their exchange of goods, contributing to the increase of trade flows within the BRICS group.

AEO schemes provide advantages to companies of all sizes and sectors that comply with specific criteria. As a result, exporters benefit from reduced inspections of goods and less clearance time at their borders. At the same time, customs security is enhanced. As AEO schemes increase administrative efficiency within customs administration, they allow for improved resource allocation, particularly towards inspections involving unknown high-risk cargo.

The World Trade Organization (WTO) Trade Facilitation Agreement (TFA) sets forth that in order to enhance the trade facilitation measures provided to authorized operators, members should afford to other members the possibility of negotiating mutual recognition of authorized operator schemes (Article 7.5).

A starting point for this objective could be the adoption of an Action Plan by individual BRICS countries to enter into Mutual Recognition Agreements (MRAs) between their AEO programs on a voluntary and bilateral basis.

Benefit

Customs bureaucracy simplification, time and costs reduction in the exchange of goods between BRICS countries, and customs security enhancement.

DIGITAL ECONOMY

1. Promote digital governance through sharing of experiences & best practices, and collaboration for development & adoption of AI for efficient governance

Context

Digital technology has made strong inroads in every sphere of our lives. The pandemic has further accentuated the importance and relevance of digital technology manifolds. The role of e-Governance has assumed great importance as governments across countries attempt to collect and exchange information and provide critical public services to the citizens and business using the digital mode.

Digital Governance enables Governments to provide services in an efficient, cost-effective, and convenient manner while making the administrative processes more transparent, accountable, and responsible. It provides a platform to integrate solutions and services between government to citizens, government to business and government to government, and creates an environment for promoting economic development by providing the opportunity to all stakeholders to contribute effectively towards the administrative decision-making process.

Digital Governance is becoming an integral part of every nation. Significant progress has already been made by the BRICS countries to expedite promotion of digital governance in the region.

Actions planned are:

- Exchange information and best practices in "new product & service development" through sharing of publications, policies and organising workshops/seminars.
- Exchange information on best practices in "open data public policies", with guiding principles: (i) data sharing at all levels of government; (ii) data interoperability; (iii) data sharing with the private sector for the development of innovations; (iv) machine-readable format; and (v) adoption and use of artificial intelligence systems to provide public services.
- Promote institutional co-operation among academic and training institutions for capacity building in the sphere of e-governance.
- Showcase case studies of how private sector players are collaborating with different arms of the government to deliver services effectively to the people.
- Collaborate on strategies for the promotion, development, and adoption of AI systems in the public agencies and private sector.

Benefit

Improving inclusion and access, effectiveness and efficiency, accountability and transparency of public institutions and making overall administrative process people-friendly.

2. Strengthen digital infrastructure and enhance co-operation to promote new technologies and widen access to digital products and services

Context

The world today is witnessing a digital revolution, an unprecedented change that is accelerating and exponentially impacting economies and lives of people, through adoption of emerging technology

breakthroughs in the fields of 4G & 5G, artificial intelligence, robotics, Internet of Things, 3-D printing, Augmented & Virtual Reality, nanotechnology, biotechnology, quantum computing, etc. These technologies hold the potential to raise global income levels and improve the quality of life for populations around the world. And for such technologies to function and proliferate, a strong underpin backbone of digital infrastructure is required, including Broadband, Cloud Computing, and wireless connectivity. BRICS members are at a different level of advancement in digital infrastructure, thereby at varying degree of unlocking potential of emerging technologies.

In the path towards the development of Digital Infrastructure, there are some identified challenges to overcome. Most BRICS countries have made progress in widening access to digital technologies, but further efforts and financing are required to fill in the remaining gaps on the digital map and to upgrade the infrastructure. Simultaneously, personal data privacy and security of business and state information from cyber threats need to be prioritised. The transboundary nature of the virtual world and cybersecurity challenges needs effective international cooperation.

Focus areas proposed are:

- Enhance international coordination within BRICS nations and other International Organisations in promoting new technologies, standardisation, and global spectrum harmonisation in tune with market ecosystem requirement for ICT products and services.
- Enhance intra-BRICS dialogue on important issues of ICTs including Data Governance, Critical Infrastructure, and Internet Governance.
- BRICS joint representation and active participation in international forums based on open discussion and exchange of views to develop common and /or coordinated positions and approaches.
- Promote public-private partnerships in infrastructure projects implementation and investments.

Benefit

Ubiquitous access of digital infrastructure to entire population for spread of digital economy, technologies, and services.

3. Promote digitisation of healthcare through exchange programs on developments in health-related digital technologies (local and global) among BRICS

Context

Globally there has been significant improvement in health outcomes, however, the healthcare system needs a revamp. The current healthcare system is reactive and not proactive. Research on drugs is a long gestation process, which leads to the development of few new medicines in a long period. Critical surgeries are available only to a few since only select locations have adequate infrastructure and skilled resources. Such shortcomings in the healthcare system can be potentially resolved through digital technologies.

What is needed is a paradigm shift from reactive to proactive Healthcare. Many tech companies within BRICS countries have made significant investments for developing a full range of internal and external sensors that monitor everything from blood sugar to blood chemistry. These developments point towards a future of 'Always on' health monitoring and affordable, easy diagnostics. Making these technologies available across BRICS geographies will transform the nature of healthcare. Surgeries need to be made more accessible and affordable. The arrival of robots is changing the way surgeries

are done. The exchange of such technologies among BRICS member partners will help expedite the adoption and transcend the limitations of distance and borders, making critical healthcare more accessible to all strata of society.

The development of drugs needs to be fast-tracked. The current drug development process which involves multi-stage testing on animals, a small group of humans, and eventually larger groups, seems like a long slow war. The new technique in Artificial Intelligence known as generative adversarial networks or GAN being experimented in the member BRICS nations is promising. A quick exchange of these developments among member BRICS countries can fast forward the adoption of GAN and equivalent technologies and help expedite the discovery of the latest drugs in our fight against the perils of micro-organisms that lead to disease spread. Different nations are in a different stage of healthcare technology development and deployment, and a collaborative approach is required to help transform healthcare for all. The following initiatives are proposed:

- Establish exchange programs among BRICS Nations on integrating developments in health-related digital technologies.
- Develop mechanisms to guide and support the implementation of already matured globally advanced technologies among BRICS member nations.

Benefit

Transformation of healthcare by aiding the improvement of diagnostic processes, treatment protocol, drug development, personalised medicine, and patient monitoring and care through adoption of digital technologies is key to longer and healthier lives of world fellow citizens.

4. Encourage adoption of Smart Manufacturing through exchange of best practices

Context

In this Digital era, the only constant is change, and the pace of change is accelerating. While significant strides have been made in the adoption of high-speed broadband by consumers across nations and societies, there is still immense potential in unlocking value within enterprise. With a digitisation drive, enterprise can fast forward wide-scale industrial automation, thereby improving productivity and efficiency.

Until recently, manufacturing shop floors could be visualised as an array of machines managed and operated by a team of operators and overseen by a supervisor. The processes needed a high degree of manual intervention and collaboration across teams and departments. Even if some processes did have a certain degree of automation, related data rarely flowed beyond a close-knit group as functions continued to work in silos. Also, very little was done on improving machine upkeep by using historical data for Predictive Anomaly identification. Making frequent changes in the production line was also seen as adding a dimension of complexity to the problem.

The era of "Smart Manufacturing" is bringing together 3 key technology megatrends - connectivity, intelligence, and automation. With an array of sensors, "Connected Systems" are enabling us to get real-time feed and co-sharing across multiple systems of organisations. With machines "talking with each other", the output of one system serves as the input for others across the chain. Data can now be gathered in real-time and used intelligently to make quick and coherent decision making. Historical data is now being used to automate a plethora of activities - predicting demand, managing supply chain & logistics, anomaly identification and many more. Digital led automation is making plants more agile and flexible. Complete visibility of processes is helping in the tracking of raw materials, intermediate and finished goods. Quick changes in the production line with adaptive scheduling and

changeovers are being done with relative ease. Automation is helping in optimising the use of raw materials and helping improve asset uptime thereby improving profitability. Multiple industries adopting smart manufacturing include automobile, energy, engineering, mining, agriculture, transportation, retail & e-commerce, etc.

Benefit

Various industries within the manufacturing sector are in different phases of adopting smart manufacturing. A collaborative approach of sharing experiences of smart manufacturing adoption within multiple sectors can benefit the critical industries in each of the BRICS nations.

5. Facilitate exchange of best practices, sharing of experiences, and collaboration on Digital Skills Programme

Context

With the advent of the Fourth Industrial Revolution (4IR), higher use of technologies such as hybrid cloud, blockchain, edge computing, automation & IoT, Data and AI, robotics, 3D printing, etc. across multiple sectors requires large, medium, and small enterprises to augment and upgrade the digital skills of their entire workforce.

It is forecasted that automation will displace 15% of jobs by 2030. The good news is that a study by McKinsey found that higher penetration of the internet created 2.6 new jobs for each one that is extinguished. Successful digitalisation of the economy requires large scale skills upgradation and technology adoption by the entire population with the involvement of government, enterprises, and citizens at large.

The progression of the skills requires work including:

- **Basic and Intermediate Digital skills at a foundational phase** - The design of the content for the Gen Z & Alpha population must be dynamic to allow alignment with market demand.
- **Advanced Digital Skills for Gen X & Y** - necessary to ignite and fuel convergence of exponential technologies.
- **Training Infrastructure and Connectivity** - to enable learning and adoption at scale. Infrastructure must be reliable, cost-effective, secure, and sustainable.
- **Research and Innovation** - specialist workforce needs to be equipped with the latest digital skills - key to research and innovation.
- **Inclusivity to bridge the digital skills divide** - upskilling and reskilling both urban and rural men and women across all demographics is integral to inclusive and all-around economic development.

BRICS nations must collaborate and share learnings in their drive for the inclusive digital literacy program. Members are encouraged to identify their specific core technological competencies and then partner for cross-fertilisation of skills and imparting specific education.

Benefit

Quality mass digital skills enablement creates the platform for broad participation capturing the burgeoning employment needs, develops agility within the workforce, and leads to a sustainable society and a progressive economy.

6. Promote development of local e-commerce platforms and facilitate integration of MSMEs for exploring new markets

Context

E-commerce, which includes electronic trading of products and services, electronic payment systems, Internet banking, etc., plays a crucial role in the economy of a country. In today's digital world, e-commerce is playing an increasingly important role in the growth of trade, expansion of sales channels, and creation of a new category of jobs. It is enabling small scale players and MSMEs to expand their business and reach different parts of the regions simultaneously. With the increasing penetration rate of mobile internet, the adoption of e-commerce in all BRICS economies has accelerated exponentially.

Collaboration and investment in e-commerce sectors within BRICS nations can provide new exciting economic opportunities. The advantages of such collaborative efforts will assist in expansion of volume of trade - domestic and exports, development of newer markets for SMEs, and employment generation.

Currently, the e-commerce sector, especially SME trade partners face multiple risks to expand their businesses beyond border due to, limited knowledge of - individual nation's regulations, policies and tax regimes, and end-to-end supply chain practices, etc.

BRICS Business Council's Digital Economy Working Group can act as a forum to pave the way for higher cross-border digital trade and mutual investment. The forum also envisages becoming an important repository on individual members' - e-commerce policies, regulations, tax regimes, logistics, customs practices, and payment mechanisms, etc. Members will be encouraged to exchange learnings & best practices of existing local and international e-commerce platforms.

The following actions are proposed:

- Focus on the development of local e-commerce platforms to ensure safe and stable national e-commerce infrastructure.
- Promote SMEs development and boost their export potential via e-commerce channels.
- Work towards a user-friendly interface of e-commerce platforms to increase confidence of the BRICS market participants.
- Strengthen cooperation in the field of technologies exchange through e-commerce channels and also provide access to available technologies for SMEs.

Benefit

Increase SME participation in the global market, boost cross border trade and payments, and improve the e-commerce ecosystem.

ENERGY AND GREEN ECONOMY

1. Establish NDB-CEF (New Development Bank-Clean Energy Fund)

Context

Access to finance is a critical subject for all BRICS economies for promoting sustainable energy and green economy. The ambitious Nationally Determined Contributions (NDCs) of the BRICS nations coupled with significant growth in energy demand call for adopting cleaner and greener development path. This brings along a need for development of transformative and innovative funding mechanisms, which encourages and nurtures innovation in "green businesses" in the BRICS nations.

The Working Group on Energy and Green Economy with its focus on low carbon technologies has always laid impetus on sustainability and inclusiveness. Climate Finance assumes greater significance in terms of the green agenda for all BRICS economies and hence stems the need for active co-operation with NDB. To catalyse the progress on past and current recommendations of the Working Group on Energy and Green Economy, a concept note has been prepared on establishment of a "Clean Energy Fund" under the aegis of the New Development Bank, to be taken up with NDB at the level of BRICS Business Council and in consultation with the Financial Experts Panel of the Financial Services Working Group. A detailed proposal entailing the need for and importance of having the 'Clean Energy Fund' as well as broad suggestions on the size, structure and scope of the Clean Energy Fund is enclosed as an annexure to this report.

Benefit

To develop transformative and innovative funding mechanisms and promote access to finance for sustainable energy and green economy initiatives in the BRICS nations.

Note: This proposal is subject to further discussions with the NDB.

2. Encourage carbon emission related information disclosure

Context

Climate change is a reality. Rapid increase of CO2 in the atmosphere has accelerated the rate at which the average global temperature is increasing. The Paris Agreement has set a goal of limiting temperature rise to below 2 degrees Celsius from pre-industrial levels and aspirational target of below 1.5 degrees before end of the century.

Reports indicate that energy consumption by various sectors of the economy contributes to more than 74% of the emissions. A transformation in the energy ecosystem will help achieve the goals of the Paris Agreement. To enable this transition, it is crucial that organisations account for their emissions and make it a part of their disclosures.

The benefits of disclosures are many. Organisations will be able to plan ways in which they can reduce their carbon footprint. Experience shows that reducing carbon footprint leads to lower energy costs and creates a virtuous cycle. Many low carbon technology options are available for adoption now. To make the next step towards low carbon economy and have a better understanding of carbon footprint of primary and other products, businesses can consider disclosing carbon content in appropriate ways, such as commodity exchanges and other trading platforms. This market mechanism would contribute to greater carbon transparency throughout the production chain without burdensome government regulation, excessive reporting or subsidies. Initially this information can be displayed by suppliers on a voluntary basis, however, those who will do it will get market advantages as a low carbon footprint stamp will draw positive attention. This can lead to creation of a low-carbon asset class index at trade

exchanges. For consumers, it will provide an opportunity to make an educated choice whether to pick a standard product or the one with a lower carbon footprint. Transparent disclosures will enable creation of incentives and disincentives for organisations to adopt low carbon alternatives, leading to a systemic reduction of emissions. It will create an innovation ecosystem for the development of solutions that have low carbon footprint. Disclosures will help in identifying the extent of carbon removals that will need to be done to become carbon neutral.

Given the current state of technology, some sectors will be able to decarbonise faster than others (hard-to-abate sectors). Transparent disclosures and resultant market mechanisms (such as the Perform-Achieve-Trade or PAT Scheme in India, Emission Trading Scheme, etc.) will encourage greater action in industries where it is possible to reduce emissions faster and cover for the industries where emission abatement is considerably more difficult to envisage. It will also signal the areas where investments will be required to enable the development of future-ready low carbon solutions.

Awareness about climate change is increasing. Investors are keen to see if businesses are taking cognisance of climate related risks and some lenders have started rewarding climate action taken by companies with a reduced rate of lending. Transparent disclosures have already started attracting investments and pro-active climate action can be expected to reduce risk, bring financial rewards, enhance competitiveness, and build business resilience. It will certainly keep organisations ahead of carbon related regulations and build brand equity. As consumer preferences evolve towards climate friendly alternatives, companies that are ahead of the curve will gain market share.

The impact of disclosures will increase if the supply chain, including MSMEs, are engaged in the process in a manner that allows disclosure without a heavy reporting burden. While on one hand, disclosures will help in enhancing market competitiveness, access to markets and access to finance, however, it should not be used as tool for restriction for international trade. BRICS nations must take a united approach at UNFCCC and its Paris Agreement within the principle of common but differentiated responsibilities and respective capabilities. Preparedness for carbon disclosures will be important for industry, especially MSMEs that would require a hand holding for the disclosure process. The disclosure ecosystem has many frameworks. The pioneering framework has been from the Global Reporting Initiative. Most frameworks are derived from the GRI framework, which is now referred to as GRI Standards. The idea of climate scenarios is a part of the TCFD guidelines. Organisations can do comprehensive disclosures using frameworks such as these or use any frameworks developed by national regulatory authorities. There are reporting requirements such as the Business Responsibility and Sustainability Report (BRSR) mandated by the Securities and Exchange Board of India (SEBI), India's capital market regulator, that require disclosures on sustainability aspects including carbon footprint. In South Africa, the Johannesburg Stock Exchange has reporting through the FTSE/JSE Responsible Investment Index. In Brazil, B3 has ISE (Corporate Sustainability Index) that supports disclosure and reporting. For implementation on the TCFD for the associated banks, FEBRABAN in 2019 developed a tool to help them to compare available disclosure tools in the market, including carbon. Recently, they have also launched a "Measurement Guide of GHG Emissions in the Banking Sector" to support the reporting on carbon emission.

Carbon disclosure should form a part of project evaluation. It is important that all large projects especially the infrastructure projects should not be purely evaluated in terms of their economic benefits. Due consideration should be given to socio-economic and ecological evaluation. The ecological evaluation should factor in reduction in the carbon footprint in construction as well as operational phases, over the life cycle of the project.

The Covid-19, within an active global discussion on climate change, has become a catalyst for thoughts and conversations about a possible revision of the national existing standards for critically important infrastructure and preventive measures aimed at counteracting natural climate

phenomena. In this regard, it is extremely important to increase information and experience sharing/ exchange of best practices, build up and strengthen co-operation on a multilateral basis, which allows to form a professional expert base, replicate and scale up best practices, comprehensively assess climate risks and compare the results achieved.

Benefit

Disclosures as a facilitating tool for market competitiveness, access to markets and access to finance.

3. Promote development of 'green certificate' mechanism

Context

An important element in the success of emission reduction is the creation of a mechanism to measure specific emissions mitigation options, some of which could be:

- a greater use of renewable energy or
- replacement of fossil fuel with sustainable fuels in transportation (fuel shift)
- shifting from one mode of transportation that generated more emissions to another mode of transportation with lower emissions (modal shift)
- Increasing forest cover to create carbon sinks
- Using treated wastewater instead of raw water
- Using solar powered pumps in agricultural farms in place of diesel run pumps

This requires the ability to measure how much of a benefit certain actions have provided, as well as the financial benefits of taking such actions.

To appropriately measure the impact of actions taken towards mitigation of GHG emissions, each of these require to be measured against a baseline. This baseline will vary depending on the level of development of different sectors within a country. Given this, a consensus needs to be arrived at, for creation of a green certification, which should target a broad consensus rather than a perfect alignment between all countries since the baselines will depend on national and local circumstances. An example of a certification mechanism is in the case of the built environment, for example, the green building certification such as GBCI/ LEED or GRIHA and IGBC in India. A good example of baseline setting is the experience of baseline development under India's Perform-Achieve-Trade (PAT) scheme for reduction in specific energy consumption across 12 designated sectors, where unit level baselines have been developed in each sector. In South Africa, the proposed approach is that of carbon budgets and sectoral emissions targets (SETS). The Carbon Budgets will be set at a company-level and limit the emissions over rolling 5-year periods based on mitigation potential and best practice. The SETS are aimed at policies and measures implemented by the state which will contribute to emissions reductions, for example the electricity planning process.

Once a baseline is created, an attempt needs to be made to arrive at a measure of GHG mitigation. The entities that would use the baseline to measure their impact would be:

- Companies that produce renewable energy, sustainable fuels
- Industries consuming renewable energy, sustainable fuels, or deploying process modifications to reduce greenhouse gases
- Banks which are lending to companies and require a measurement of the impact of their lending
- Equity investors in the public or private markets whose investment need to be measured against potential GHG emissions.
- Third parties such as ESG Advisors/Industry bodies /consultants, etc.

It is suggested that a group be created, across the BRICS countries, which can arrive at such a consensus on performance metrics and methodologies for measuring net GHG emissions or mitigation, leading to assistance in valuing Green Certificates, for example -

- The creation of acceptable baselines will enable a measure of savings in MT CO2, and other similar non - financial metrics. One example could be the Perform, Achieve and Trade scheme of the Government of India where energy savings certificates have been issued against over $1 billion per year. These could be converted into financial metrics that companies and investors can understand. In assessing the value of the certificate, we will again face two situations. There will be some jurisdictions or industries where it is easy to attribute value to these savings. There might be caps on emissions, etc. and therefore penalties for breach of incentives for adherence, which then allows for some form of value attribution.
- In other situations, this value will evolve over time and based on market forces. This will depend on the additional value to companies or investors over time. The working group can add value by accelerating this process by reaching out to experts/academics and others to assess what the real value of green behaviours is (for e.g., Professor George Serafeim at Harvard Business School has measured changes in public company multiples when companies indulge in these actions). The Committee can attempt to measure the value of such certificates, pertinent to individual economies of BRICS nations and suggest that these inputs be factored in the incentive, subsidy, or penalty systems that are being implemented as policy intervention.

A common understanding of the value of each green certificate, when circulated across different stakeholders would help drive the right sustainable behaviours across the financial and regulatory ecosystem. As with defining the baseline green standards, such valuations will be inexact. However, the BRICS group will contribute meaningfully if it can agree on broad guidelines on how these could be valued, perhaps with a set of examples across countries.

In this manner, if the BRICS group were able to arrive at defining how the green certificate is created and defining how it could be valued, it will have taken a useful step forward towards development of 'green certificate' mechanism across BRICS countries to encourage production and use of clean energy, including hydro, solar, wind, as well as biogas, biomass energy, and energy efficiency, to possibly emerge with an intra-BRICS green certificate trading mechanism and/or implement cross-border recognition of green certificates within BRICS countries. The use of off-set mechanisms and other policy instruments also needs to be considered.

Benefit

Promotion of the principles of 'Green economy'.

4. Enhance co-operation in peaceful use of nuclear energy

Context

Small Modular Reactors (SMR)-based power plants as part of future energy industry

Reduction of the environmental footprint (including CO2 emissions) and the use of renewable energy to achieve the sustainability goals are the main challenges that shape the technological development in the energy industry.

Nuclear energy is the one of only a few technologies available today for the production of electricity without CO2 emissions in base-load operation; therefore, it may play a key role in structural transformation of the electric power industry. The present-day nuclear energy industry that uses commercially available reactor technologies can achieve that by addressing the main constraints, i.e. those of safety (which makes the nuclear power plants less competitive though) and partial treatment of spent nuclear fuel (SNF), at the same time lifting the fuel supply limitations, which would ensure the

industry's long-term development. The nuclear energy industry should have a structure ensuring enough flexibility to efficiently integrate into the future energy system to be largely based on renewable sources and, therefore, to have a large share of distributed and intermittent generation (with daily, seasonal, etc. capacity fluctuations).

Small modular reactors (SMR) (up to 300 MWe in the IAEA classification) are expected to have the potential to eliminate both the constraints of safety (by small size, integral equipment layout, lower reactivity reserve, virtually no accumulated internal energy of the 1st circuit heat carrier) and efficiency (serial production of reactor components, shorter periods of nuclear power plant construction, lower absolute capex), and those of SNF treatment (using the closed fuel cycle including SNF disposal, fuel self-sufficiency) and the fuel supply limitations (using fast-neutron reactors and the closed nuclear fuel cycle). The next-gen (fourth generation) small modular reactors (that meet the requirements issued by the Generation International Forum (GIF)) make the fullest use of the said potential.

The greatest benefits of small module reactors power plants (SMR NPPs) are their deployment flexibility, variable load modes and their multiple uses. SMR NPPs can be located in close proximity to consumers (which reduces the costs of transmission and distribution) thanks to their high safety performance. The variable load capabilities of SMR NPPs can be used to build sustainable distributed power generation/transmission systems using renewable energy sources with zero CO2 emissions (the share of distributed generation may reach double-digit percentage levels by 2050). The economic efficiency of variable-load solutions (operating in the load tracking mode and/or coupled with RES-based intermittent generation) may have a high ESSPUC (over 90%) through the substitutive delivery of thermal power, cold, fresh water and hydrogen instead of electric energy.

The SMR NPP market is expected to reach 100-150 GWe ($500-600 billion) globally by 2050 with BRICS nations (mainly, China, Brazil, South Africa, India) potentially claiming up to the half of the entire market. Onshore SMR NPPs are yet to be launched, though Russia launched a floating nuclear thermal power plant in the Pevek seaport (FNCHP Lomonosov) in 2019. The available SMR designs for onshore NPPs tentatively rate as 3rd generation designs (based on the commercially available pressurized water reactor technologies) and 4th generation designs (innovative reactors that are safer, more feasible and have a better availability of fuel compared to the 3rd gen reactors).

The leaders among the 3rd gen SMRs (most advanced ones, with marketable units to be available by 2025-2030) include RU RITM-200 (Russia); CAREM-25 (Argentina); Smart (South Korea); ACP-100 (China); and NuScale (USA). The leaders among the 4th gen SMRs are HTR-PM (China) and SVBR-100 (Russia).

Within the BRICS context, the Nuclear Club nations may act as suppliers of nuclear fuel cycle products/services (uranium mining, enrichment services, fuel element/assembly manufacturing) and SNF treatment services (SNF storage and recycling). The said nations already have national projects for reactor technology development. Brazil and South Africa, on the other hand, may be considered in reaching the Latin American and African markets as co-operation partners for localisation of the reactor and NPP equipment manufacturing.

Benefit

Maintaining BRICS' leading positions in the nuclear sector.

5. Enhance co-operation on Anti-COVID-19 joint measures, using energy as a key sector for economic recovery

- Study the impact of COVID-19 on energy, economy and other related sectors
- Based on this data, arrive at specific policy recommendations for BRICS intergovernmental co-operation, using energy as one of the key sectors to contribute to economic recovery.

Benefit

Preparing for the COVID-19 consequences.

6. Share experiences and best practices and promote collaboration on DDD (Decentralised, Decarbonised, Digitised) Energy solutions for urban and rural areas

Context

DDD energy solutions play a crucial role in enhancing clean energy access & inclusive economic growth, within transitioning economies. This is achieved through creating linkages amongst various renewable energy sources, variable and dispatchable, as well as storage options, to ensure affordable and clean energy supplies, as per consumer needs, encompassing electricity, clean cooking and mobility.

Distributed Solar PV energy systems offer a range of wide, flexible, cost-effective, and easy to install and operate solutions. They are suitable for all surroundings:

- Rooftops/premises of urban set-ups, including homes, commercial buildings, schools, etc.
- Factories and industrial buildings
- Rural and remote locations that are not connected to grid electricity
- Farms and agriculture - solar pumps are becoming increasingly popular for irrigation
- Water bodies - floating solar is being set up on reservoir, lagoons, etc.

There are certain inherent advantages for setting up distributed solar systems as compared to utility scale solar farms. Some of these include:

- There is no requirement for large land banks that may have alternate use like agriculture. Distributed solar plants are commonly set up on the roofs of existing buildings. This also means better protection of ecologically sensitive areas, where wind/solar farms and the transmission networks may endanger wildlife.
- There is no requirement for setting up long range transmission and distribution networks. On-grid systems are connected to existing supply lines. For off-grid systems, low-cost localised distribution networks can be set up.
- As the solar electricity is consumed either at or near the source of generation, there are hardly any transmission losses, so it is very efficient.
- There are no minimum size limitations - it is possible to use even a single module. Existing solar plant capacity can be increased if future energy need is higher.
- The solar PV system integrates seamlessly with other sources of electricity generation - grid supply, diesel/gas generators, etc.
- The energy can be stored easily using various battery storage technologies.

Solar water pumps, unlike those connected to carbon intensive grids or diesel engines have been found to economically reduce GHG emissions, while ensuring reliable water supply systems for irrigation as well as potable water. These pumps are a sustainable solution and have improved quality of lives of women, especially in Sub-Saharan Africa. They offer an ideal alternative to diesel engine driven pumps, with payback period of 3-4 years. For boosting the use of solar energy for agricultural applications, India's flagship PM-KUSUM Scheme provides significant financial support to farmers, who adopt solar irrigation pumps solutions. The medium-term goal is to add 30.8 gigawatts (GW) of solar capacity, linked to two million off-grid pumps, with a central finance assistance of INR 340 billion.

Microgrids and Mini grids provide a unique opportunity to enable energy access in rural areas where there is no grid, or where the grid is unreliable (intermittency and/or power quality). Being a last mile, distributed generation and supply system, mini grids are the most effective and expedited approach to reaching rural households and businesses with an affordable yet superior service that delivers reliable, good quality power. There is a great scope for sharing, replicating and scaling of successful business models which envisage "renewable energy as a service" across BRICS countries in this space.

Clean Cooking is an important element in sustainable energy basket for BRICS nations, which have large rural populations, often in dispersed areas, which poses challenges for economic and reliable distribution of LPG. There have been many successful programs related to improved Biomass Cook Stoves, which significantly reduce particulate emissions while continuing to fire traditional biomass. There have also been developments in improved technology, modular Biogas Plants, with feedstock of food waste or manure, as well as in developing radiant heat platforms which offset the issues linked with firing (lower heating value) biogas in blue flame cook stoves. Bio-ethanol and Bio-Methanol canisters-based Cook Stoves have proven to be effective alternative to LPG cook stoves. An interesting, recent, development is in Electric Pressure Cookers and Electric Frying Pans and trials conducted by MECS (Modern Energy Cooking Services) in Kenya has established that these devices can meet 90% of the traditional cooking in rural areas.

In the recent years, advancements in solar module technology and increased volumes of production have led to improved cost competitiveness of solar energy. BRICS member nations, e.g. China, South Africa and India have been actively adding solar capacities at a very rapid pace. This is also emerging in Micro-grids and Biofuels/ Biogas Technologies as well as in EVs. BRICS member countries can share their expertise as well as experiences across all applications of DDD Generation, through constituting a Task Force to focus on the following:

- Differentiate the issues and opportunities for decentralised solutions in urban and rural areas and make recommendations to support both, specifically on how rural areas need to be additionally supported with inter alia local economic development initiatives.
- Identify recommendations around supporting of scalability of this type of infrastructure in terms of both incentives and disincentives.
- Recommendations for localisation opportunities and lessons learnt from policy initiatives in this regard.
- Unpack the linkages between the roll out of decentralised energy infrastructure and other related infrastructure e.g., storage and electric vehicle charging infrastructure.
- Identify how large-scale roll outs of DDD infrastructure can be made climate resilient.
- Identify other co-beneficial opportunities e.g., materials with low carbon footprint.
- Identify opportunities for intra BRICS trading opportunities and how can they be promoted or enabled.
- Develop a set of recommendations and case studies on best practices.
- Encourage NDB and other development finance institutions to look at DDD Generation, not only as a priority sector but as a specific area for funding, with defined allocation.

Benefit

Enhancing clean energy access and inclusive economic growth in the BRICS nations

7. Promote Sustainable Mobility solutions to encourage decarbonisation of transport sector

Context

Global transport sector emissions are currently very high at 7.7 Gt CO2 per year, apart from tailpipe emissions of fossil fuel vehicles, which would increase rapidly, under BAU scenario, with projected doubling of transport sector activity by 2050[3]. Hence, a transformative shift towards decarbonisation of the transport sector is an imperative if commitments under the UNFCCC and its Paris Agreement as well as the UN 2030 Agenda for Sustainable Development (the SDGs) are to be met.

There are many aspects to Sustainable Mobility ranging from the need to establish a Citizens Charter for sustainable mobility, to building infrastructure that focuses on moving goods and people rather than moving vehicles, and to adopting governance structures at the city and state levels that are conducive to transformation of mobility systems. These would encompass:

- Electric Mobility, including RE supplied Charging Infrastructure
- Low Carbon and Green Hydrogen
- Low carbon and advanced biofuels, integrated with Sustainable & Remunerative Farming

Electric Mobility has shown significant growth in the past decade and there are multiple Electric Vehicle (EV) solutions as well as rapid and ongoing evolution in Battery Technologies. The challenges, now, pertain to ensuring widespread availability of charging infrastructure as well as ensuring that they access optimal amount of RE power (rather than drawing power from a carbon intensive grid). BRICS nations can share their expertise and experiences in these areas.

Low Carbon and Green Hydrogen requires a directional focus around adoption of hydrogen and hydrogen carriers, particularly for heavy duty cycle transport. Clearly, one size does not fit all! What works for one region, or one country and one kind of transport demand many not work for another. Hence Green hydrogen and, by extension Green Ammonia/ Green Methanol, needs to be implemented in tandem with other sustainable mobility initiatives.

It is now well recognised by several countries, that the target of Net Zero Emissions cannot be achieved without adoption of Hydrogen technologies as a potential energy source for static as well as mobile applications. By the end of 2020, over 30 countries have released their Hydrogen Road Maps and governments have committed more than 70 billion in over 200 hydrogen related projects. Likewise, all BRICS nations have developed national strategies/ roadmaps for energy transition, in which focus is given to Hydrogen and ethanol Fuel Cells Technologies aiming at generating on-board hydrogen. This could be an important area for intra-BRICS cooperation.

This momentum exists along the entire value chain and is accelerating cost reductions for hydrogen production, transmission, distribution, retail, and end applications. However, unless these projects simultaneously address all the elements of the value chain in each territory or region, many of these projects may not be financially viable. The objective must be driven by the imperatives to deliver a holistic impact on the overall carbon emissions across the entire value creation process rather than to take a regimented and segmented approach.

[3]India Roadmap on Low Carbon and Sustainable Mobility, available at [http://ficci.in/spdocument/23273/India-Roadmap-on-LCSM.pdf]

In the recent past, several projects have been undertaken in the renewable energy space, predicated by the abundance of solar wind resources. Over the years, the cost of production of solar and wind power has seen a dramatic to steady decline. Consequently, certain regions have surplus green power, which could be fed to electrolyser plants for localised production of green hydrogen, which could also be integrated with biomass based green hydrogen production. In fact, it may be economically justifiable to take up small to mid-sized programs for building RE based Hydrogen eco-systems that comprise of electrolyser plants, biomass processing and Steam Methane Reforming leading to production of green hydrogen in quantities that can be utilised locally in farm equipment, medium range trucking, inter-city buses, and other sustainable mobility applications. This approach will obviate the need for investing in compression, storage and transportation costs, which are quite significant due to the very low density of hydrogen. At the same time, such an approach will facilitate grass root innovation and encourage establishment of Zero Emission Regions in a decentralised manner.

Given that BRICS Nations have significant agriculture activity, there is tremendous scope for adoption of low carbon and advanced biofuels for which an enabling ecosystem with clear off-take agreements and financing instruments needs to be created. Measures need to be devised for incentivising advanced biofuels production as well as for purchase of vehicles utilising advanced biofuels. Equally important is the need to improve fuel efficiency of vehicle fleet by introducing labelling/ratings systems and establish minimum standards for particulate and GHG emissions.

The BRICS countries have clear opportunities and competitive advantages to strengthen their Biofuels programmes, with special focus given to ethanol and biogas, and, thus, address major challenges of this 21st century, i.e., climate change, air pollution in large cities and high dependence on imported oil. Transport sector represents 25% of total greenhouse gas (GHG) emissions worldwide and the fleet of passenger cars is expected to double in the next 20 years (up to 2 billion cars). In terms of dependence of imported oil, South Africa, China and India import more than 70% of their current needs.

It is worth mentioning, that almost all of BRICS countries already have ethanol programmes and are very competitive in producing biomass to produce ethanol. Brazil, with almost five decades of experience in the use of ethanol as a large-scale fuel, can contribute to this agenda. Ethanol can sharply reduce the level of particulate matters as well as NOx. The World Bank estimates 200,000 deaths per year caused by health problems due to air pollution (respiratory and heart diseases), with a cost of around US$ 3 trillion. Just as an example, while the car fleet has increased in more than 80% in São Paulo, the largest Brazilian city with more than 20 million people, from time of introduction of ethanol blended fuels, the level of particulate matters was reduced by half. Nowadays, Sao Paulo presents an average level of air pollution below the recommended levels by WHO and ranks as the 879th in the list that compares pollution in cities around the world. When the emissions of GHG in the fuel life cycle are evaluated, ethanol provides a reduction of up to 90% of emissions compared to gasoline. At the time the ethanol program started, Brazil had a dependence of about 80%, like current situation in India (85%), South Africa (90%) and China (75%). Nowadays, due to the ethanol high consumption (substituting almost 50% of the gasoline), it is almost self-sufficient and has avoided the importation of around U$ 50 billion in fossil fuels just in the last 20 years.

The BRICS countries, as the fastest growing major economies in the world, gathers all the requirements to ensure a sustainable energy transition, substituting fossil fuels for renewable and clean energy sources. Therefore, the BRICS countries would have great opportunities to cooperate in the following areas:

- Increased technical, scientific, and economic cooperation among ethanol producing countries in the following areas:
  - Agricultural sector: Technological transfer and adaptation for sugarcane and other feedstock varieties; agricultural management
  - Industrial processing, particularly on 2nd generation ethanol
  - Auto industry, and technological cooperation, such as flex-fuel vehicles, hybrid flex and direct alcohol cell fuels from ethanol

- Knowledge exchange on public policies and sustainable practices (lessons learned)
- Trade and investments in the business and infrastructure
- Cooperation on infrastructure required for not only local use but also exports.

Finally, public transport authorities must ensure more carbon-efficient modes of transport for the city viz. Rail, Metro, Light Rail Transit (LRT), Buses, taxis as well as non-motorised transport while at the same time, discourage fossil fuel driven private transport. Cities need to promote "Intelligent Transport Systems", including optimisation and simulation tools. Policy framework for scrappage of old vehicles and for converting existing Internal Combustion Engine (ICE) Vehicles to EVs needs to be created. Developing uniform charging standards and ensuring that a regular supply of raw materials through trade agreements for indigenous manufacturing of components and sub-systems related to sustainable mobility assets, holds the key to bringing the price down.

Benefit

Enabling a transformative shift towards decarbonisation of the transport sector for meeting the commitments under the UNFCCC and its Paris Agreement as well as the UN 2030 Agenda for Sustainable Development (the SDGs).

8. Strengthen co-operation in research and application of green and low-carbon science and technology, to promote development of low-carbon, zero-carbon and negative-carbon technologies such as energy conservation and carbon reduction, new energy, CCUS (Carbon Capture, Utilization & Storage), and ecosystem carbon sinks

Context

IEA reports show that the cumulative contribution rate of CCUS technology to global carbon emission reduction by 2070 is about 15%. CCUS is the third largest contributor after electrification and renewable energy. The large-scale development of CCUS is essential for achieving large-scale low carbon utilisation of fossil energy and reducing emissions in key industrial areas.

China attaches great importance to the development and application of CCUS technology and continues to explore the optimal path for clean and low-carbon energy transition. China released "China CCUS Technology Development Roadmap" and has continuously updated and improved it. China also established the CCUS Industrial Technology Innovation Strategic Alliance to carry out CCUS technology research and has continuously promoted the CCUS technology demonstration and application. By the end of 2019, China has carried out 9 CO2 capture demonstration projects, 12 geological utilisation and storage projects, including 10 full-process demonstration projects, with a cumulative CO2 storage capacity of nearly 2 million tons. In 2019, the CNPC Xinjiang Oilfield CO2-EOR demonstration project was listed as one of the first five CCUS industry promotion centres in the world by the Oil and Gas Industry Climate Initiative (OGCI).

An example from India is the Indian Oil Corporation Ltd. (India's leading refinery) project to capture more than 5,000 tons per day of CO2 from its Koyali Refinery in Gujarat. The carbon dioxide captured from its hydrogen generation units will be primarily used for enhanced oil recovery at the Oil and Natural Gas Corporation's oilfield at Gandhar, Gujarat. The installation will reportedly be India's largest carbon capture and utilisation project. Another example from India is of one of the leading cement suppliers in India, Dalmia Cement, which has a target of adoption of 0.5 million tons carbon capture and storage, by 2022, linked with adoption of plant matter and Refuse-derived fuel (RDF) for 100% of its fuel needs.

In the context of the global climate change, the development of CCUS technology is facing unprecedented opportunities. However, the scale development of CCUS technology is still facing following challenges:

- The CCUS development is facing a major problem of high carbon cost because the CCUS upper, middle, and lower streams lack the mechanism of optimal resource allocation and coordinated operation, and also because of the spatial mismatch of carbon source and sink. We should strengthen the mechanism for inter-enterprise cooperation in the carbon market, coordinate the optimal allocation of resources throughout the entire industrial chain, to reduce the non-technical cost in CCUS development.
- The future development of CCUS projects will face a huge funding gap, and CCUS financing has the characteristics of large capital demand, long capital chains, long financing periods and high financing risks. We should cooperate with financial institutions such as the New Development Bank, improve market-based incentive mechanisms and related policies and regulations, and develop a green financial system.
- Strengthen key technology research in aspects of carbon capture, separation, transportation, utilisation, storage, and monitoring, promote the reduction of CCUS cost and energy consumption, and improve the adaptability of CCUS technology to the sustainable development goals. This should also be done for Direct Air Capture (DAC) of CO2.
- Strengthen BRICS international cooperation and exchanges, deepen multilateral cooperation mechanisms and knowledge sharing.

Benefit

Achieving large-scale low-carbon utilisation of fossil energy and reducing emissions in key industrial areas.

9. Constitute a Taskforce to enhance BRICS co-operation and knowledge sharing in Water Conservation and Water Treatment for Re-Use

Context

From the sustainability point of view, integration of urban water supply and wastewater management becomes important, with optimal use of digital technology to ensure conservation and minimise leakages. The 2030 Agenda recognises the importance of water resources and their centrality to sustainable development. Sustainable management of water resources and access to safe water and sanitation are important drivers for economic growth and productivity. However, water is becoming increasingly scarce with climate change impacts, an ever-increasing population and rapid urbanisation. Over 2 billion people live in countries experiencing high water stress. All over the world, there is an urgent need to look beyond dwindling traditional sources of water supply and to encourage sustainable as well as dependable sources of water to meet the demands. From the sustainability point of view, integration of urban and industrial water supply and wastewater management becomes important, with optimal use of digital technology to ensure conservation and minimise leakages. Furthermore, there is a need to optimise rainwater harvesting and increase range of products and services that can be availed by private market to invest behind water and waste solutions. Reuse of treated municipal wastewater is one such option which has been established as economically viable and obviously less expensive compared to other options. In South Africa, the use of mine water to supply power stations has resulted in not only the treatment of contaminated water but also a reduction in water abstraction.

Effective utilisation of treated wastewater (TWW) across irrigation, horticulture, firefighting, aquifer recharge, construction or industrial reuse can help effectively prioritise large volumes for freshwater for

potable domestic consumption. It can effectively be inferred from the cost calculation that reuse of treated wastewater is substantially economical than transfer of water from existing resources through a dedicated network. In the event of end user of TWW not being defined, the same can be stored in lakes, ponds or be used for aquifer recharge, which will ultimately supplement the available freshwater sources. The implementing agencies or Urban Local Bodies can earn revenue from the sale of TWW to the Industries or Industrial Clusters existing in the vicinity, thus helping establish a robust revenue generation model whilst ensuring Industrial Water Security, a critical but often undermined issue. Correct design and selection of the right technology represent one of the key success factors in technological sustainability of wastewater recycle and reuse plants.

Another key aspect is that distribution of water resources is, generally, uneven. China's central and western regions are rich in energy resources but extremely short of water. A study finds that the water footprint per unit of wind and solar power is much smaller than that of thermal energy, so power transmission projects could significantly reduce total water consumption by delivering more electricity from wind and solar power. The development of clean energy in water-scarce areas can effectively manage and protect water resources. South Africa is a world leader in dry cooling technologies and closed recirculating cooling systems for power generation, thus reducing water use in a semi-arid country that is a climate hot-spot.

BRICS member countries must establish cooperation in studies, projects and public policies related to increasing efficiency in the monitoring and use of water resources. The purpose is to improve the resilience of water management processes, in the face of the impacts of climate change and potential conflict inherent in the multiple uses of this resource. This could be done through constituting a Task Force to focus on the following:

- Prioritising key priority areas in the energy, water, food nexus in the BRICS context
- Identifying opportunities for integrated management of water and wastewater
- Including water in the context of climate resilience and opportunities for integrated policy and projects
- Embedding Just transition in the pathway to the solutions for addressing water in the context of climate resilience, and water-energy-food nexus and the opportunities for skills development and re-training
- Identifying key technologies e.g., desalination, wastewater treatment, drought resistant crops to reduce water consumption and enhance circularity of water and financing requirements for such technologies and bundled projects
- Sharing case studies and links to other working groups e.g., infrastructure, agriculture, skills, and finance for bundled projects

Benefit

Improving the resilience of water management processes, in the face of the impacts of climate change and potential conflict inherent in the multiple uses of this resource

FINANCIAL SERVICES

Fintech Cooperation amongst BRICS

Financial technology or Fintech is one of the fastest growing areas in the financial services space. Fintech adoption globally has increased significantly over the past few years, enabling financial institutions to broaden the reach and scope of the financial services.

Greater accessibility to financial services has positively impacted goals of financial inclusion and development of MSMEs through higher credit disbursement. The current pandemic has further accentuated the importance of fintech enabled digital financial services manifolds.

BRICS countries have been amongst the leading nations with fintech adoption. In China and India, the adoption rate is 87%, while that in Russia and South Africa is 82%. Brazil has shown significant improvement and has a fintech adoption rate of 64%, matching the world average. The rate of adoption is expected to further increase in the BRICS countries driven by the need for contactless financial solutions, which gained precedence during the pandemic. The potential of Fintech in the post covid world is therefore expected to be much higher than what has been achieved so far.

Under India's Chairship this year, efforts have been made to enhance co-operation amongst the member countries in the area of fintech with the objective of learning and benefiting from each other's experiences, as well as finding ways to create a more conducive environment for fintech companies to thrive in the region. Effective co-operation will help in realising the full potential of fintech towards accomplishing the desired level of outcomes for the BRICS region.

A dedicated task force has been set to pursue discussion on various aspects of fintech and to identify areas of cooperation. The composition of the task force is given in the table below.

Following detailed discussions, members of the task force have made the following three proposals:

1. Promote Central Bank Digital Currency for faster digitisation of financial services and greater financial inclusion
2. Leverage the role of Fintechs in driving access to finance for MSMEs through innovative credit solutions
3. Share learning and experiences with regard to Digital KYC and AML / CFT[4] processes to support innovation while maintaining the highest standards of security

[4]KYC – Know Your Customer; AML – Anti Money Laundering; CFT – Combating the Financing of Terrorism

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1. Promote Central Bank Digital Currency for faster digitisation of financial services and greater financial inclusion

Context

According to the Bank for International Settlements (BIS), by mid-2020, 86% of all central banks that were part of BIS's survey[5] had entered the digital race to research central bank digital currencies (CBDC). Central Bank Digital Currency (CBDC) will be an electronic or virtual form of the central bank's liability running on Distributed Ledger Technology (DLT) or using a form of central register held by the Central Bank. Central bank digital currencies are a digital financial instrument nominated in a national unit of account. The central bank, not private banks, would maintain reserves and liquidity to support such a digital currency in certain forms of CBDC (hybrid and synthetic). Digital currency will not only reduce the currency issuance cost but is also expected to boost digital payments. Among the BRICS countries, China is at the forefront of running end user level pilot programs. The Central Bank of Russia has formed the Digital Ruble concept and intends to create a test platform for the Digital Ruble by the end of 2021. In 2022, the Bank of Russia plans to test the Digital Ruble. Other BRICS member countries are also studying the use and benefits of digital currency in day-to-day life.

Key Principles

Designing a robust and resilient digital currency ecosystem calls for consideration of certain principles that include:

- Accessibility to central bank issued currency
- Ensure convenience in real-time payments
- Improve cross border payments mechanism
- Promote financial inclusion
- Conform to KYC/ AML/ FATF[6] and privacy guidelines
- Reduce transaction costs and time delays for the users

Design of digital currency should further lay out the issuance architecture for digital currency and the role that will be played by each intermediary in the value chain. Some of the areas that are being researched and considered while building a Digital Currency ecosystem include:

- Liquidity management & cash holding
- Monetary policy
- Financial stability
- International monetary policy

Multiple use cases for digital currencies covering financial inclusion & government benefit transfers, retail & wholesale payments, cross border payments, etc. are being explored by various countries. Digital currencies are a digital instrument of intermediating financial services such as those currently served by cash in circulation. Wider adoption of the digital currency will be a function of easy issuance and usage of a full range of financial services.

[5]https://www.bis.org/publ/bppdf/bispap114.pdf
[6]FATF – Financial Action Task Force

Anti-money Laundering

Current Financial Systems are compliant to Anti-Money Laundering guidelines issued by respective Central Banks and FATF. While the cryptocurrencies have lent themselves to be used for inappropriate purposes, central bank issued digital currencies need to be designed to prevent any such misuse.

The way forward

BRICS countries can share experience and learnings as they move ahead on the road towards promotion of CBDC. The Fintech Taskforce will deliver a white paper on CBDC for the purpose of experience sharing and learnings.

Benefit

Central Bank Digital Currency can help facilitate faster digitisation of financial services, deepen financial inclusion, make delivery of government support programs more efficient and help reduce the cost of financial services transactions.

2. Leverage the role of Fintechs in driving access to finance for MSMEs through innovative credit solutions

Context

The Micro, Small and Medium Enterprises (MSME) sector plays a vital role in the global economy. It fosters entrepreneurship, generates large employment opportunities, and plays an important role in the whole ecosystem of the secondary and tertiary sector. According to the UNDP, 90% of business around the world is being carried through MSMEs and they provide 60% of employment and contribute 58% to the gross value add of the global economy. Despite the MSME sector contributing significantly to the economy, the sector is marred with several growth challenges such as lack of knowledge, access to human capital, access to technology, access to markets, as well as other macro-economic challenges specific to nations such as physical infrastructure bottlenecks, absence of formalisation and poor access to credit and risk capital, among others.

Amongst the various challenges faced by MSMEs, accessibility of funds is considered as the most critical hindrance, constraining the progress of MSMEs. This is a common challenge seen across all BRICS countries where credit disbursal to the MSME sector has remained sluggish and in contrast to large corporations, MSMEs fund their working capital and new investments mostly through equity, reserves, and shadow banking channels. Access to finance by MSMEs has further been constrained by the current pandemic with either limited funding from formal banking channels or very high borrowing costs and stringent covenants in other channels, making it non-conducive to business operations.

The International Finance Corporation (IFC) estimates that 65 million firms, or 40% of formal MSMEs in developing countries, have an unmet financing need of USD 5,200 billion every year, which is equivalent to 1.4 times the current level of the global MSME lending.

But over the past few years, the MSME lending landscape has seen a major shift. Increasing digital footprint and online transactions are opening up the market for the alternate credit business models, spearheaded by both Fintechs and incumbent financial institutions. Although relatively nascent, Fintechs are providing a hassle-free, efficient and customised credit products for MSMEs. The use of new-age technologies and digital tools such as AI, machine learning, and data analytics is helping this high-potential, high-value space to grow and drive greater financial inclusion across countries including the BRICS nations.

However, given the scale and diversity of the problem, perhaps no single solution can bridge the gap and create an enabling environment. Therefore, to address the perceptible credit gap, there is a need

to introduce and adopt new financing models and a possible avenue for greater cross-collaboration among BRICS countries. BRICS countries are among the global leaders in the development of complex software and hardware engineering solutions and with their collective efforts, are capable of designing efficient products to address the financing challenge faced by MSMEs.

Digitisation and transformation of the value chain is a key imperative to boost lending and drive financial inclusion. Innovations in processes and products in customer sourcing, on-boarding, engagement, underwriting, disbursals, monitoring and collections calls for data repositories which can be integrated into modular workflows of alternate credit scoring, structuring risks frameworks and early warning systems. Some countries like China and Russia have been at the forefront with a public infrastructure and data sharing protocols to securely leverage customer data from wide ranging ecosystems such as financial institutions, tax authorities, digital spending and social media to build seamless user experience, underwrite and monitor credit. India too has seen a rapid growth of new age digital lending models and concepts like Open Credit Enablement Network are poised to bring up vast opportunities for pushing the lending frontier. Learnings from such cases can be extremely useful especially during the time of pandemic, to identify, reach, underwrite and disburse credit more efficiently to the MSME's who have been hit hard.

Experience from across BRICS nations also shows that financial services need not be the primary motive of an offering to MSMEs, but rather embedded within a larger offering that meets the core needs of the MSME ecosystem.

The way forward

The progress and growth of MSMEs is one of the key development objectives for BRICS nations. The Fintech Taskforce will jointly develop a whitepaper that will examine the following -

- size of the opportunity for MSME lending in BRICS,
- challenges faced by MSMEs in accessing institutional finance,
- enabling factors for credit growth for MSMEs,
- emerging new age Fintech models enabling credit to MSMEs

The whitepaper will also provide recommendations on how credit flow to MSMEs and cross-border facilitation can be improved.

Benefit

Driving access to finance for MSMEs by leveraging the role of fintechs can help accelerate the BRICS development agenda. Sharing ecosystem strategies, standardised templates for data sharing and credit underwriting, risk assessment frameworks, regulations and policy can help further the cause of financial inclusion, sustainable development and poverty reduction in the BRICS nations.

3. Share learning and experiences with regard to Digital KYC and AML / CFT processes to support innovation while maintaining the highest standards of security & compliance

Context

Keeping the global standards on KYC, AML and CFT in perspective, BRICS have implemented their own set of regulations in accordance with the issues/ challenges specific to the respective countries. Together this constitutes a regime for the country which is prescribed by the regulators to keep a check on money laundering and terrorist financing activities in the country.

New age fintech entities are coming up with innovative solutions to offer a multitude of products and services to the customers, specifically to promote financial inclusion in the countries. While the KYC/AML/CFT rules are mostly standard and uniform across the traditional financial institutions, adoption of these rules and practices by the emerging fintech entities demand a differentiated regulatory regime that retains the innovative elements of Fintech while assuring the observance of KYC/AML/CFT norms. This includes the ease of customer onboarding processes in the digital world, while preventing the financial system from exposure to additional money laundering and terrorist financing risks.

BRICS - Fast paced growth and regulatory measures around KYC/AML/CFT

BRICS countries have seen substantial growth in the financial services space in the recent past. The way fintechs have supported new financial technologies can completely change the way the financial system operates, including how companies interact with their customers. This also poses a risk, as new technologies may not be automatically compliant with the extant KYC/AML/CFT regulations.

The way forward

The Fintech Taskforce, through a detailed whitepaper, will explore key learnings from the BRICS nations and examine regulations from the perspective of fintechs that wish to see better technology enablement of KYC / AML, as well as uniformity in regulations across BRICS nations, as they plan forays into newer markets. There is a need to bring balance between product development and security concerns.

Benefit

Given the pace of innovations we are seeing in the fintech space, there is a need for regulations and technical capacities to evolve in a nimble manner and in a way that they can support innovation and ease of doing business, without diluting the need to maintain the highest standards of security.

BRICS SME Cooperation

1. Promote SME Intellectual Property Pledge Financing (IPPF) through harmonisation and adoption of FSWG's IPPF valuation methodology by NDB and State Development Institutions

Context

IP pledge financing is an evolving area in the BRICS region, with each member country having taken several steps towards promoting this mode of financing in their respective countries. A major challenge that hinders the large-scale acceptance of IP backed financing as a major alternative tool among the lenders is the complex valuation process of IP. In the absence of a secondary market for such assets, it is difficult to estimate the value of IP assets accurately. In addition, valuation of SME created IP involves an expert opinion that adds an informal component to the evaluation process.

To promote IP pledge financing in the BRICS region and fully recognise the value of IP assets created by BRICS SMEs, the FSWG proposed to develop a common IP evaluation methodology under Russia's Chairship in 2020. A dedicated task force was created to examine the various aspects of this novel mode of financing including existing IP valuation methods used across countries and offer recommendations for creating a robust evaluation methodology for BRICS SME IP assets.

SME IPPF Task Force Member Composition

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During the Chairship of India, meetings of the task force members have been organised and a working agenda has been developed for the group.

The result of the task force's work is to develop the methodology for evaluating intellectual property, which is proposed to be agreed and adopted jointly with the New Development Bank and state development institutions of the BRICS countries.

The members have developed the list of pilot projects for consideration of the NDB for financing using the common IP evaluation methodology.

Additionally, the task force members are examining the existing IP protection laws and policies of the BRICS countries to develop a harmonised regulatory framework and IP protection laws for the BRICS region. This will ensure creation of a conducive environment for promotion of innovation and maximise the benefits of each BRICS country's knowledge assets and will also help in attracting further investments towards R&D in the BRICS region.

BRICS governments should consider initiating discussion, harmonisation and adoption of the Intellectual Property Pledge Financing (IPPF) methodology being developed by FSWG representatives. Adoption of the valuation methodology by the New Development Bank and BRICS state development institutions should be encouraged and for which purpose there is a need to establish specialised units in BRICS state development institutions. Based on the results of the methodology adoption, the New Development Bank can implement pilot projects for IPPF SME financing according to the FSWG project list.

Benefit

Promotion of IP pledge financing in the BRICS region will expand the sources of funding for the BRICS SMEs engaged in IP creation. Greater availability of funds will encourage SMEs to actively explore and invest in R&D projects, that will further drive innovation in the region. This will help in providing the much-needed momentum to the growth and development of the SMEs in the region and will enable significant employment generation in the BRICS countries.

Note: This proposal is subject to further discussions with the NDB.

BRICS Cooperation in ESG and Green Financing

1. Promote ESG and Green Financing to increase capital flows into BRICS countries

Context

The increasing interest in ESG investments has emerged as a global agenda due to its potential to promote shared socio-economic value, sustainable development as well as financial inclusion. Integration of ESG is particularly important for fast developing BRICS nations that face higher macro-economic risks than their developed counterparts. Acknowledging these challenges, the BRICS ESG Association was formalized in 2021 with an aim to promote an improved, efficient, and transparent ESG space that would help increase capital inflows between and into BRICS economies and provide cheaper financing for projects that have positive sustainable development impacts.

The Association focusses on four key thrust areas for mainstreaming ESG i.e. harmonising standards and guidelines for ESG integration, integration of ESG as a valuation metric, climate change and ESG linked investment solutions. The need to address the UN Sustainable Development Goals in the ESG framework is also an important consideration for the Association.

Reflections from the BRICS nations like Brazil's focus on drafting new rules for managing ESG and climate risks for financial institutions; Russia's launch of ESG exchange traded funds in 2020 and 2021 as well as propositions for the development of BRICS-wide approach to ESG assessments that would take into consideration the actual environmental, social and governance needs of BRICS based companies with special attention to their economic impact; India's mandate on submission of Business Responsibility and Sustainability Reporting (BRSR) for top 1000 listed companies with effect from 2022; China's standardisation of post issuance reporting and South Africa's inclusion of ESG in the Code for Responsible Investing exemplify the decisive action on this agenda.

Furthermore, Brazil and South Africa have led the way in establishing ESG disclosure requirements and ESG Indices for stock exchanges. Corporate disclosure of climate change risks also saw developments from South Africa that recently published a draft taxonomy of Taskforce on Climate-related Financial Disclosure (TCFD) and Brazil that recently developed a climate risk assessment tool for banks in addition to its ongoing work on developing a roadmap for mainstreaming TCFD in the banking sector. Brazil's FEBRABAN launched in 2020 a Green Taxonomy Classification of Activities Financed By The Banking Sector Based on Social, Environmental and Climate Aspects in addition to the study of Green Economy that is developed since 2015, measuring the volume of credit destined to resources intermediated by the Banking Sector in Brazil. Russia's approach for the development of transition projects taxonomy aimed to support projects leading to carbon neutrality and improvement of the environmental performance of heavy industry could be used as a reference for the development of BRICS-wide green and transition (sustainability linked) project taxonomy. Detailed deliberations amongst members led to identification of the following key recommendations with respect to different thematic areas discussed:

ESG

- Enhancing experience sharing of ESG metrics and taxonomy to increase the uptake of ESG in BRICS nations and increase comparability of data
- Develop and strengthen metrics for the Social dimension of ESG based on experiences and standards/guidelines of member countries as well as a global covenants and standards such as the UN Guiding Principles on Business and Human Rights, OECD Guidelines for Multinational Enterprises and the emerging EU Social Taxonomy

- Creation of ESG Index by BRICS nations followed by benchmarking of indices to measure relative performance
- Explore the potential of establishing ESG exchange traded funds to boost collective ESG linked investments
- Develop a cross verification technological platform to be deployed for verification of ESG, social, transition (sustainable) and green assessments.
- Promote involvement of stock exchanges, data agencies and verification agencies to set mandatory disclosure requirements and support data requirements.
- Representation of BRICS nations on IFRS Sustainability Standard Board

Green Finance

- Inclusion of low carbon strategies and nature-based solutions into green finance through use of innovative products that boost carbon markets and promotion of sustainability linked bonds by financial institutions
- Establish international exchanges on green and sustainable pathways that explore ways to financially support low-carbon development and uptake of nature-based solutions and cross border cooperation on green finance to realise sustainable development goals.
- Development of a unified approach within BRICS (taxonomy, methodology, etc.) to support sustainable projects designed for decreasing negative impact of greenhouse gas emissions.

Climate Change and Decarbonisation

- Identify potential areas of collaboration among the BRICS Nations to achieve goals set out in the Paris agreement
- Identifying financing mechanisms to enable access to technologies for decarbonisation of hard to abate emission intensive industries by fostering research and identification of ESG finance instruments.
- Widening the working group discussions in consultations with the Energy and Green Economy Working Group to include prospects of using renewable energy and zero-emission technologies like biogas technologies, green hydrogen as well as blue and yellow hydrogen (with proper carbon capture and safety regulation) concentration and waste to energy technologies for accelerating decarbonisation as well as higher usage of natural gas that could be a bridge to lower carbon emissions.
- Developing an approach for mutual recognition of data on carbon footprint and environmental impact of business for future development of BRICS carbon allowances trade.

Corporate Action

- Promote companies and investors in BRICS nations to adopt global guidelines (that would not contradict BRICS-wide accepted standards for ESG) on the Task Force on Climate-related Financial Disclosure (TCFD), Science based Targets (SbT) and Taskforce on Nature-related Financial Disclosure (TNFD) to achieve net zero commitments and lower natural capital risks whilst protecting biodiversity and securing human rights.

Benefit

Enhancing transparency and uniformity in ESG related disclosures will encourage ESG investments across BRICS nations and provide a conducive environment to the emerging economies for stronger integration of ESG. Adhering to the ESG standards will enhance the green ratings of companies and

strengthen their value chains thereby positioning BRICS nations as a clear choice for other countries to facilitate international trade and global partnerships. Development of a common ESG Index will encourage businesses across BRICS to benchmark their ESG performance, attract private and institutional investors to BRICS ESG ETFs, identify best practices, assess common risks and opportunities and strategise towards developing a unified plan of action for meeting global standards and international climate commitments. Disclosures can aid companies to comply with reporting obligations, fulfil their net zero strategies and accelerate the domestic pathway to decarbonisation. As costs of low-carbon technologies see a declining trend, identifying avenues for transfer of environmentally sound technologies can accelerate the decline in greenhouse gas emissions and reduction of environmental harm that heavy industry in BRICS countries currently has. Similarly, the carbon markets like the China's Emission Trading System will help increase the cost effectiveness of carbon reduction substantively for BRICS nations.

INFRASTRUCTURE

1. Promote infrastructure funding and exchange of best practices amongst BRICS nations

Context

Infrastructure needs equity and long-term debt financing. A professionally managed Development Financial Institution (DFI) is needed that could reasonably act as a provider, enabler, and catalyst for infrastructure funding. DFIs could offer numerous advantages. For instance, they have an ability to look beyond profit-and-loss considerations, are unique to pursue and deliver on broader social goals, have a public policy mandate that enables them to finance public health systems and other socially desirable projects (based on economic viability), support small businesses and local communities, and provide funds to long-term infrastructure projects and initiatives linked to the UN's sustainable development goals. In March 2021, Government of India has passed a law for setting up of its DFI, named NaBFID (National Bank for Financing Infrastructure & Development).

BRICS countries should look at promoting DFI in private sector as well within their countries and look for a mechanism to co-operate with government and private DFI of other BRICS countries to meet each other's infrastructure development challenges. The New Development Bank (NDB) set up in 2014 and the Asian Infrastructure Investment Bank (AIIB), set up in 2016 would have their own learnings.

Recommendations

- Promoting cross learning amongst BRICS nations on different kinds of DFIs to finance infrastructure (both debt and equity) in view of India's proposed NaBFID, and learnings from New Development Bank (NDB) set up in 2014.
- Bridging the non-fund-based finance requirements through mutual learnings and work towards adopting measures to examine access to these facilities (for companies in construction and real estate).
- Exploring measures to create greater visibility of priority infrastructure projects and encourage unsolicited proposals for declared priority projects.
- Expanding interaction with dedicated financial organisations and institutions, including New Development Bank, for providing funding to infrastructure development projects especially related to Public-Private-Partnership (PPP) in BRICS countries and their regions.
- Exploring the possibility of implementation of additional private equity funds, involving the NDB, to foster and support the growth of infrastructure projects, while also ensuring concurrent evaluation of the existing and future plans of NDB, in coordination with BRICS Business Council.
- Increasing collaboration with the Financial Services Working Group of BRICS Business Council to enhance facilitative partnership with the New Development Bank.

Benefit

Infrastructure funding through the DFIs and the multilateral development banks like the NDB will facilitate greater regional development, enable achievement of social goals, improve logistics connectivity, and contribute to increase in international trade volumes, people's mobility in BRICS countries.

2. Monetise assets for investment into infrastructure construction and promote exchange of products and technologies amongst BRICS countries towards export development

Context

Asset monetisation and recycling involve creation of new sources of revenue by unlocking the value of hitherto unutilised or underutilised public assets. Internationally, it is recognised that public assets are a significant resource for all economies. Monetising these assets under Governmental control, including public corporations, is widely held to be a very important but inadequately explored public finance option for managing public resources. Furthermore, while several initiatives have been taken to foster export development among BRICS nations, it is important to highlight and focus on opportunities that exist between the member nations to promote the exchange of products/technologies.

Monetising of existing public infrastructure assets is a very important financing option for fresh infrastructure construction. Recently, Government of India announced a "National Monetisation Pipeline" of potential brownfield infrastructure assets and public sector companies, amounting to Rs 2.5 trillion (USD 34 bn). In the last 2 years, India's assets in highways and airports have also been monetised well.

Recommendations

- Sharing experiences from BRICS countries on best practices on procedures and mechanism of Asset Monetisation to help in better financial management of public resources and its utilisation for Infrastructure projects.
- Exchanging best practices in construction, management and operations including construction laws and contract enforcement. One such learning can be from the CIDB (Construction & Industrial Development Board, South Africa) in the field of construction and contract enforcement.
- Learnings from best practices from each BRICS country to increase efficiency in the entire ecosystem, such as best practices from Brazil and India in handling PPP infrastructure, ensuring seamless auctioning, awarding, and transferring of assets, best practices from China in developing high speed railways and from Russia in developing, operating and managing the railway transport system.
- Measures to promote networks for exchange of products/technologies between BRICS nations, especially across professionals in infrastructure sub-sectors and developing online venues (marketplaces) for these interactions.
- Identifying collaboration opportunities for projects between BRICS countries that may be implemented with support of the special national institutions for export development.
- Inclusion of best practices related to City Infrastructure Monetisation (beyond Transport Infrastructure).

Benefit

Exchange of best practices in monetisation of public assets will help in efficient management of fiscal resources and further enhance efficiency in overall infrastructure eco-system. BRICS collaboration on infrastructure projects and exchange of products/ technologies will facilitate increase in cross-border trade.

3. Improve logistics & transport connectivity with focus on developing digital frameworks & interface for international logistics

Context

There is a need to explore joint projects in logistics with focus on developing digital frameworks between BRICS as well as BRICS plus countries in the region. The role of railways and ports is extremely important for regional connectivity. BRICS member nations could work together to strengthen logistics infrastructure and improve regulatory environment for logistics in their countries. Collaborative transport infrastructure projects in shipping, railways, highways, etc. could continue and new areas for joint investments could be explored.

Recommendations

- Take measures to enhance BRICS supply chain connectivity by identifying bottlenecks in regional supply chains which will foster effective integration of BRICS enterprises.
- Promote development of digital infrastructure and integration of digital interfaces for a smoother interaction between BRICS nations.
- Take measures to promote the growth of intra-BRICS maritime connectivity and intra-regional maritime connectivity in the BRICS regions.
- Develop (common/ unified) legal framework regulating the international transportation (in cooperation with specialised organisations).

Benefit

Improved logistics infrastructure will ensure balanced regional development within BRICS countries, enhance intra-BRICS trade and improve industrial competitiveness.

4. Enhance BRICS co-operation in management of Cities and urban infrastructure in the post-Covid-19 scenario

Context

With countrywide lockdowns being imposed for several months by most countries during the pandemic, trends in urbanisation may be affected over the next few years. BRICS nations have tailored their urbanisation strategies accordingly.

Recommendations

- BRICS economies may jointly explore opportunities for a reset of city management and development in the post Covid-19 scenario. This may include planning for investment in sustainable urban transportation such as personal rapid transit (PRT), Transit Oriented Development (TOD), pedestrian and bicycle infrastructure, buses, metros, railways, sub-urban and light rail systems (LRT), roads, highways, bridges as well as their maintenance and upkeep. Last mile connectivity for metros and high-speed rail and equipment with facilities for people with limited capabilities are equally important to improve the public transportations system.
- BRICS nations authorized bodies should promote implementation of Vision Zero Approach in transport infrastructure design and city planning. This can sharply reduce number of road fatalities and injuries. It is a holistic safety approach that shifts responsibility from the people using roads to the people designing them, integrating core management and action areas to create

a safe mobility system forgiving of human error. It entails actions around land use planning, improved mobility options, speed management, street design & engineering, education and capacity building, etc.

- BRICS economies and businesses should share best practices in sustainable urban infrastructure planning, design, construction, and operations in the post-Covid-19 scenario. Also, businesses should deliberate on the likely operational challenges in reconciling city development and environment, such as the entire development plan receiving environment clearances much before project execution.
- Take measures to enhance co-operation between twin cities and city governments of BRICS countries to strengthen interaction at the sub-national level and mutual learning from results of practical work to overcome challenges related to rapid urbanisation.
- BRICS economies should share best practices and experiences in urban mobility projects with less polluting energy options; smart cities projects; projects of revitalisations and retrofit of central areas; clean ups of polluted rivers in urban areas. Also, best practices should be shared in management of High-Density Cities as well as success of New cities with respect to creation of livelihoods, Social infrastructure with emphasis on Transit Oriented Development in and around the new city for easy connectivity.
- Share best practices related to Solid Waste Management including recycling.

Benefit

Exchange of best practices in urban planning, urban mobility and city management to help overcome urbanisation challenges, make cities cleaner and sustainable.

5. Develop green infrastructure and promote best ESG practices for attracting investments in sustainable infrastructure

Context

The emergent concern of good business practices and social and environmental responsibility has guided decision-making for sustainable investment. The esteem of "responsible" businesses drives the adoption of good environmental, social, and corporate governance practices. The principles of Environmental, Social, and Corporate Governance (ESG) constitute a set of criteria adopted by investors to evaluate a company's interaction with the environment and society, and the observance of high standards of corporate governance.

In recent years, many countries have progressed towards green growth as a major component of sustainable development. Using environment-friendly green technologies in production and trade (of commodities) is becoming increasingly crucial for successful expansion of international trade relations. Green infrastructure is a cost-effective, resilient approach in managing adverse weather impacts. This includes technologies that reduce resource usage as well as incorporate renewable resources. Solar panels, solar heating and wind turbines are some of the most popular types of green technologies. From renewable energy to transport systems, the environmental benefits of infrastructure are manifold. Sustainable infrastructure assets can help to address climate and natural disasters, reduce greenhouse gas emissions and contamination, manage natural capital, and enhance resource efficiency.

Recommendations

- Broaden co-operation in the field of green infrastructure development.
- Promote best ESG practices for attracting investments in sustainable infrastructure.

- Implement joint projects aimed at reduction of CO2 emissions and development of sustainable modes of transport (operating on ecologically friendly traction)
- Contribute to formation of conditions for development of railways as one of the most economically efficient, ecologically friendly and reliable mode of transport.
- Explore mechanisms to share experience on innovations in the green infrastructure space including cross learnings in innovative project preparation methods & facilities.

Benefit

Green infrastructure will address issues related to climate change, contribute towards sustainable development, and enhance resource efficiency.

6. Other Recommendations

- Develop BRICS Network of Infrastructure sub-sectors towards exchange of information/best practices/learnings from each other. This can be done both in terms of area of operation and stage of operation:
  - Area of Operation: Highways/Sea ports/River waterways/Railways/ Airports/Urban Infrastructure /Water/Urban Transport/ Waste management including solid waste, sewerage etc./Smart cities/Tourism/ Energy - thermal/ Energy - renewable, etc.
  - Stage of Operation: Construction contractor/ design firm/ technical consulting services/ financial consulting/ legal and process consulting/ supervision consulting/ financial providers - debt and equity/ financial consultants and investment bankers/ operations management firms/ safety consultants/ESG Advisors/ Risk management advisors.
- Promote inclusivity in infrastructure projects by encouraging gender diversity
- Promote capacity building programs such as development of joint educational and training programs in the infrastructure space, including exchange practices for young specialists and organization of youth programs.
- Take measures to enhance "Ease of Doing Business" ranking and "Digital competencies in post covid era"

MANUFACTURING

The current global challenges, particularly the COVID-19 pandemic, are a powerful reminder of the imperative to strengthen cooperation amongst BRICS countries. We need to strengthen cooperation and research to fight the COVID-19 pandemic and other current and future health challenges. As a part of our endeavour to achieve the SDG goals, the Manufacturing Working Group of BRICS Business Council has focused discussions on areas of Green Mobility, Pharmaceuticals and Medical Devices.

Green Mobility

1. Encourage adoption of green mobility solutions through collaborations and exchange of best practices amongst stakeholders in the green mobility ecosystem

Context

Nearly 25% to 30% of the total energy consumption worldwide is accounted for people and goods transport via air, water, road and rail transport. Revolutionizing the transport industry by providing feasible and sustainable alternatives to petroleum, diesel and gasoline fuel and improving energy efficiency will positively impact cost of living and curtail environmental degradation. Hence, adoption of Green Mobility is one of the most effective ways to reduce energy consumption and associated emissions.

Embracing Green Transport projects has helped reduce: 1) number of motor vehicles in urban areas, 2) air pollution, and 3) massive traffic jam during peak hours. Today, adoption of green mobility will help any economy realise three of the 'Global Sustainable Development Goals' formulated by United Nations, namely, affordable & clean energy, industry, innovation & infrastructure and last but not the least, climatic action, the goal we must strive for every city to become a green zone where citizens and freight can be transported efficiently, feasibly and sustainably by private as well as public mobility solutions.

Currently, the need for greater research and implementation cooperation for Green Transport projects is at its highest and there are some key issues that require immediate attention and collaboration among BRICS member nations to further the development and adoption of such solutions. By working together, shared experiences in encouraging the Green Mobility sector can help accelerate the pace of Green Transport adoption. An open sharing platform between BRICS countries for exchange of concepts, capabilities and experiences towards these technologies would be extremely beneficial to the cause of Green Mobility.

Realising the importance of call for action on climate change, the whole world today is aspiring to lead decarbonization efforts, with the aim of achieving Net-Zero or even Net-Carbon negative in some cases. It is widely known that countries around the world are exploring and pursuing different technologies for enhancing Green Mobility in their ecosystem. Some of the approaches and key technologies are -

- Shift from Internal Combustion Engines to Electric Vehicles (Battery EV, Hybrid EV, Fuel Cell EVs based on Hydrogen as well as Ethanol/ Methanol). In case of Battery EVs, there is equally important interventions in Battery Charging Infrastructure, which optimises use of Renewable Energy for Charging, as well as optimising charge time and caters to multiple brands of EVs. Also Battery Swapping infrastructure for Electric Bikes and LCVs (3 Wheelers).
- Displacement of Natural Gas by upgraded Biogas (Bio-CNG, Bio-LNG) through processing large amount of Bio-waste generated in Farms as well as Urban areas. For adoption in gasoline/

diesel vehicles on the road, there have been technological interventions in conversion kits retrofitted into vehicles.

- Decarbonising current transport fuels, through blending with biofuels (Bio-Ethanol, Bio-Diesel, Bio-ATF). As the percentage of blending increased there have been technological interventions in manufacturing of flex-fuel vehicles as well as flex fuel hybrid electric vehicles.

Varying by context, different countries have adopted different strategies and technologies in the green mobility space, which are reflective of the accessible technology, innovation, natural resources, government policies, industrial development, etc.

All BRICS countries have been implementing sustainability- oriented policies, along with supporting incentives and scrappage programmes to further boost fuel efficiency and reducing GHG and air pollution emissions from road transport through various technologies. The results so far have been slow, however countries are hopeful of reviving demand in mobility alternatives in the post-Covid period. Co-operation amongst BRICS countries is vital in supplementing the efforts of governments in achieving their targets of SDGs.

Recommendations:

- Launch a consolidated BRICS EV campaign with the goal of accelerating deployment of electric and hybrid vehicles with a set target of having certain percentage of such vehicle sales by 2030 categorised as 2 Wheelers, 3 Wheelers, cars, buses and trucks.
- Explore launch of BRICS Pilot City Programme to create a platform for the group to facilitate communication and cooperation among leading cities of the BRICS countries interested in stimulating and increasing the deployment of electric mobility within their jurisdictions.
- Establish an accessible funding mechanism with low interest cost and long pay off period to support the entire EV ecosystem. Due to long gestation period involved in some of the projects in electrification, New Development Bank can fund them on nominal rates to make such projects viable and to bring down the cost for the ultimate consumer which remains a major constraint in adoption of EVs and Hybrids currently in most BRICS countries.
- Ethanol is a low-hanging fruit. The BRICS countries should provide conditions to ensure a sustainable energy transition in the short/medium run to meet the urgent needs of reducing carbon emissions, through substituting fossil (gasoline) for renewable sources (ethanol).
- Have an open sharing platform among BRICS countries for exchange of concepts, capabilities and experiences towards new technologies related to EVs, Hybrids and Bio-fuels.

Some of the key areas of collaboration amongst BRICS countries for green mobility that can be considered are -

a) Dedicated R&D for electric mobility (EV / HHEV) (including light and heavy vehicles like those used for mining operations) leading to higher performance vehicles with price parity of ICE vehicles to accelerate adoption.

b) Advanced Lithium-ion Batteries with excellent safety under tropical conditions, enhanced energy densities and higher operating cycles and integration of supercapacitors in battery EVs.

c) Fuel Cells based on Hydrogen as well as Bio-Ethanol.

d) High performance Traction Motor, which is non-permanent magnet and non-rare earth metal usage.

e) Explore use of customised electrical steels to improve the efficiency of electric motors and generators thus improving EV range.

f) Explore use of advanced high strength steels (AHSS) to house and protect the EV battery in the event of a crash (AHSS absorbs more energy during a crash, reduces the thickness of the protection

and housing systems, increases the space that may be dedicated to batteries thus increasing range).

g) Electricals and Electronics for low and high voltage applications.

h) Software, cloud storage & computing, big data analytics and connectivity.

i) Create strategic reserves of key raw materials like copper, cobalt, lithium etc.

j) Focus on responsible sourcing and recycling of cobalt, nickel, lithium etc. which are used for EV batteries so as to not create new environmental damage while trying to solve an environmental problem.

k) Focus on ramping up the charging infrastructure through depot, public and private charge-points. Also, optimal on-site generation of electricity for charging, e.g. Rooftop Solar and Urban Waste Biogas/ Bio-Oil.

l) Focus on ramping up production of 2G Bio-Ethanol as well as bringing to commercial scale other advanced Biofuels.

m) Knowledge exchange on public policies and sustainable practices, the lessons that have been learned in introduction and scaling up biofuels based mobility options including Bio-CNG/ Bio-LNG.

n) Technological cooperation to develop flex-fuel vehicles, flex fuel hybrid electric vehicles.

o) Launch of hybrid EVs (HEVs) and plug-in hybrid EVS (PEVs) that combine an ICE with an electric engine to maximize range on long trips (considering initial inadequacies in charging infrastructure for EVs) and save fuel cost on short trips (considering electricity prices are lower than petrol/diesel prices). Maintenance costs for hybrids are also typically lower than ICE vehicles.

p) Vocational education skilling, training and employment to create large pool of skilled manpower.

q) Establish Centre of Excellence at universities for cutting-edge research in electric mobility.

r) Create a robust and extensive supplier chain which can be utilised by member countries.

s) Use India's experience of converting CAPEX into OPEX through GCC model for public purchase of EV fleets as well as Flexi-Fuel & Bio-CNG/ Bio-LNG fleets.

t) Create synergies towards optimising the TCO (total cost of ownership) for driving value and minimising cost of EVs and EV aggregates as well as Flexi-Fuel & Bio-CNG/ Bio-LNG fleets.

u) Technical Collaborations to reduce cost for alternate fuel technologies for vehicles.

v) Cross learnings and sharing of best practices in Green-mobility amongst BRICS countries in terms of policy intervention, EV's, Bio-fuels, Green Hydrogen, EV Charging / Biofuels & Green Hydrogen Refuelling Infrastructure, component manufacturing, experiences of countries like Brazil in Ethanol and Flex-fuel vehicles, and eco-system for deployment.

w) Collaborations in components and supply chain of EV and green mobility.

x) Creating awareness amongst BRICS consumers about green mobility solutions and addressing their issues of range and price anxiety.

y) Understanding ecosystem, challenges, key drivers and solutions of Bio-fuel vehicles.

z) Government incentives to promote new technologies like EVs, Hybrids and Bio-fuels.

aa) Share low cost EV Infrastructure solutions that may be deployed in the respective countries, for example EV Charging Stations.

bb) Increase technical, scientific, and economic cooperation among ethanol producing countries that could involve:

- Agricultural sector: Technological transference and adaptation for sugarcane and other feedstock varieties;
- Industrial processing, particularly on 2nd generation ethanol
- Auto industry, and technological cooperation, such as flex-fuel vehicles, hybrid flex and cell fuels from ethanol
- Trade and investments in the business and infrastructure

Benefit

Collaboration amongst BRICS member nations would create opportunities for international trade or technology tie-ups and Foreign Direct Investments across the economies in the space of green mobility solutions. The awareness, exposure and exchange of technologies, capabilities and experiences will also foster opportunities for cross sectoral partnerships amongst industry, academia and the research community.

As a world, we can reap synergies just by facilitating such exchange towards the cause of a healthy environment and managing Climate Change better.

Pharmaceuticals

1. Create conducive conditions for enhancing trade in pharmaceuticals within BRICS

Context

Intra-BRICS trade in general, and especially for Pharmaceuticals, has not been tapped to its full potential. The most important factor hampering this is lack of support infrastructure and trade facilitation regimes which add to the cost of trade transactions. This results in intra-BRICS trade, especially with respect to a heavily regulated industry such as Pharmaceuticals, being low in volume. Setting up single window customs clearance, facilitation of inland transportation and swifter terminal handling would improve net realisation from trade and encourage more businesses by offering greater margins compared to other export markets.

For instance, logistical disadvantage arising out of dearth of direct shipping lines between India and Brazil, and cold chain shipping impedes drugs trade between India and Brazil.

Experience shows that trade flows get a boost by flow of investment. Therefore, boosting intra- BRICS FDI would be reflected in intra-BRICS trade.

The most important factor for improving intra-BRICS trade is removal of non-tariff barriers. The reduction of tariff barriers is equally important to increase competitiveness and diversify trade options among countries. The BRICS Governments must expedite the efforts in lowering such barriers.

The BRICS governments should also promote investment in R&D and technology transfer, focusing on exports of generic drugs; accelerate drug approvals, mutual recognition for products developed under this framework and expand the research of solutions to neglected diseases (that are common on BRICS countries and trade partners).

Benefit

Reducing cost of compliance by elimination of non-tariff trade barriers would significantly improve the cost-competitiveness of pharmaceutical products and enhance intra-regional trade flows.

2. Collaborate in Pharmaceuticals Sector for a joint Covid-19 response

Context

The BRICS grouping is considering a proposal to set up a Vaccine Research and Development Centre as part of efforts to fight global pandemic. The New Development Bank too is in process to allocate up to $15 billion for loans to BRICS states to boost their economies. The BRICS leaders had earlier also agreed to ensure "availability of innovative medical products through promotion of research and development and access to affordable, quality, effective and safe drugs, vaccines, diagnostics and other medical products and technologies as well as to medical services through enhanced health systems and health financing."

India has reinforced its credentials as a rapidly emerging pharmacy of the world. As the world's largest producer of hydroxychloroquine, India has recently exported the drug and other key medicines such as Remdesivir etc., not only to SAARC countries and to its "extended neighbourhood" in the Gulf, but also to Russia, Brazil, Israel and the US. This has set the stage for India to forge an inclusive BRICS-driven pharma alliance, which could also actively explore the production of vaccines. China has stood up catalysing its supplies in health equipment such as masks, gloves, coveralls, shoe covers and testing kits to Covid-19 hotspots across the globe. This is in itself a new unlocking strategic trade measure which China has extended not only to BRICS but other parts of the world such as Italy and Iran. On the Russian front, despite fighting the virus at home, Russia too sent its doctors and virologists overseas, including the launch of the famous 'From Russia with love' air mission to Italy. While from the African continent, South Africa, the current rotating head of the African Union, is engaged in framing a pan-African response to Covid-19.

Having demonstrated their comparative strengths as providers of Humanitarian Assistance and Disaster Relief (HADR), BRICS countries now need to pool and coordinate their efforts, in partnership with the WHO, and Europe and North America, both badly affected by the pandemic, as part of a global assault on the virus. But for seeding a robust institutional HADR response, the BRICS countries may have to reactivate an existing disaster response mechanism, and earmark resources and assets to combat a whole range of natural disasters, with special focus on the emerging economies and the global south.

In 2020, BRICS jointly proposed for a temporary suspension of patent protection for COVID-19 vaccines at the WTO.

Benefit

The joint collaboration and support of BRICS nations in combating Covid-19 can help scale up and speed up vaccine distribution as well as ensure its access on a more equitable basis. This could be a major victory for the BRICS. The Covid-19 response serves as an excellent example of BRICS delivering a unified response in face of a crisis.

3. Create conducive conditions for greater access to BRICS markets for businesses

Context

Healthcare systems in all BRICS countries proclaim to assure universal health coverage. Currently, the fragmented nature of innovation, clinical expertise, clinical research and regulatory framework has led to delays in bringing innovative solutions to patients across several BRICS nations in a timely manner. To address this inefficiency, BRICS nations need to work towards harmonisation of their regulations. Such harmonisation of regulations can bring about accelerated development and drug approvals, mutual recognition for products developed under this framework and establish BRICS leadership in the global regulatory context.

Benefit

Increase in intra-BRICS trade in pharmaceuticals.

4. Support collective market strategy by BRICS pharmaceutical firms to lift exports

Context

To reduce dependence on foreign biopharmaceutical companies, all BRICS countries have adopted local drug production strategies. They have the necessary infrastructure and the ability to produce generics of various essential drugs, in order to meet their domestic demand and support other countries in development. Brazil, China and India, for example, had been leading the manufacture of active ingredients, drugs and low-cost vaccines. China is the largest global producer of pharmaceutically active ingredients (IFAs), performing, and therefore plays a strategic role in the global production chain of generic & branded drugs. Russia is looking to expand the capacity of its local companies and ensure that local production is responsible for 50% of the medicines in circulation in the country. In recent years, about 30 new pharmaceutical plants have been built and more than 100 molecules have entered clinical studies. South Africa has companies with the muscle for international competition and has invested to meet international standards of good manufacturing practices.

There are currently some cases of mergers and acquisitions of companies in BRICS countries by US and European transnational corporations. The global concentration of markets and technologies, with the denationalisation of industries, tends to generate health security vulnerabilities in BRICS countries.

As a long-term strategy for the BRICS, the proposals related to intellectual property should include promoting full implementation of flexibilities such as parallel import and local production of medicines and vaccines. Additionally, it is also proposed that the number of patents granted in the pharmaceutical area should be limited, through stricter criteria on what can be considered patentable.

The BRICS countries have marked differences in their plans and actions. However, in the quest to reduce their health vulnerabilities, the BRICS are faced with an opportunity of coordinated action in the fight against high-impact diseases. BRICS has developed not only consistency in some positions on central themes of global health, but also initiated concrete actions of cooperation, which are beginning to generate results.

Benefit

BRICS have expertise with strategies to reduce production costs of essential drugs with a view to expanding and maintaining universal access to treatments.

Medical Devices

1. Create conducive environment to enhance intra-BRICS trade in Medical Devices

Context

Global trade of all leading commodities has witnessed tremendous increase in past 15 years, and so is the case with medical device industry. China had developed its capability in providing products to the developing and under developing economies. China enjoys a trade surplus in this segment, despite importing a significant volume of health equipments and devices.

Currently, the growth outlook for the medical devices industry is well poised. There is a need for accelerating key activities around developing indigenous devices within BRICS, particularly in the following segments -

1. Minimally Invasive Surgery – Endoscopes and all surgical scopes
2. High end capital equipment & point of care devices in the segment of Diagnostic Imaging such as CT scanners, MRI, Digital X Rays, C Arms, Mammography and others
3. High end capital equipment & point of care devices in the segment of In Vitro and Molecular Diagnostics such as Immunoassay analysers, Microbiology bench automation, Genomic Sequencing and others
4. Orthopaedic & Dental Implants

The government should also promote integration and harmonization of investment policies for this sector and promote exchange of best practices on public health cooperation projects.

Benefit

Enhanced capabilities in medical device manufacturing and trade, promoting collective growth and development.

2. Leverage national policies to increase cooperation in Medical Devices

Context

Policies followed by countries like India in the health and medical devices segment offers immense scope for investments from other BRICS countries to invest in India and manufacture these devices.

India is committed to achieving Universal Health Coverage as part of the Sustainable Development Goals. India's National Health Policy (2017) aims to increase Government spending on health to 2.5% of GDP by 2025. Further, the Policy envisages private sector collaboration, including the use of financial and non-financial incentives to encourage participation. A Medical Devices (Safety, Effectiveness and Innovation) Bill has been drafted for improving ease of doing business by providing a strong environment for innovation and manufacturing of medical devices in India. In order to boost indigenous manufacturing of medical devices, the Government has adopted a 'Manufacturing Ecosystem Cluster Development' approach. Medical device parks are being developed around five device manufacturing clusters in the country. State Governments are committed to setting up dedicated industrial parks for enabling efficient domestic manufacturing at lower costs. In 2019, Andhra Pradesh, Telangana, Tamil Nadu and Kerala were given in-principal approval for establishing new medical devices parks. The Andhra Pradesh MedTech Zone, for instance, has created a Common Facility Centre (CFC) for conducting magnetic coil testing and research. The AMTZ is a comprehensive healthcare ecosystem which includes not only manufacturing but service component through the nurtured institutions like Kalam Institute of Health Technology KIHT, Indian Biomedical Skill Consortium IBSC, Medivalley and Biovally incubation councils such as R&D, Innovations, assistance in Policy and consultancy on various healthcare projects impacting the health care of a country. Recently, Production Linked Incentive (PLI) schemes have been announced for promoting domestic manufacturing of medical devices in four identified categories with a total financial outlay of INR 34.2 billion and PLI Scheme 2.0 for In Vitro Diagnostics (IVDs) medical devices with financial incentives to the tune of INR 150 billion (USD 2.0 Bn). India's FDI regime has been liberalized extensively. Currently, FDI is permitted upto 100 percent under the automatic route in the hospital sector and in the manufacture of medical devices.

G2G collaborations with individual nations or regional blocks on available, affordable, and accessible healthcare services (MVT, Tele-medicine or Tele-radiology) as well as products (Medical devices of all categories ABC & D) would lead to new Complementary & Equitable Globalisation 2.0. This 21st version of Globalisation is necessitated by emerging socio-medico- economic situation post

pandemic, profiteering of old global value chains, lack of adequate/ worst hit health infrastructure and systems in developing and developed countries alike, economy of shared scale, growing strategic need of health security ownership, and new emerging paradigm "Health Technology for All".

Benefit

Increase in Multilateral intra-BRICS investment and trade of medical devices; enhanced collaboration in medical devices manufacturing and research to improve local capabilities and help achieve sustainable development goals in the sphere of healthcare.

3. Promote sustainable manufacturing of medical devices using IEC 60601-1-9

Context

To meet the SDG goals, the BRICS countries should advise hospitals and other healthcare agencies around the world to incorporate sustainability into their purchasing policy as done by Brazil.

IEC 60601-1-9 standard was published in 2007 and amended in 2013. Its requirements are based on practical experience from the industry that illustrated cost savings and marketing benefits. While it is not a requirement for many countries and certification schemes, if a manufacturer wishes to make sustainability claims about their product, given the importance of such products to the industry, it is legally required that they provide verifiable data to support their claims. IEC 60601-1-9 provides a formal way of verifying such claims. Additionally, it will become legal requirement in Brazil later this year.

The objective of IEC 60601-1-9 is the improvement of environmental impact, taking into account all stages of a product's life cycle, from initial specification to end-of-life management.

Environmentally conscious design is an overall good practice for many industries, including medical devices. According to a 2014 Harris Poll commissioned by Johnson & Johnson, more than 80 percent of hospitals around the world are expected to incorporate sustainability into their purchasing decisions. It is easy to see why manufacturers would want to voluntarily design and develop environmentally conscious equipment. In order to make these claims, some countries require verification of sustainability in order. Others, like Brazil, are moving toward mandatory compliance with standards aimed at improving environmental impact of medical electrical devices. One standard can provide the guidance for manufacturers when it comes to such designs.

Benefit

Eco-conscious design in medical electrical equipment can fulfil the necessary requirements along with ensuring sustainability. Using IEC 60601-1-9 as a guide can help support sustainability claims and allow manufacturers to bring greener medical devices to the market. Moreover it would further the cause of mandatory & timely medical device replacement regime in the interest of all healthcare stakeholders spanning from patient care & safety to sustainable supply chain. Last but not the least, it would further integrate health with other SDGs like Good Health and Wellbeing (SDG 3) Industry, Innovation and Infrastructure (SDG 9) and Responsible Consumption and Production (SDG 12).

4. Support Membership of BRICS countries in International Medical Device Regulators Forum (IMDRF)

Context

IMDRF is a voluntary group of medical device regulators from around the world who have come together to build on the strong foundational work of the Global Harmonization Task Force on Medical

Devices (GHTF) and aims to accelerate international medical device regulatory harmonisation and convergence.

IMDRF Management Committee (MC) membership is comprised of representatives from the medical device regulatory authorities of Australia, Brazil, Canada, China, the European Union, Japan, the Russian Federation, Singapore, South Korea and the United States. Membership should include India and South Africa as well; as the expansion of global medical device regulatory regime in these geographies would result in enhanced patient care and greater standardisation, integration and globalisation of healthcare delivery.

Benefit

Scope of Excellence of IMDRF would be broadened once India and South Africa come on board. The developing world has its own real time ground level challenges, institutional limitations, Policy hiccups and implementation road blocks which need collective institutional endeavours, guidance and coordination instead of individual or collateral ones. A unified and universal IMDRF would indeed usher in greater regulatory harmonisation and convergence.

5. Set up Common R&D Centre of Excellence (CoE) for Medical Devices

Context

The total global R&D spend in the Medical Devices industry stands at USD 48-49 Bn in 2019, with the top 15 medical device Original Equipment Manufacturers (OEMs) contributing nearly three-fourths of it. Interestingly, the top 5 R&D spenders contribute 38% of the global R&D spend, with investments being directed mainly to sub-verticals such as non-imaging diagnostics, surgical, and prosthetics. Further, the next 10 R&D spenders contribute as much as 33% to the global R&D spend, while focusing their investments on imaging and non-imaging diagnostics. The numbers show that the global R&D spend is highly consolidated among the top 5 R&D spenders, with North America being the biggest spender, with 59% of the pie, followed by Europe at 34% and APAC, a mere 7%. So, this proposed centre could be led by India at AMTZ which is Worlds First integrated Bio-Medical Devices Park, dedicated for Medical Device Manufacturing with R&D support.

Benefit

It is based on the fact that medical devices manufacturing requires certain high investment facilities which are too capital intensive for individual manufactures to invest upon. The Bio-Medical Devices Park with in-house high investment scientific facilities would help innovators, start-ups, manufacturers reduce the cost of manufacturing by more than 40%-50%.

It is a comprehensive healthcare ecosystem which includes not only manufacturing but service component through the nurtured institutions like Kalam Institute of Health Technology (KIHT), Indian Biomedical Skill Consortium (IBSC), Medivalley and Biovalley incubation councils such as R&D, Innovations, assistance in Policy and consultancy on various healthcare projects impacting the health care globally. It is located in Visakhapatnam city of India which is well connected with Railways, Roadways, Waterways and Airways with near presence of Industrial Corridors, and Port to reduce logistical costs. AMTZ has been having good business relations with medical device companies from China, Russia, and South Africa.

6. Promote Harmonisation and mutual recognition of Biomedical Skills

Context

Biomedical Engineers Skill Council like "Indian Biomedical Skill Council (IBSC)" at AMTZ is to provide certification system for Biomedical Engineers in the country who serve as the backbone of the

healthcare services. Adoption of such councils by BRICS countries could lead to insights to achieve better patient care outcomes and medical technological improvisation and innovation.

Benefit

IBSC also signed a MoU with Association for the Advancement of Medical Instrumentation (AAMI) USA for International recognition & equivalence of IBSC Certified professionals. This will benefit IBSC certified candidates, who will have equal opportunities to practice biomedical profession globally. Biomedical Engineers exchange programmes across BRICS countries would lead to greater harmonisation of biomedical engineers' training standards and practices.

SKILLS DEVELOPMENT

1. Support the development of an online portal for sharing knowledge in the field of skills development and vocational education between BRICS countries

Context

COVID-19 has accentuated the importance and relevance of online platforms for sharing knowledge due to the closure of physical programmes and on-the-job training. In 2020, an online co-working space, "Notion", was created for knowledge sharing. The portal will facilitate collation of information related to joint efforts in Research & Development in the fields of skills development and vocational education.

There is a need to strengthen the online platform "Notion", streamline content, and upload the same on the portal. This would require creating a repository of all critical content related to skills development and activities related to technology innovation in skilling in BRICS countries, a calendar of past and future events held within the SDWG, research and development projects conducted within the group and other data and reports about the working group.

Following steps have been identified with a timeline:

- Theme and content type finalisation
- Request for submission of content
- Translation of content if required
- Uploading content on the portal
- Exploring more user-friendly interface on the portal

Benefit

An online portal with relevant information and knowledge would benefit all stakeholders involved in skills development in BRICS and for aspirants exploring career pathways through skilling. This portal will allow access to the best practices and learning methodologies of BRICS countries for the rest of the world.

2. Encourage sharing best practices related to skills in health care (with focus on Covid-19 Management) and digital marketing

Context

In these unprecedented times of Covid-19, there is a need to support each other by sharing knowledge and learnings to give a fresh start for economic and social development. There is a need for sharing best practices, experiences, initiatives, and innovative solutions among the members for a speedy recovery of the economy in BRICS. There is a need to exchange the best practices and learnings on Covid-19 prevention, management, and recovery. By sharing best practices and responses that have worked well in similar settings, the impact of Covid-19 in BRICS countries can be mitigated.

In the wake of increasing digitisation of all areas of the economy, the digital economy working group and skills development working group jointly agreed upon developing a digital literacy plan of action[7] to deal with the skills gaps. Further, during the 12th BRICS Virtual Summit in November 2020, India's Prime Minister, Mr Narendra Modi, expressed that India would lead the initiatives to boost collaboration in digital health and traditional medicine[8].

Benefit

Sharing of best practices on skills development would help identify the skilling priorities of each BRICS country for a swift transformation and incorporate the needs of Industry 4.0 revolution and the resulting impact on areas like digitisation in healthcare, remote work, industrial automation, and business operations.

3. Enhance interactions and engagements between policymakers and practitioners and promote engagement through other training programmes

Context

There is a need to strengthen the outreach and engagement with a broader skills ecosystem. This may be done through regular events to bring industry, academia, policymakers, and training providers on a common platform. As a kickstart to the BRICS in-house skilling initiative, a Training of Trainers (ToT) can be conducted in selected job roles identified in consensus with the member countries.

Benefit

Regular interactions and engagements with policymakers from different BRICS nations will help members become aware of these countries' regulatory reforms in skilling space. The ToT programmes will result in the capacity building of the trainers, getting acquainted with new pedagogies, which could further enhance the skills development ecosystem in respective countries. Such interactions could also result in sharing of best practices.

4. Support further organisation of BRICS Future Skills Challenge

Context

A skills challenge comprises activities that develop a whole ecosystem of knowledge sharing. Some of them are the interaction of experts, showcasing of skills by competitors, fast and accurate assessments, exposure to latest technologies etc. In recent years, as a way of skills training, the BRICS Future Skills Challenge has served many purposes; promoting the learning and teaching, bringing the youth from BRICS countries together and learning from each other's expertise. It has become a platform to identify, demonstrate, and harness the skills critical for adopting technology and digitisation in the future. In 2020, when most of the world was under lockdown, the Future Skills Challenge was organised in an online format for the first time in nineteen skills. This year too, the Future Skills Challenge is proposed to be continued, and the possibility of including the Future Skills related to the healthcare sector shall be explored.

[7]BRICS Business Council Annual Report,2020 (https://eng.brics-russia2020.ru/images/114/83/1148368.pdfhttps://eng.brics-russia2020.ru/images/114/83/1148368.pdf))
[8]https://bricsbusinesscouncil.co.in/docs/statements/pmspeech12.pdf

Benefit

The Skills Challenge activities help develop capabilities to address the challenges posed by the disruption caused by technology in the world or work and lives. The BRICS Future Skills Challenge should be considered a source of invigorating the skilling ecosystem to acquire and develop emerging skills.

5. Promote international mobility of skilled workforce within and from BRICS Countries

Context

The outbreak of the Covid-19 health emergency and the socio-economic crisis has put a severe strain on public employment services in most of the countries of the world, and BRICS nations are no exception. On the one hand, people have lost jobs due to the pandemic, and due to economic slowdown, on the other hand post-Covid industry is struggling to recruit employees with a suitable skill set. BRICS countries, comprising about 41% (3.14 billion) of the world's population, can become an exporter of skilled workforce by sharing the best training methodologies and technical knowledge for mutual benefits.

Further, globally, it has been observed that the skills shortages have hampered the ability of Industries to harness the growth potential through new technology adoption. Korn Ferry, a leading Management Consulting company, estimated that by 2030, demand for skilled workers would outstrip supply, resulting in a global talent shortage of more than 85.2 million people and nearly $8.5 trillion of unrealized revenue[9]. The BRICS Countries should grab this opportunity to provide jobs to millions of youths and help develop their respective economies. In the given context, the formation of the task force (similar to "BRICS Alliance of Skills Development") for the 'International Mobility' within and from the BRICS nations is the need of the hour to identify the global demand and map the skilled workforce accordingly by keeping in view the Covid-19 safety measures.

Benefit

Work opportunities across BRICS countries can help address issues related to unemployment or lack of adequate job opportunities in developing countries, and help enhance living standards, etc. Skilled workforce mobility provides skilled youths with an opportunity to work as per their expertise in a better environment, with better growth prospects, and opportunity to earn better remuneration and upskill with technological advancement. They can thereafter contribute to upliftment of the technical and behavioural standard of working in their home countries.

[9]https://www.kornferry.com/content/dam/kornferry/docs/article-migration/FOWTalentCrunchFinal_Spring2018.pdf

ISSUES UNDER DISCUSSION

AVIATION

1. Well-defined long-term policies for sustainable growth of the Aviation Sector
2. BRICS Co-operation in Aviation Security
3. BRICS Co-operation for Reforms in International Aviation Standards and Regulations

FINANCIAL SERVICES

1. BRICS Reinsurance Pool and BRICS Insurance Connect
2. BRICS PAY Commercial Payment Service
3. BRICS Credit Rating Agency Alliance and BRICS Rating Agency

5 ANNEXURE

Joint Statement on Business Co-operation Towards Achieving Sustainable Development Goals

The world we live in today is fraught with challenges to sustainable development. The vision set out by the Global Leaders under the 2030 Agenda for Sustainable Development is to have a world with sustained, inclusive, and sustainable economic growth, a world with equal opportunities and shared prosperity, and a world free of poverty, hunger, and disease. The 17 Sustainable Development Goals (SDGs) laid out in the 2030 Agenda have become a comprehensive tool for global solutions for the economic, social, environmental challenges facing humanity today. At the same time, the COVID-19 pandemic has convincingly highlighted the urgent need to accelerate the implementation of the 2030 Agenda.

Achievement of the SDGs requires contribution from stakeholders across public as well as private sectors within the framework of modern models of public-private-partnership. While governments are the key drivers of SDGs, the role of businesses is important, given their ability to invest and innovate. The Business and Sustainable Development Commission estimates that sustainable business models could open economic opportunities worth up to US$12 trillion and increase employment by up to 380 million by 2030.

Given this context, we, the Leaders of the BRICS Business Council from the five BRICS countries, emphasise the role and contribution of businesses in enhancing co-operation for economic growth, trade, investment, innovation, research, and livelihood creation for sustainable development. In this endeavour, we

Recognise the need for and importance of achieving SDGs for a better future for all, with better health, education and economic opportunities;

Acknowledge the role of governments, business enterprises, civil society, investors, financiers, individuals and other stakeholders in enabling achievement of the SDGs through independent and collaborative efforts;

Note the holistic nature of the 17 SDGs requiring the linkages, interconnectedness, and interaction between them when developing strategies for the achievement of the Goals;

Support government's policies and regulatory framework in accomplishing national targets for achieving SDGs;

Agree to contribute to addressing the global economic, social and environmental challenges through responsible business conduct and integration of SDGs into business strategies;

We collectively pledge to encourage business enterprises, including small and medium businesses, retail and institutional investors, and other organisations, across all sectors, industrial, agricultural and services in our five countries to contribute towards the achievement of the 2030 Agenda through -

- Prioritising sustainable development in business objectives and long-term goals;
- Taking a holistic approach to SDGs in core operations of businesses by developing sustainable development strategy for different functions including sourcing, employment, sales, financing, investment and other corporate strategies;

- Developing sustainable, innovative and inclusive business models, including sustainable product development, procurement, and human-resource policies amongst others;
- Adopting responsible business conduct and contributing to social development through investment and involvement in projects of social importance;
- Embracing gender equality;
- Working with all stakeholders, including through public-private co-operation as well as international co-operation in creating breakthrough technologies and solutions for resolving systemic global issues and challenges in economic, cultural, social and environmental areas;
- Spreading awareness of sustainable development practices across the value-chain, including sharing of SDGs best practices amongst employees, vendors and customers;
- Exchanging information and showcasing best practices on sustainable development with other enterprises and organisations;
- Recognising, assessing and minimising the environmental impacts of business activities and ensuring efficient utilisation of all natural resources;
- Evaluating the societal impacts of business conduct to ensure inclusiveness and reduction of inequalities;
- Contributing to development of environmentally friendly modes of transport as a means to achieve carbon neutrality;
- Fostering greater and equitable employment and career development opportunities for women and persons with disability;
- Enhancing multilateral energy cooperation and exchange on enhancing global efforts on GHG mitigation, climate adaptation, and addressing loss and damage due to Climate Change;
- Focusing on the livelihood of smallholder farmers and driving their development through public-private cooperation;
- Promoting joint educational and training programs, including exchange practices for young specialists in the field of sustainable development and responsible investment.

We further call on the BRICS Leaders, to steer the sustainable development agenda to maximise the potential of business enterprises as partners in achieving the SDGs, through the following actions -

- Continue integrating SDGs in formulating national policies and regulations;
- Develop national regulatory and policy frameworks, and exchange knowledge and experience among BRICS countries in the area of sustainable development, including regulation and de-risking of global carbon markets, responsible and impact investment, green finance, etc. with the purpose to accelerate private investments for sustainable development;
- Create an enabling environment for maximum contribution by businesses through simplification of business registration and compliances, encouraging usage of "green" market mechanisms both on a national level and cross-border, homogeneous impact investing metrics consistent with SDG framework, transparent tax policies, improved access to finance, fairness and transparency in allocation of natural resources, and consistency and certainty in policies;
- Enhance food security with higher productivity & free trade flow among BRICS and other regions;

- Recognize the role of innovative technologies to address the global challenges of food security, climate change and health, and adopt a science-based approach in developing policies and regulations, while ensuring that there are no unwarranted restrictions on international trade;
- Accelerate pace of innovation by encouraging Start-up culture amongst BRICS members and its adoption across key sectors especially healthcare & agriculture;
- Set direction for rapidly overcoming the Covid-19 pandemic with mutually shared experiences and best practices in public health;
- Improve logistics connectivity among the BRICS nations and between the BRICS and third countries, by creating conditions for sustainable development of infrastructure, including railways as an ecologically friendly mode of transport, which will contribute to increase in international trade volumes, people's mobility, well-balanced regional development and enhanced welfare of our nations;
- Support institutional capacity building to nurture talent and facilitate exchange of ideas amongst stakeholders including academia, business, and government for inclusive and sustainable development;
- Support creation and protection of intellectual property created by small and medium-sized enterprises, provide priority state financing for registration and protection of SME-owned patents across BRICS countries;
- Support the development of an open, inclusive, rule-based, predictable, non-discriminatory multilateral trading and financial system, with the WTO at its core, and financial system giving due regard to each country's national interests.

New Delhi, 31 August, 2021

Mr. Jackson Schneider
(Federative Republic of Brazil)

Mr. Sergey Katyrin
(Russian Federation)

Mr. Onkar Kanwar
(Republic of India)

Capt. Xu Lirong
(People's Republic of China)

Ms. Busi Mabuza
(Republic of South Africa)

Proposal on Clean Energy Fund to New Development Bank

A) THE CONTEXT

1. The **Sustainable Development Goals (SDGs),** adopted by all United Nations Member States in 2015, as well as the Paris Agreement in the same year, have had a choppy journey in the initial years. However, the last few months have been genuinely encouraging, with significant climate commitments, including "net zero" announcements made by many major economies. Climate Laws are being increasingly discussed and legislated. There has also been increased momentum in Corporates signing up for the Climate Action 100+ Initiative as well as in adopting ESG reporting, Central bankers and Finance ministers are recognizing that Green Economy (encompassing Renewable Energy, Sustainable Mobility, Clean Air & Water, Circular Economy, etc) creates a large number of local jobs, with rapid scale up potential. Community acceptance is increasing on the need to address environmental issues (clean air & water, waste recycling, resource efficiency, biodiversity, etc) as well as the imperative of climate action. Consequently, Climate Action as well as SDG's achievement will have increasing economic relevance to Nations as well as Businesses, ushering in a resilient and Green Economy.

2. **BRICS Clean Energy Transition is an Imperative,** as BRICS nations are home to about 41% of the world's population and contribute 24% of the world's GDP (2019, World Bank). They constitute the largest base of global manufacturing and, in spite of being home to a substantial population of energy poverty victims, have made amongst the most ambitious NDCs. At the same time, BRICS GDP growth is predicted to be significantly higher than global average GDP growth, up to 2040, which will lead to significant growth in energy demand and, under BAU scenario, significant increase in GHG emissions as well as environment pollution. It is hence in the interests of the BRICS nations, as well as the world at large, that BRICS nations adopt cleaner and greener development path. This requires access to finance, not just in quantum but as "patient capital" which encourages and nurtures innovation in "green businesses".

Establishing an **NDB - Clean Energy Fund (NDB-CEF)** can serve as a key enabler of this highly desirable clean energy transition.

B) COLLABORATION WITH NDB – BACKGROUND FACTS

1) Engagement with the New Development Bank (NDB) has always been a key agenda area for the BRICS Business Council Working Group on Energy and the Green Economy (EGE/WG). This got more traction in 2018, under South Africa's Chairship, with momentum continuing in 2019, under Brazil's Chairship. Summarized below are relevant aspects from Minutes of Meetings as well as Annual Reports:

(a) **Durban on 22nd July 2018:** Collaboration with NDB and facilitating financing for clean energy projects were the agenda items and, in line with these discussions, a draft framework Agreement was submitted by EGE/WG to NDB, which outlined mechanisms for the funding of energy projects and other possible areas of potential cooperation.

Johannesburg on 3rd April 2019: Financing for clean energy projects, as well as a proposal to create a clean energy fund, were discussed during meetings within EGE/WG as well as jointly with NDB. While stating that enhancing development impact and Renewables are focus of their strategy, NDB was reluctant to enter into MOU with EGE/WG. The position of NDB was that it already has a number of MOUs with BRICS countries and suggested that the best way to move forward is to provide the bank with

recommendations for funding clean energy projects. It was suggested that the BRICS Business Council be used to get further support from NDB, recognizing that funding is very important for BRICS countries to make transition to clean energy, which will support the Paris agreement as well as improve intra BRICS co-operation and attract industry to come on-board.

(b) **EGE/WG Conference call on 26 August 2019:** It was reiterated that there was need to approach NDB as well as the interaction of EGE/WG with NDB to know NDB's policy and financing conditions for supporting the financing of countries' energy projects.

New Delhi Workshop on 3rd September 2019: 'Enhancing NDB's Engagement with the Indian Private and Public Sector' was organized by NDB, jointly with the Department of Economic Affairs, Ministry of Finance, Government of India. The key objectives of the workshop were (a) to facilitate enhancing the non-sovereign guaranteed lending portfolio, (b) to enhance NDB's engagement with the Indian private and public sector players, and (c) to facilitate participation of Indian firms in the procurement bids of NDB financed projects, etc.

Annual Report presented in Nov 2019: Objective 1: Support the development of financing for energy projects in BRICS countries matching the requirements of New Development Bank (NDB) with countries' needs. Context: The Energy and Green Economy Working Group submitted a set of recommendations to the NDB. These recommendations were related to the development of transformative and innovative funding mechanisms that will address the gap that continues to hamper the development of infrastructure projects that are largely free of the traditional sovereign support that has characterised the financing milieu of these projects. The NDB has considered the recommendations and agreed that there is now a need to deepen the conversation and support a pipeline of projects through a series of meetings or workshops with the presence of representatives from BRICS countries and NDB.

2) **Proposed 2021 Initiatives:** The theme for BRICS during India's Chairship is *'Intra-BRICS Cooperation for Continuity, Consolidation and Consensus'* and Sustainable Development Goals have been identified as key priorities for BRICS co-operation this year. It is acknowledged that finance is a critical factor for promoting Sustainable Energy & Green Economy, for which purpose NDB engagement has to go beyond articulation that "SDGs are a key criteria for its approval of projects". Hence, it is intended to take forward the 2019 proposal, with further elaboration on "Clean Energy Fund", under the aegis of BRICS Business Council, for discussions with NDB, as suggested in the 3rd April 2019 meeting at Johannesburg.

C) NDB-CEF: THE OPPORTUNITY

As a 'by-BRICS and for-BRICS' fund, NDB-CEF would be uniquely positioned in several important respects:

- Intra-BRICS trade in 2017 was only about 10.6% of the total global trade of BRICS countries[10]. This fund could be an enabler of both clean energy trade and trade in goods manufactured using clean energy within BRICS. That in turn would serve as the foundation for BRICS countries to capture an attractive share of global clean energy trade as well as global trade in goods manufactured using clean energy.
- Decarbonizing electricity and widening its applications will remain priority. However, there are other sectors which contribute significantly to GHG emissions but face daunting challenges when it comes to decarbonisation through renewable clean electricity, e.g., Long-haul Trucking/ Aviation & Marine Transport/ Farm Equipment & Rural mobility, Buildings and Industrial Process, as well as other hard-to-abate sectors as defined by the UN in 2019. Hence, there is need to give equal focus to other low carbon & environment friendly technologies, which can effectively displace fossil fuels as well as enhance, within developing economies, community access to affordable and clean energy.

[10]https://pib.gov.in/Pressreleaseshare.aspx?PRID=1594938

- The fund would have the ability to contribute to sustainable rural development, through leveraging, as impact-multipliers, local entrepreneurs already engaged in areas such as decentralized RE generation, clean cooking, potable water access and sustainable agriculture. Moreover, the fund could contribute to address the substitution of the diesel generation normally used in isolated systems cooperating with national programs and/or large projects for cleaning the energy matrix of these vulnerable regions in BRICS
- Ensuring that all new energy infrastructure is resilient to the changes in the climate will also contribute to energy reliability and energy security

The above aspects illustrate the huge enabling potential of NDB-CEF, however the impact is expected to be much wider. This fund has the opportunity to span the spectrum from addressing basic energy and mobility access issues within BRICS to making BRICS countries leaders in challenging areas such as future fuel sources, including advanced biofuels, green hydrogen as well as cost-effective storage solutions for variable RE and carbon capture utilization & storage.

Today we hear universal concerns expressed over three key challenges faced by global communities. First, global warming should be curbed by cutting greenhouse gases emissions caused by human activities and adapting to the negative impacts of climate change. Second, the access to energy and technologies are not fairly distributed across countries and these disparities might become deeper if the transition towards a sustainable and clean economy will not be properly carried out. Finally, environmental degradation should be halted since the natural balance in the ecosystems has been deteriorated by human activities, causing resources depletion, increasing air pollution, biodiversity loss as well as natural disasters.

Sustainable development envisages the development of society, in which the satisfaction of the current needs of humanity is carried out without damage to future generations. Sustainable Energy is mentioned as inextricably linked with the 7th UN Goal of Sustainable Development, where ensuring universal access to affordable, uninterrupted, reliable and modern energy for all communities is a priority. Moreover, reducing greenhouse gas emissions is an important goal, but it cannot be achieved without addressing how society can fully meet the costs of an accelerated energy transition, or without taking into account the energy needs of billions of low-income people around the world. Hence, energy transition should be achieved through technological innovation together with customer-oriented solutions in close cooperation with all stakeholders (humanizing energy).

With this context, it is recommended that BRICS Nations consider the following solutions / priority sectors under scope of NDB Clean Energy Fund:

D) NDB – CEF: MANDATE & PRIORITY SECTORS

Low Carbon Technologies which give an impetus on sustainability and inclusiveness, which would form mandate of NDB-CEF

This year the Energy & Green Economy Working Group has agreed to pursue 4 new focus areas (sectors) including 3 related to Sustainable Energy, as outlined below, which could be included as "priority sectors" under scope of NDB-CEF

1. *DDD (Decentralized, Decarbonized, Digitised) Energy solutions for urban & rural areas*

Context: DDD energy solutions play a crucial role in enhancing clean energy access & inclusive economic growth, within transitioning economies and in creation of climate resilient infrastructure. This is achieved through creating linkages amongst various renewable energy sources, variable and dispatchable, as well as storage options, to ensure affordable and clean energy supplies, as per consumer needs. Decentralized RE generation is, now, commercially viable and integration of Digital Technology enables optimal balancing of generation with consumption and storage. Besides, decentralised RE plants are quick to set up, and do not require large land banks or the creation of major

transmission and distribution (T&D) infrastructure. There are further benefits of reduction in T&D losses as well as in facilitating grid balancing.

Construction of electric grids, including micro grids, to match Renewable Energy generation is necessary. According to IEA report, in 2021, investments in electricity generation will increase by 5%, to $820 billion.

Sub Sectors:

1a. Rooftop Solar, distributed solar generation, Solar Irrigation Pump sets, etc, including "renewable energy as a service".

1b. Clean Cooking Solutions, e.g., products like "Electric Pressure Cooker"; Food/ Farm waste-based Biogas plants; Methanol Cook Stove; etc to optimize shift from traditional biomass.

1c. Micro grids connected to hybrid RE power generation (+ energy storage) solutions.

1d. Modernization of generation assets to increase the capacity to produce renewable clean energy.

1e. Large scale deployment of compact & efficient energy storage devices (e.g. supercapacitors).

2. *Sustainable Mobility*

Context: Global transport sector emissions are currently very high at 7.7 Gton CO2 per year, apart from tailpipe emissions of fossil fuel vehicles, which would increase rapidly, under BAU scenario, with projected doubling of transport sector activity by 2050. Hence, a transformative shift towards decarbonisation of the transport sector is an imperative, if commitments under the UNFCCC and its Paris Agreement as well as the UN 2030 Agenda for Sustainable Development (the SDGs) are to be met.

Sub Sectors:

2a. Electric Mobility, including RE supplied Charging Infrastructure

2b. Low Carbon and Green Hydrogen

2c. Advanced Biofuels, integrated with Sustainable & Remunerative Farming

3. *CCUS (Carbon Capture, Utilisation & Storage)*

Context: According to the International Energy Agency (IEA), industrial greenhouse gases (GHG) from steel, cement, fertilizer plants, and refineries account for more than one-quarter of all GHGs and are practical targets for implementing carbon capture and utilization. Post 2040 even with significant scale up in renewable energy generation (& storage) as well renewable fuels production, BRICS nations may still need fossil fuels, from perspectives of energy security as well as economic and industrial process needs. Carbon capture and storage-technologies separate CO2 emissions from industrial and energy sources and ensure their long-term isolation from the atmosphere; according to a new IEA report, the increase of the Renewable Energy solutions also leads to enhanced minerals extraction, e.g. typical electric car requires six times the mineral inputs of a conventional car, an offshore wind plant requires 13 times more mineral resources than a similarly sized gas-fired power plant, what in turn is accompanied by the increase in GHG emissions produced by non-ferrous plants.

In such scenario, the role of CCUS will become important, to meet the "Net Zero" objective.

Sub Sectors

3a. CO2 Pipelines for EOR applications

3b. Other utilization of CO2, e.g., aqueous CO2 for Horticulture, Dry Ice, etc

E) NDB-CEF: SUGGESTIONS ON SCOPE, STRUCTURE & SIZE

BRICS nations are faced with the compulsion of simultaneously transitioning to sustainability on multiple fronts including energy and mobility, while also ensuring that the aspirations of their citizens are met. The Scope could be as outlined in para C above.

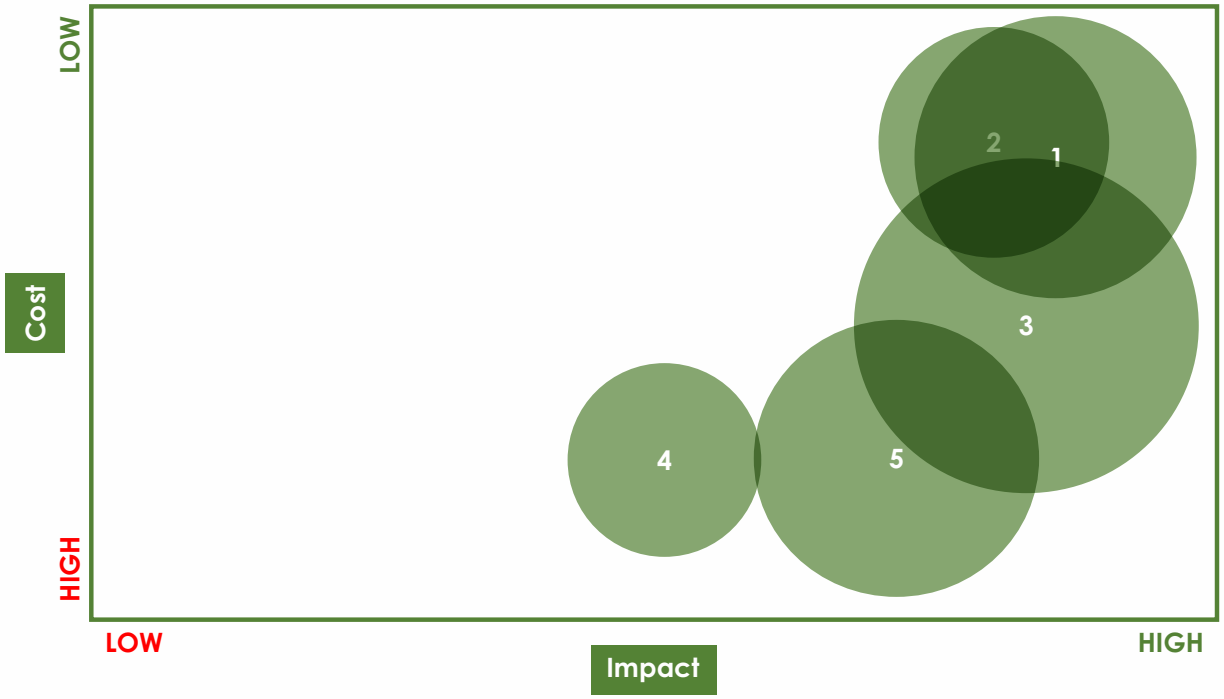
However, this will require access to enormous sums of capital on reasonable terms, including "patient capital", which allows innovation to morph into mainstream solutions, through allowing technologies to mature as well as growth to be funnelled by market dynamics and cost reductions be driven by economies of scale. In this situation, NBD-CEF's most valuable role is likely to be as an agency that seeds/catalyses investments in projects and initiatives that further this transition. It can discharge this role by assembling and orchestrating an ecosystem of co-financiers who will follow the fund's lead and channel required funds to the projects/initiatives seeded by the fund. This ecosystem needs to include the following considerations:

- funding instruments, such as soft loans, grants, credit enhancement guarantee fund, trade finance;
- pricing, preferably lower than commercial lending, akin to that of development finance institutions (DFIs);
- investment tenor of 15 to 20 years;
- local currency funding, exchange risk issues which may be considered in select cases, e.g. clean energy and water access, in rural areas;
- private sector equity and debt funding, including long tenor and low interest debt funds, which will enhance economic viability of commercially proven green businesses, thereby enable and attract private equity

In addition, the NDB is urged to investigate the possibility of supporting early stage project development to support in particular the introduction of new technologies to BRICS countries. Exploring risk mitigation instruments and the regulatory frameworks that might contribute to the Funds ability to enhance the credit worthiness of utilities and provide amongst other things, clarity on long term policy as well as visibility of cash flows to investors and lenders, for each identified sector is also critical.

Depicted below is a framework for prioritizing the fund's investment focus.

NDB-CEF Investment Prioritisation Framework



Location on the **Impact** *axis indicates contribution to sustainability.*
Size of bubble indicates contribution to inclusivity.
Bubble location and size are meant to illustrate the framework. Not based on specific data.

Illustrative Sub- Sectors

1. **DDD (Decentralized, Decarbonized, Digitised) Energy generation:** Low to medium in cost & complexity; it can be rolled out quickly. Has high impact as it will enhance reliable electricity access to hundreds of millions of people within BRICS; while mitigating pollution associated with fossil energy as well as costs & losses related to traditional energy transmission & distribution models. It is important to define current situation review in order to identify: (i)target communities that currently and in the near future have no access to electricity, (ii) policy and regulations impacting remote off-grid electricity supply (iii) Obtain forecasts for electricity supply and demand growth encompassing productive activities, users and communities' needs.

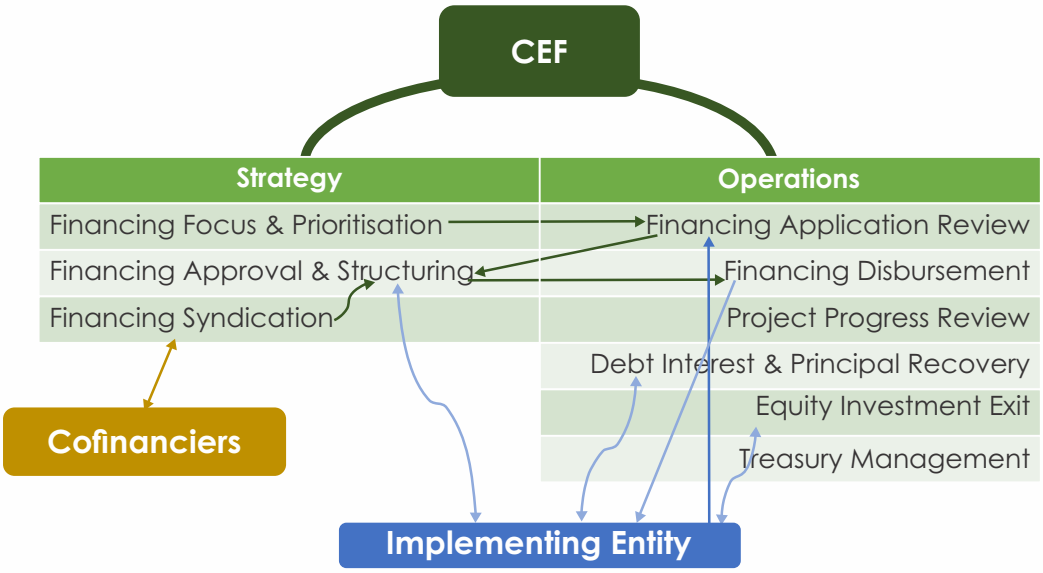
2. **Clean Cooking Solutions:** Low in cost & complexity; it can be rolled out quickly; Has high impact as millions of BRICS households still use traditional biomass as fuel for their home cooking and heating needs, with adverse environment & health consequences.

3. **Advanced Biofuels integrated with sustainable & remunerative farming:** Medium in cost & complexity; can be implemented at scale rapidly. Has high impact, even in short term, as biofuels can leverage existing mobility fleets, industrial heating assets, auxiliary power generation assets etc. and help decarbonize these sectors.

4. **Carbon Capture Utilization & Storage:** Currently, high in cost and medium to low in Complexity (depending upon end use of CO2); can be rolled out quickly. Has high, long term impact, as there may be need to implement, in scale, for "Net Zero" targets to be met.

5. **Low Carbon & Green Hydrogen:** Currently high in cost & medium to low in complexity (depending upon technology option); can be rolled out quickly. Has high impact, even in short term, as FCEV's can leverage existing e-mobility fleets and green hydrogen can displace fossil fuels in existing industrial heating assets and help decarbonize these sectors. In the long term, green hydrogen is forecasted to be a key element of energy mix, in conjunction with Renewable Electricity.

NDB-CEF Structure



NDB- CLEAN ENERGY FUND – SIZE (at Start-up Phase)

CEF Size:	USD 1.0 billion, as initial corpus.
	USD 0.2 billion, as NDB contribution.
	USD 0.8 billion, raised by NDB-CEF via green bonds
CEF Co-financiers' Commitment:	USD 2.0 billion.
CEF Ecosystem Total:	USD 3.0 billion.

Co-financiers could be major banks, who have already committed to finance trillions of dollars on climate change and sustainable investment activity by 2030, e.g., JP Morgan Chase has committed $ 2.5 trillion and Citigroup has committed $ 1 trillion (source: Bloomberg Green, April 22nd, 2021). With NDB- CEF acting as Lead Financier, it is anticipated that such Banks will be interested to co-finance, as their current challenge is credible projects pipeline, rather than availability of deployable funds.

Once the "start-up" phase is effectively implemented, NDB-CEF could anticipate higher leverage from Co-Financiers as well as increase its corpus.

2018/19 Input from BRICS Business Council EGEWG to New Development Bank

1. BACKGROUND AND INTRODUCTION

1.1. The NDB is a multilateral development bank, with the purpose of mobilizing resources for infrastructure and sustainable development projects in BRICS and other emerging market economies and developing countries to complement the existing efforts of multilateral and regional financial institutions for global growth and development.

1.2. The NDB is authorised to utilize resources at its disposal to support infrastructure and sustainable development projects, public or private, in BRICS and other emerging market economies and developing countries, through the provision of loans, guarantees, equity participation and other financial instruments.

1.3. The BRICS Business Council aims to facilitate cooperation between businesses in various sectors in the BRICS member countries, as well as promoting trade and industry amongst them through the establishment of 9 (nine) working groups with the main objectives being:

1.3.1. the facilitation of interaction amongst businesses with a view to better understand the market opportunities; and

1.3.2. building synergies based on the respective competitive strength and to promote manufacturing and job creation.

1.4. WGEGE is a working group established by the BRICS Business Council. It has been mandated by the BRICS Business Council to facilitate the establishment of the Framework with a specific focus on energy and related projects.

1.5. There is a need to work towards a transformative and innovative funding mechanism that will address the gap that continues to hamper the development of private sector infrastructure projects that are largely free of the traditional sovereign support that has characterised the financing milieu of these projects.

2. AREAS OF COOPERATION

2.1. The WGEGE and the NDB will work together to explore the mechanisms for the funding of energy projects and other possible areas of potential cooperation within the respective mandates of the Parties and may, in particular, explore the possibility of collaborating in the following areas of activity:

2.1.1. providing funding support to projects, programmes, policies, and other activities geared towards limiting or reducing greenhouse gas emissions and to adapt to the impacts of climate change, building resilient infrastructure in developing countries;

2.1.2. determining the framework which may include, amongst others;

2.1.2.1. objectives of the framework;

2.1.2.2. funding criteria, that address environmental & ecological issues as well as enable growth on a sustainable development path including the achievement of the Sustainable Development Goals, along with greenhouse gas mitigation;

2.1.2.3. funding instruments, such as soft loans, grants, credit enhancement guarantee fund, trade finance;

2.1.2.4. pricing, preferably lower than commercial lending, akin to that of development finance institutions (DFI's);

2.1.2.5. investment tenor of 15 to 20 years;

2.1.2.6. local currency funding, exchange risk issues which may be considered in select cases, e.g. clean energy and water access, in rural areas;

2.1.2.7. private sector equity and debt funding, including long tenor and low interest debt funds, which will enhance economic viability of commercially proven green businesses, thereby enable then attract private equity; and

2.1.2.8. governance mechanisms.

2.1.3. establishing a joint working group that would be responsible for identifying the constituent parts that would constitute a sustainable funding mechanism. The working group should have adequate and holistic representation from industry, to factor in market realities and, without compromising on credit risk, facilitate rapid scaling up of green businesses;

2.1.4. defining the scope of the Fund including considerations regarding sector, technology, natural resource endowment of the individual BRICS nations and current/evolving market dynamics;

2.1.5. exploring risk mitigation instruments and the regulatory frameworks that might contribute to the Funds ability to enhance the credit worthiness of utilities and provide amongst other things, clarity on long term policy as well as visibility of cash flows to investors and lenders, for each identified sector; and

2.1.6. investigating the possibility of supporting early stage project development to support in particular, the introduction of new technologies to BRICS countries.

Note: This proposal is subject to further discussions with the NDB.

Abbreviations

AAMI - Association of Advancement of Medical Instrumentation

ACI - Airport Council International

AEO - Authorized Economic Operator

AHSS - Advanced High Strength Steels

AI - Artificial intelligence

AIIB - Asian Infrastructure Investment Bank

AML - Anti-Money Laundering

AMTZ - Andhra Pradesh MedTech Zone

APAC - Asia Pacific

APEDA - Agriculture and Processed Food Products Export Development Authority

ATF - Aviation Turbine Fuel

BAU scenario - Business-as-usual

BBC - BRICS Business Council

BRSR - Business Responsibility and Sustainability Reporting

CAPEX - Capital Expenditure

CAREM - Central Argentina de Elementos Modulares

CBDC - Central Bank Digital Currency

CCUS - Carbon Capture, Utilization & Storage

CEF - Clean Energy Fund

CFT - Combating the Financing of Terrorism

CIDB - Construction & Industrial Development Board

CNG - Compressed Natural Gas

CO2 - Carbon dioxide

CoE - Centre of Excellence

COP - Conference of the Parties

CT - Computerized Tomography

DAC - Direct Air Capture

DDD - Decentralised, Decarbonised, Digitised

DFI - Development Financial Institution

DLT - Distributed Ledger Technology

EGEWG - Energy and Green Economy Working Group

EOR - Enhanced Oil Recovery

ESG - Environmental, Social, and Corporate Governance

ETF- Exchange Traded Fund

EV - Electric Vehicle

F&V - Fruits and vegetables

FATF - Financial Action Task Force

FCEVs- Fuel Cell Electric Vehicles

FDI - Foreign Direct Investment

FEBRABAN - Brazilian Federation of Banks

FSWG - Financial Services Working Group

FTK - Freight Tonne Kilometres

GAN - Generative Adversarial Networks

GBCI - Green Business Certification Inc

GCC - Gross Cost Contract

GDP - Gross Domestic Product

GHG - Greenhouse Gas

GHTF - Global Harmonization Task Force on Medical Devices

GIF - Generation International Forum

GIFT - Gujarat International Finance Tec-City

GRI - Global Reporting Initiative

GRIHA - Green Rating for Integrated Habitat Assessment

GVC - Global Value Chain

HADR - Humanitarian Assistance and Disaster Relief

HEVs - Hybrid Electric Vehicles

HTR-PM - The High Temperature Gas Cooled Reactor - Pebble-bed Module

IAC - Instituto Agronômico

IBSC - Indian Biomedical Skill Council

ICE - Internal Combustion Engine

ICT - Information and Communications Technology

IEA - International Energy Agency

IFC - International Finance Corporation

IFSC - International Financial Services Centre

IGBC - Indian Green Building Council

IMDRF - International Medical Device Regulators Forum

IOT - Internet Of Things

IPPF - Intellectual Property Pledge Financing

IVDs - In Vitro Diagnostics

JVs- Joint Ventures

KIHT - Kalam Institute of Health Technology

KYC - Know Your Customer

LCVs - Light Commercial Vehicles

LEED - Leadership in Energy and Environmental Design

LNG - Liquefied Natural Gas

LPG - Liquefied Petroleum Gas

LRT - Light Rail Systems

MAP - Modern Agriculture Platform

MECS - Modern Energy Cooking Services

MOU - Memorandum of Understanding

MRA - Mutual Recognition Agreements

MRI - Magnetic Resonance Imaging

MSME - Micro, Small and Medium Enterprise

NaBFID - National Bank for Financing Infrastructure & Development

NDB - New Development Bank

NDCs - Nationally Determined Contributions

NOx - Nitrogen Oxides

OEMs - Original Equipment Manufacturers

OPEX - Operating Expenses

PAT - Perform-Achieve-Trade

PEVs - Plug-in hybrid Electric Vehicles

PLI - Production Linked Incentive

PM-KUSUM - Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan

PPP - Public-Private-Partnership

PRT - Personal Rapid Transit

PV - Photovoltaic

RDF - Refuse-Derived Fuel

RE - Renewable Energy

SAARC - South Asian Association for Regional Cooperation

SADC - Southern African Development Community

SbT - Science based Targets

SDGs - Sustainable Development Goals

SDWG - Skills Development Working Group

SEBI - Securities and Exchange Board of India

SETS - Sectoral Emissions Targets

SMR - Small Modular Reactors

SMR NPPs - Small Module Reactors Nuclear Power Plants

SNF - Spent Nuclear Fuel

TCFD - Task Force on Climate-Related Financial Disclosures

TCO - Total Cost of Ownership

TFA - Trade Facilitation Agreement

TNFD - Taskforce on Nature-related Financial Disclosure

TOD - Transit Oriented Development

ToT - Training of Trainers

TWW - Treated Wastewater

UNFCCC - United Nations Framework Convention on Climate Change

WHO - World Health Organization

WTO - World Trade Organization

4IR - Fourth Industrial Revolution