

Science Diplomacy: Revisiting a New Health Paradigm in Manoeuvring the Pandemic

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Abstract

A silver lining of late has been the witnessing of the real-time results of diplomatic relations in various areas including science technology innovation and especially vaccine development. A global problem calls for a joint action by participating countries to pool their resources together and find a solution the benefits of which reach beyond several borders. A well grounded international relation among countries in these times of pandemic needs to be further strengthened not just for the development of more potent vaccines but also for cementing ties in the areas of biotechnological or scientific advancements. The history is witness to the fact that such efforts have also provided an opportunity to look closer and deeper into the strategies that have not worked optimally in the past. Such a critical look at the performances in the desired areas at international level almost always delivers a better focused pragmatic solution. Emerging from several rounds of cross-border discussions and deliberations, the diplomatic exercises have already begun to bear fruits. The comity of nations is a more coherent whole today the proof of which is evident enough on multiple fronts of global public health.

Introduction

The pandemic has fore grounded the importance of expertise in scientific

research, innovation, inter-lab technological collaboration, information and transparency. We are witnessing real-time efforts among scientists and researchers across the globe in the race to develop the production of vaccines and antiviral medications. Though we have achieved appreciable advancement in dealing with the unprecedented situation, there obviously are challenges to be surmounted when collaboration on the international level is considered. Leveraging science technology and innovation in a pandemic is a foremost theme not just for the Indian media but it commands equal significance in overseas countries as well.

Though some countries rely on unilateral actions if we look at vaccine development, national boundaries are not the limits when the larger good of citizens globally is kept in sight. The overall impact of international cooperation calls for focused analyses to combat the pandemic with solidarity. And that is precisely where science diplomacy comes to the rescue, not only for vaccine development but also for technology transfer and other allied areas which would positively affect the affected humanity worldwide.

Science diplomacy addresses a variety of global issues, varying from environmental issues to global health concerns, and more recently, the Severe Acute Respiratory Coronavirus-2 (SARS-CoV-2) [1]. Science diplomacy maintains

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equality that defies conventional colonialist paradigms that have dominated international research cooperation, particularly in the field of global health [2]. Using methods like Global Health Diplomacy, Vaccine Diplomacy, and Science Diplomacy, we can re-imagine global health dynamics to promote development, health security, justice, and fairness [3].

Science Diplomacy and Pandemic

Science is based on innovation and curiosity and cannot be leveraged in a vacuum. We need to harness the warp and woof of co-operation on appropriate and mutual planes to achieve global scientific prosperity. In order to reach such goals, it is imperative to keep strengthening our international relations by constantly fine tuning the diplomatic relations where science reflects in the manner desired by cooperating countries. Since science is transparent, data driven, apolitical and does not recognise national boundaries, it has all the potential to promote scientific and technological exchange among participating countries riding together on the twin shoulders of science and diplomacy. Science diplomacy builds on the power of science, using science as a tool to achieve foreign policy objectives where, not only the research outcomes but also science per se as a process and serves to promote peace and sustainable development [4].

Science Diplomacy is not new to us and has been playing its essential role to strengthen the roots of science technology and innovation on the international level for decades. For leveraging mutual gain we need to acknowledge the importance of science diplomacy on multiple levels whether it is unilateral, bilateral, or multilateral. The numerous projects based on international collaboration with CERN, FAIR, TMT, LIGO, and many others have proved to be milestones and transformative projects for India.

Diplomacy to assure the availability, accessibility, and quality of S&T to manage the COVID-19 pandemic is central to India's success [5]. The current pandemic has put

science technology innovation into the spotlight; though science diplomacy has established itself in past decades as a major pillar for intense international collaborations. The much talked about virus today has provided an excellent opportunity to transform our science-policy interfaces that are predominant in fighting such crises. Looked at the theme broadly, science diplomacy involves three dimensions including Science in Diplomacy through which science can provide advice to inform and support policy objectives; Diplomacy for Science where diplomacy can facilitate international scientific collaborations and Science for Diplomacy where scientific collaborations can improve international relations.

Not only technologies are getting collaborative but the academic linkages are also getting stronger by the day. If we take the example of development of vaccines in past decades, it took a number of years to produce a successful vaccine while today the timeframes have been unimaginably compressed. It was within a single year that a Covid-19 vaccine has been successfully manufactured with the collaboration on international and multilateral levels. The power of multiple and multifaceted talents was never as truly demonstrated as in these times of global distress.

Table1: Global vaccine candidates (9)

Number of vaccines in clinical development	108
Number of vaccines in pre-clinical development	184

Vaccine science and Vaccine diplomacy

Certain expressions have acquired recent currency during the pandemic. Vaccine Science, Vaccine Diplomacy and Vaccine Scientific Diplomacy are a few such. Vaccine Diplomacy derives from global health diplomacy, its strengths are the various methods of negotiation procedures that supports creation of a global policy environment. Vaccine Diplomacy is looked forward to while deciding strategies for usage and distribution of vaccines across the

desired parts of globe. As against this, Vaccine Scientific Diplomacy draws from both global health diplomacy as well as science diplomacy that enhances diplomatic ties among nations. And when it comes to finding leads to either developing cures or to develop vaccines for neglected tropical diseases (NTDs) that does not attract the solution-centred scientific attention are routinely by the international community of scientists, it is Vaccine Science Diplomacy that acquires centrestage.

Vaccine science diplomacy: How imperative?

Hardly any better example can be found of Vaccine Science Diplomacy than the eradication of smallpox in the late 1970s which expressly demonstrated the power of worldwide joint scientific collaboration. The success stood on the firm grounding of policies directed towards achieving global public health goals that were to be obtained in a joint manner. Foreign policy through the various processes of collaboration and partnership constantly results into fine tuning its mechanisms that ensures smooth progress of vaccine diplomacy and vaccine science diplomacy. In order to improve the health of citizens of the world, multiple partners from a range of research activity areas and technological disciplines covering global global health practitioners and government officials have coalesced together for greater reaching out with common advantage for the comity of nations.

Not just individuals but nations also learn from each other. A direct result of collaborative action on the global scale was the creation of Global Outbreak Alert Response Network (GOARN) which came into operation through World Health Organization (WHO). GOARN has its origin in WHO's Global Public Health Intelligence Network that sends out early warning alerts about impending potential epidemics based on epidemiological and medical metrics that experts conceive and execute. What better time could be imagined for the benefits to reach wider than today when the internet is

omnipresent. The part played by social media through internationally collaborated webinars has aided immensely especially when various hues of scientific opinions were required to reach a common understanding for informing vaccine science policy and its implementation across the world. With expressions such as quarantine, physical distancing, herd immunity and flattening the curve, the various social media platforms have gone the extra mile in establishing these terms and concepts in the permanent public memory and thus binding countries together. These expressions have characters that are international and hence speak a common international language that people across the world readily understand.

Science diplomacy and vaccine development

In the arena of vaccine development in this pandemic, India has stated its remarkable presence and has showcased its potential. From the first dose of smallpox in 1802 to the coronavirus vaccine in 2021, centuries are the eye witness of India's tremendous success. India is among the largest manufacturer of generic drugs and vaccines in the world. It is home to half a dozen major vaccine makers and a host of smaller ones, making doses against polio, meningitis, pneumonia, rotavirus, BCG, measles, mumps, and rubella, among other diseases [6].

Vaccine diplomacy alludes to two sorts of approaches. The first is as a producer and merchant of vaccines. India is the significant maker on the planet and has given vaccines or meds for HIV, meningitis, and intestinal sickness. India is among the biggest makers of vaccines covering about 60% for some illnesses and is consequently very much positioned to scale those creation offices to fabricate the Covid-19 vaccine [7].

Vaccine Diplomacy gives an exceptional chance to amended global collaboration. The interest for the vaccine is worldwide; its improvement is moved in a couple of nations. Adaptable creation offices are accessible in a

couple of nations like India and China. The chance for drawing in nations in another conciliatory program dependent on immunizations is hence high on the plan of global collaboration ahead [8].

Vaccine science diplomacy: The promise of biotechnology

A lot of what has already happened in the areas of research on developing vaccines for COVID-19 could hardly be imagined without drawing upon the strengths of biotechnology. Biotechnology today in the wake of pandemic is fast putting on new faces that broadly reflect concerns of national and international health protection schemes that include development of novel biotechnological tools for public health, COVID mutants and intranasal vaccines.

Mounting unheard of responses while evolving plans to contain and control unexpected infections have future answers getting formed in biotechnological labs across the world that have yet to see the light of the day. The prominent among such techniques could be in the areas of not just improved lab diagnosis but a control that public at large could wield independently without the intervention of even a basic health care giver. Expected outcomes could also be in the areas of a quantified reduction of disease burden which often mars a large number of public health plans and their execution on a larger scale.

Vaccines in development

Table 2: Current vaccine status (10)

20	Vaccines approved for use by at least one national regulatory authority
7	Vaccines in WHO's emergency use listing
17.2 billion	Doses secured globally
\$2-\$40	Reported vaccine price range per dose
4.71 billion	Doses COVAX has secured, optioned, or received as donations

The ever-changing profile of SARS CoV-2 have more than underlined the importance of cooperative and joint international action in the recent past. The idea of a self-reliant could not be more relevant than in the times that we are squarely faced with today. The adversity has not just spurred us to galvanise our actions together but also produced processes and products that we could put to public use much sooner than expected. Scientists and diplomats have hardly ever sailed together in the same boat. And what's more, they have remained comfortable in the company of each other since their larger common concerns and intentions of finding a range as well as a suitable combination of global public health were clearer than it ever was.

It is not just true for public health crises or pandemics but extends to the realms of global warming and climate change. The past is a mirror looking critically into which makes not just makes countries realise their new-found potential but also considering giving serious thought over sharing the bounties gained from a nation's scientific wisdom with countries that have yet to catch up. Integration of solidarity in the processes of science for larger social good through futuristic biotechnological interventions could turn the table in favour of joint research and the welfare of global citizenry.

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