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OCTA as an independent science advice provider for COVID-19 in the Philippines

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We comment on science advice in the political context of the Philippines during the COVID 19 pandemic. We focus on the independent science advisor OCTA Research, whose publicly available epidemiological forecasts have attracted media and government attention. The Philippines government adopted a COVID-19 suppression or “flattening of the curve” policy. As such, it required epidemiological forecasts from science advisors as more scientific information on SARS CoV 2 and COVID 19 became available from April to December 2020. The independent think-tank, OCTA Research has emerged the leading independent science information advisor for the public and government. The factors that made OCTA Research as the dominant science advice source are examined, the diversity of scientific evidence, processes of evidence synthesis and, of evidence brokerage for political decision makers We then describe the dynamics between the government, academic science research and science advisory actors and the problem of science advice role conflation. We then propose approaches for a largely independent government science advisory system for the Philippines given these political dynamics.

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Introduction

Pandemic science before COVID 19 presumed “predictable challenges” (Lipsitch et al., 2009) that informs government response especially in planning for containment interventions such as lockdowns. The success of government response is in the public perception of a positive outcome and this is reducing the number of infections. The COVID 19 pandemic is a crisis in which the orderly functioning of social and political institutions are placed into disorder and uncertainty (Boin et al., 2016). In political institutions this may be a threat to accepted political power arrangements and requires a response which because of their urgency, are occasions for political leaders to demonstrate leadership. However, to do so they will have to rely on actors who provide science, economic and social information and advice. In many cases these actors are within the government bureaucracy itself, as specialized agencies. Academic research institutions also provide advice. Civil society organizations with science and technology advocacies may provide advice. Science advice provided by civil society organizations, citizen science advocacy organizations and non-government think tanks are independent science advice providers. These organizations are a feature of the technical and science advice ecosystems of liberal democracies.

How governments use science advice and decide in a crisis strengthens political legitimacy. In the United Kingdom with its formal structures of government science advice such as the Science Advisory Group for Emergencies (SAGE) a key outcome is lowering SARS CoV 2 transmission (R) rate and the way this can be achieved is to institute a lockdown. SAGE was placed in a high degree of public, media and political scrutiny in its recommendations. While formal science advice structures may work well in countries with a large and well-established science community, in countries with small science communities, independent science advice actors may be more effective than formal science advice actors.

Previous studies on the use of science advice by governments have revealed a dichotomy. Knowledge producers (e.g., academic science community) perceive high uncertainty in scientific results and consequentially become guarded in their science advice or even dispense with it in recognition of their political costs. In contrast knowledge users (e.g. politicians and science advisors in government) perceive less uncertainty in science advice and require assurances in outcomes (MacKenzie, 1993). This present challenges for science advice practitioners since differentiating the roles of science knowledge generation and science knowledge users, both of which can be played by academic scientists, can be conflated, and may result in political risks and opportunities.

To remedy this conflation, science advice mechanisms emphasizing independent knowledge brokerage (Gluckman, 2016a) define a particular role for scientists in listing down science informed options for politicians and policy makers. These roles have their theoretical basis from post-normal science approaches (Funtowicz and Ravetz, 1993, 1994; Ravetz, 1999) which place a premium on managing uncertainty in crises through consensus building and identifying of science informed policy options. The science advice “knowledge broker” will not be functioning as part of the knowledge generation constituency but in a purely advisory capacity identifying policy options. This is the model promoted by the International Network for Government Science Advice (INGSA). This also insulates the science advisor from undue political interference.

However, in countries where the science community is small and politically underrepresented, performing these well-defined functions will be difficult due to a lack of experts and the range of scientific expertise they can provide. In small science communities, the problems of role conflation become more apparent and may place the science advisor prone to political pressure. Vallejo

and Ong (2020) reviewed the Philippines government response and science advice for COVID 19 from when the World Health Organization (WHO) advised UN member states of a pandemic health emergency on January 6 to April 30, 2020 when the Philippines government began relaxing quarantine regulations. They noted the roles of various science advice knowledge generation actors such as individual scientists, academe, national science academies and organizations and how these were eventually considered by the Inter Agency Task Force on Emerging Infectious Diseases (IATF-EID) which is the government’s policy recommending body for COVID 19 suppression. Of these advisory actors, the private and independent OCTA Research Group hereafter referred to as OCTA, which consists of a multi-disciplinary team of academics from the medical, social, economic, environmental, and mathematical sciences mostly from the University of the Philippines, became the most prominent source of government science advice with its proactive but unsolicited provision of government science advice.

Because of this engagement, like SAGE in the UK, OCTA became a focus of intense media, public, and political interest and could represent an effective modality for independent science advice especially in newly industrialized countries where the science community is small but gaining a larger base of expertise. While science advice in this context may involve a conflation of science advice roles, we look into this conflation and their political dynamics in pandemic uncertainty and how consensus was formed in COVID 19 policy advice. This paper explores on how independent science advice has proved to be the chief source science advice in a polarized political environment in a Southeast Asian nation from the start of the pandemic in January 2020–October 2021.

The Philippine science advice ecosystem

Science advice in the Philippines takes on formal (with government mandate), informal (without government mandate) solicited and unsolicited modalities. Formal science advice to the President of the Philippines is provided by the National Academy of Science and Technology (NAST) by virtue of Presidential Executive Order Number 812. The government solicits science advice from the NAST which provides advice as position or white papers to cabinet for consideration. The NAST is not a wholly independent body from government. It is attached to the Department of Science and Technology (DOST) for administrative and fiscal purposes.

Other sources of science advice are from the universities such as the University of the Philippines (UP). The UP is designated by charter (Republic Act Number 8500) as the national, research and graduate university. This mandates it to provide science advice to the government. Academics in their individual capacities, as members of think-tanks or civil society organizations provide unsolicited and informal science advice to government through the publication of scientific and position papers as well as technical reports. Academics who are part of non-government science academies such as the Philippine American Academy of Science and Engineering (PAASE) provide similar advice. The science advice system in the Philippines is diverse with each actor having its own political and development advocacy. The system is largely ad hoc and informal, and science advice are largely unsolicited. This dynamic determines its role with the government. Also, when these science advice actors are consulted by the government, they are all primus inter pares in dealing with political actors in government. Members of the science advisory bodies are mostly active academics. They are all knowledge producers and users at the same time.

There are few studies that directly examine the politics of science advice and uncertainty in the Philippines, and these are in disaster risk reduction management (DRRM). This can serve as a template for analysis for the COVID 19 pandemic in the Philippines which has been construed by government and the public as a global disaster. The strengths and weaknesses of the present science advisory system may be seen in DRRM advice.

DRRM as a framework for government science advice in the Philippines

Disasters which have affected the Philippines in the first decade of the 21st century such as Typhoon Ketsana (Philippine name “Ondoy”) in 2009 which flooded much of the National Capital Region, have resulted in several studies investigating the resilience of urban communities and how science advice is used in crafting urban resilience policies and governance. This disaster was also the major impetus for disaster legislation with enactment of the DRRM law (Republic Act Number 10121). This law institutionalizes and mainstreams the development of capacities in disaster management at every level of governance, disaster risk reduction in physical and land-use planning, budget, infrastructure, education, health, environment, housing, and other sectors. The law also institutes the establishment of DRRM councils at each level of government. The councils are composed of members from government departments, the armed forces and police, civil society, humanitarian agencies but most notably, does not include academic research scientists. Science advice is given by CSOs but that is in accordance with their particular advocacies and their political objectives.

A study commissioned by the independent think tank Odi.org and by researchers of De La Salle University in Manila (Pellini et al., 2013) concluded that there is a “low uptake of research and analysis” to inform local decision in DRRM. It also identified a reactionary response to disasters rather than a response to disaster risks. Formal and informal science advice is most effective in local government if local executives prioritize risk reduction with consensus building at the local level. In general, formal, and informal science advice is less effective at the national level. The Philippine science advisory ecosystem is focused on formal science advice at the national level and thus the effectiveness of science advice is placed into question. The disaster-prone province of Albay is held as an example where science advice is more effective at a devolved level from the national (Bankoff and Hilhorst, 2009; Pellini et al., 2013).

At the lower levels of governance, informal science advice is predominant and is provided by science advice actors such as non-government organizations (NGO) or by civil society organizations (CSO). While NGOs, CSOs and the government communicate using a consensus vocabulary (Funtowicz and Ravetz, 1994) in DRRM, differing risk perceptions have resulted in different domains of political engagement (Bankoff and Hilhorst, 2009) tied to different interpretations of the risk vocabulary in terms of political costs. And so the dominant paradigm remains disaster reactive with a general trend in “dampening uncertainties” (Pearce, 2020) in order to come up with positive political outcomes for the science advisors and the government.

While the present DRRM law institutionalizes consultation and collaboration, the law does not mandate a science or technical advisor to sit on DRRM councils at each level of governance. This is one possible reason for the “low uptake of research and analysis” at higher levels of governance while at lower levels of governance, science advice is provided by CSO and other advocacy organizations in an independent and ad hoc manner as they are more effective in establishing collaborative relationships with local government executives and councils.

IATF-EID and OCTA Research as an independent science advisor

Vallejo and Ong (2020) review the timeline for the Philippines government COVID 19 response, the formation of the Inter-agency Task Force on Emerging Infectious Diseases (IATF-EID), the science advisory ecosystem, and how the science community began to dispense informal science advice for consideration by IATF-EID. IATF-EID is the government’s policy recommending body for COVID 19 suppression and is composed of members from the cabinet and health agencies of the government. Informal science advice initially came from individual or groups of academics modeling the initial epidemiological trajectory of COVID 19. The IATF-EID is not a science evidence synthesizing or peer review body. It must rely on many science advisory actors as consultants. The University of the Philippines COVID 19 Pandemic Response Team is a major actor as its scientists are well known in the medical and disaster sciences. But it was OCTA which is composed mainly of academics from the University of the Philippines and the University of Santo Tomas. OCTA that has emerged as the leading government science advice actor for COVID 19.

OCTA bills itself as a “polling, research and consultancy firm” (Fig. 1). That OCTA has been identified in media reports as the “University of the Philippines OCTA Research group” is to be expected as academic credibility is a premium in the Philippines as like in other countries (Doubleday and Wilsdon, 2012). This however can constrain its political relationship with government science advice actors and so OCTA had to publish disclaimers that while it is composed of mostly University of the Philippines academics, it claims to be an independent entity. OCTA’s polling function is separate from its science advice advocacy which is performed by volunteer scientists as testified by OCTA President Ranjit S Rye to the Philippine Congress Committee on Public Accountability on 3 October 2021. The polling function is supported by paid subscribers while the science advice advocacy is supported by unpaid volunteers. Volunteer OCTA epidemiological modelers and policy analysts have provided robust estimates on the COVID 19 reproductive number R_0 , positivity rates, hospital capacity and attack rates at the national, provincial, and local government levels every fortnight beginning April 27, 2020. It has since issued 76 advisories and updates (Fig. 2). Local and provincial governments have used their forecasts in deciding quarantine and lockdown policies in their jurisdictions. OCTA publicly released these forecasts in academic websites, institutional media and social media. This allowed for public vetting and extended peer review with other independent scientists validating its forecast estimates. Some independent scientists contest methodologies and OCTA has appropriately responded to these.

OCTA like other science advice actors, based its epidemiological analyses on the Philippines Department of Health (DOH) Data Drop whose data quality was publicly perceived as poor even though steps have been taken to improve data quality. The DOH in the interest of transparency began Data Drop on April 15, 2020. Data Drop has information on the number of active cases, recovered cases, and hospital admissions. With Data Drop, OCTA was able to issue its first epidemiological forecast.

OCTA does not belong to the formal structures of science advice in the Philippines but is part of the informal science advice community. Its volunteer experts are publicly known. OCTA has emerged as the leading information and science advice provider for the public. How did it become the leading source of science advice and often cited by social and mainstream media and acknowledged by government?

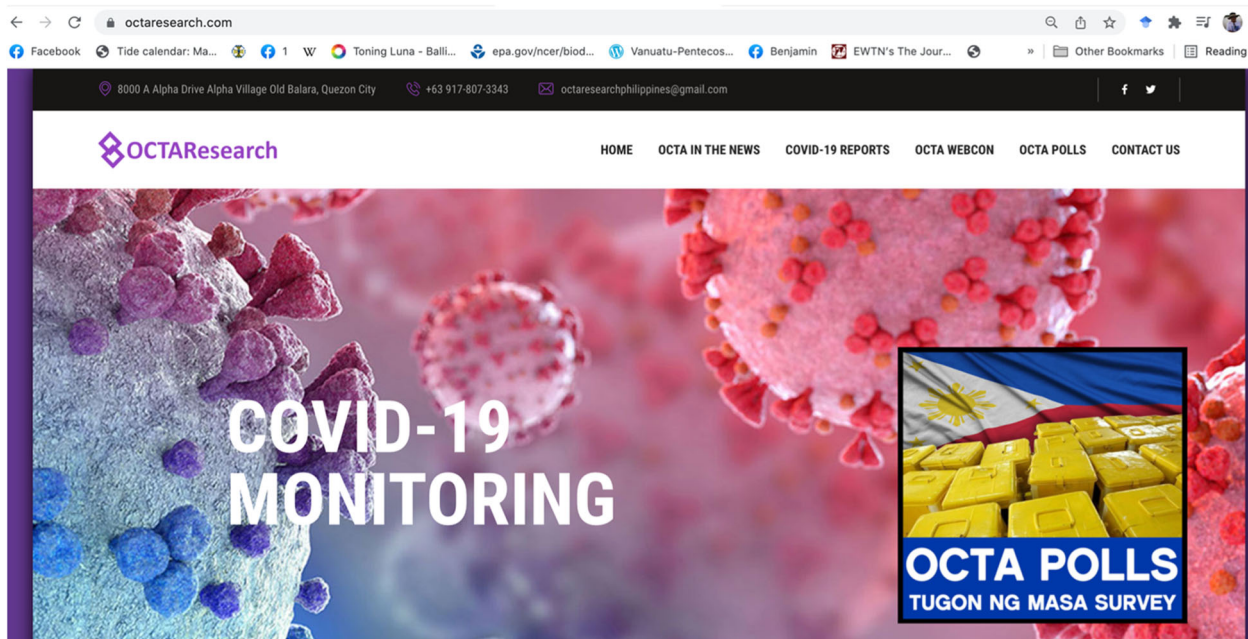


Fig. 1 OCTA Research website informing about its two services, COVID-19 monitoring and polling. OCTA is a primarily polling organization but has taken on COVID-19 monitoring, forecasting and advice services.

Uncertainty perception in COVID-19 suppression and the political context of role conflation

OCTA became the leading source of science advice when by publishing weekly forecasts on COVID-19 epidemiological trends, it reduced public perception of uncertainty of the pandemic. The bulletins estimated national and regional R_0 , attack rates, hospital capacity and ICU bed capacity. While most countries worldwide have adopted suppression as the main strategy (Allen et al., 2020) a few countries most notably New Zealand, adopting a COVID 19 elimination strategy. The Philippines decided on a suppression policy or a strategy of “flattening the curve” which necessitated lockdowns with the outcome of reducing R_0 and COVID-19 hospital admissions.

The most socially and economically disruptive intervention is lockdown with is tied with the uncertainty of lifting quarantine (Caulkins et al., 2020). The Philippines instituted a national lockdown beginning 14 March 2020 and instituted a graded system of “community quarantine” which allowed for almost cessation of economic activity and mobility in enhanced community quarantine (ECQ), a modified enhanced community quarantine (MECQ) which allows for the opening of critical services and a limited operation of public transport, to a near open economy and unimpeded local mobility in modified general community quarantine (MGCQ) and a low risk general community quarantine (GCQ) which allows for most economic activities subject to health protocols (Vallejo and Ong, 2020) which regulated mobility between quarantine zones.

It is in lockdown policies that uncertainty perception takes on a large political dimension (Gluckman, 2016b; Pearce, 2020). Science advisors have to provide forecasts on the trajectory of R_0 for politicians to make a decision on tightening or relaxing of quarantine. In this manner OCTA has provided not only the quarantine grade option but the best option while recognizing that the constraint to lessening the perception of uncertainty lies on data quality itself (Johns, 2020). OCTA has raised this concern questions on the accuracy and timeliness of DOH’s Data Drop. In doing so, it has done multiple scenario models to assess the accuracy of data. If the government takes on lockdown as the main strategy for COVID 19 suppression, then it must ensure

that science advisory actors are able to deal with the multiple uncertainties that data quality will generate. Science advisory actors can be both knowledge generators and users and this conflation has several consequences such as a tension between knowledge production and use which is called as the “uncertainty monster” (Van der Sluijs, 2005).

OCTA its business model has role conflation. While its polling services are paid for by subscribers, the science advice advocacy function in COVID-19 is volunteer based. This conflation was questioned by members of Congress. Thus, the political context for OCTA is within the problem of role conflation in science in a particular political and academic context which may be the norm in developing countries. The politics of conflation in science advice in the UK was demonstrated when two esteemed epidemiologists belonging to two research groups, Professor Neil Ferguson of the Imperial College London (ICL) and Professor John Edmunds of the London School of Hygiene and Tropical Medicine (LSHTM) released R_0 estimates to the public. ICL and LSHTM provided advisories to media and the UK government SAGE, with two different estimates for R_0 . The ICL estimate (2.0–2.6) were earlier made known to media while the LSHTM estimate (2.7–3.99) underwent peer review and was published in *Lancet Public Health* (Davies et al., 2020). The two estimates became the focus of controversy as the UK Chief Science Advisor Professor Patrick Vallance echoed Edmund’s claim of a case doubling time of 5–6 days. The SAGE consensus was 3–4 days, thus necessitating a sooner rather than later lockdown. The question on when to impose a lockdown is also a political matter. This placed SAGE and its established protocols of keeping experts anonymous under public criticism and scrutiny.

Pearce (2020) reviews the problem of role conflation of knowledge providers (the modelers) and the knowledge users (government) if they occupy both positions at the same time. Edmunds is a SAGE member (knowledge user) as well as a producer of science information as an academic. This conflation of roles resulted in the “dampening of uncertainties” for political reasons. The government is not acutely aware that this ultimately stems from poor data quality and the resulting scientific uncertainty has great political costs (UP COVID-19 Pandemic Response Team, 2020).

PHILIPPINE COVID-19 UPDATE

by: OCTA RESEARCH

OCTA Research Team

The OCTA team is an independent and interdisciplinary research group composed primarily of University of the Philippines faculty members and alumni. This independent research team also includes contributors from University of Santo Tomas and Providence College, USA.

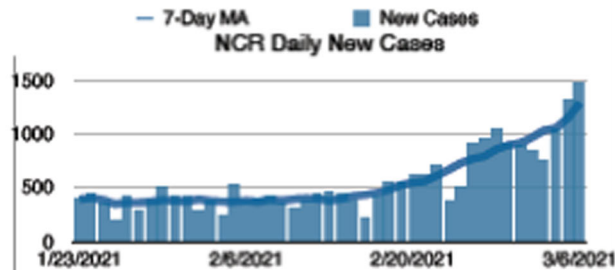
The findings and recommendations in the report are those of the authors and do not reflect the official position of the University of the Philippines, University of Santo Tomas, Providence College, or any of its units.

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New Covid-19 Cases in the NCR Continue to Escalate

The surge in NCR accelerated as the region reported 1,464 new Covid-19 cases on March 6, 2021. NCR averaged 1,025 new cases per day over the past 7 days (February 28 to March 6), an increase of 42% from the previous week and 130% compared to 2 weeks ago. The reproduction number R_t in NCR increased to 1.66 (see chart below). The last time the region had seen this rate of increase was in July 2021. However, this surge is spreading more quickly than the July-August surge, and this suggests the possibility that the surge is driven by SARS-Cov2 variants. The original strain does not spread this quickly considering the health guidelines in place. The positivity rate in NCR increased to an average of 8% over the past seven days. Overall NCR hospital bed occupancy was 44% and ICU occupancy was 53% as of March 5, 2021.

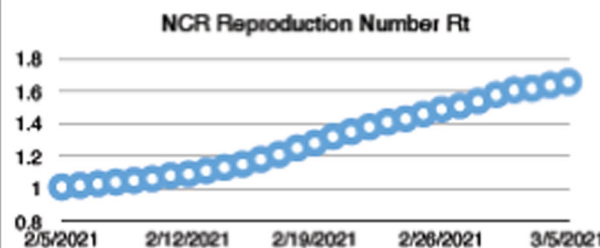


Fig. 2 An OCTA COVID-19 forecast update (7 March 2021).

Similarly, OCTA has faced questions in its R_0 estimates which differs from estimates by other scientists. OCTA's estimates are higher (2.3) than what government initially used (2.1) in characterizing the surge in cases beginning Feb 2021. With R_0 and positivity rates increasing, OCTA recommended an ECQ for the 2021 Easter break which was extended to a MECQ until 30 April 2021 (CNN Philippines, 2021). Like in the UK, this will affect policy decision making based on doubling time and the allocation of health resources. But unlike in the UK where there is a formal process of science peer review, in the ad hoc nature of science

advice review in the Philippines, much of this "open peer review" by academics was on social media thus giving a polarizing political environment in policy decision.

OCTA has long been aware of the problem of role conflation which is a problem in a country with a small national science community. The national science community is small with only 189 scientists per million people. It thus has sought the expertise of overseas Filipino scientists to expand its advisory bench and to reduce possible role conflation. The overseas scientists are not associated with government health research agencies and so could

act more independently. This was a strategy to deal with the possibility of “dampening of evidence”. The Presidential Spokesperson Mr. Harry Roque said that OCTA should cease reporting results to the public and rather send these “privately” to government (Manila Bulletin, 2020; Philippine Star, 2020). Roque is misconstruing the role of OCTA as a formal government science advisory body when it is not. The statements of the government spokesman may reflect debates in cabinet about the necessity and role of government science advice in and outside of government and their political costs. IATF-EID has its own experts as internal government science advisors. However, their advice must still be subject to peer review and so a mechanism must be found for these experts to compare forecasts with independent advisors such as OCTA. This will minimize public perception that the government silencing OCTA to dampen uncertainties for political outcomes. Public trust in government science advice has always been low if there is no transparency (Dommett and Pearce, 2019).

OCTA forecasts have been criticized by government economic planners especially in tourism (Philippine Daily Inquirer, 2020) as the forecasts directly affect plans to reopen important economic sectors. Some criticism is apparently political (Manila Times, 2020) and implies alienation of OCTA from its academic institutional linkage base. OCTA forecasts have been more and more adopted by the IATF-EID (ABS-CBN, 2021) This is a political dynamic for science advice actors sitting in government. Internal science advice actors will have to deal with populist interests in government and their advice may be “written off” (Boin et al., 2016). Independent science advice actors do not want their government science advice to be written off and so are likely to take the public route in presenting their synthesis of evidence and options.

Pandemic policy response is all about the management of multiple epidemiological uncertainties. This is when inability of government to manage it became apparent when doctors through the Healthcare Professionals Alliance Against COVID-19 (HPAAC), an organization which is comprised of the component and affiliate societies of the Philippine Medical Association admonished the government to increase quarantine restrictions from General Community Quarantine to Modified Enhanced Community Quarantine for a period of 2 weeks in August to allow the health workers to recover from exhaustion (One News, 2020). This is due to the surge in new cases and the overburdening of the healthcare capacity which OCTA earlier forecasted (David et al., 2020). The threat of a “doctors strike” would have been politically damaging to the government and the President decided to heed the doctors’ request.

The Philippines response is not very different from response of the majority of 22 countries examined by INGSAs’ COVID 19 policy tracker (Allen et al., 2020), where these countries embarked on a monitoring and surveillance policy from January to March 2020. The INGSA study also shows that few countries have utilized internal and external formal science advisory bodies in the first 3 months of the pandemic. The Philippines is not one of the countries which INGSA tracked but similarly it started to seek the advice of individual experts by March 2020. Many of these experts posted their unsolicited science advice on social media.

Like most of the 22 INGSA tracked countries, after the 3rd month of the pandemic, the Philippines enacted legislation to deal with the social and economic impact of lockdowns. But this has not yet resulted in legislation passed in the Philippines Congress to deal with developing and improving systems for pandemic response through research and development initiatives although the late Senator Miriam Defensor Santiago filed Senate Bill 1573 “Pandemic and All Hazards Act” in September 2013 (Senate of the Philippines 16th Congress, 2013) in response to

MERS and Senator Manny Villar in April 2008 filed Senate Bill 2198 “The Pandemic Preparedness Act” (Senate of the Philippines 14th Congress, 2008). Both bills institute a Pandemic Emergency Fund and mandates a Pandemic Emergency Council or Task Force, roughly along the lines of the DRRM Law. Defensor-Santiago’s bill was refiled by Senator Grace Poe as Senate Bill 1450 “An Act Strengthening National Preparedness and Response to Public Health Emergencies by Creating a Center for Disease Control” during the first session of the 18th Congress on 27 April 2020 (Senate of the Philippines 18th Congress, 2020). Poe’s bill updates Defensor-Santiago’s bill by proposing the creation of Center for Disease Control

These bills have not been enacted into law. The Philippines also did not enact legislation or executive on creating or strengthening science advisory capacity which 12 of the 22 countries INGSA tracked did. However, a senator has recently approached OCTA for policy input in developing formal crisis science advice legislation.

Prospects for independent government science advice in the Philippines

The Philippines government’s COVID 19 suppression policy is based on science informed advice. However, this has been provided informally by individual experts consulted by IATF-EID and this advice is not subjected to formal peer review. This has exposed experts to political criticism and attack as their identities and roles have been spun by media and government media spokespersons as integral to IATF-EID. At least one expert has resigned from providing science advice due to possible conflicts of interests. In this science advice gap, entered OCTA Research in the second quarter of 2020 and continued to 2021 and 2022.

The informal science advice actors more often give their forecasts directly to the media while the formal actors give it to the government agency that commissioned it. The government uses the evidence in determining what quarantine status to implement nationally and regionally through the recommendation of the IATF-EID.

The government’s policy decisions on COVID 19 suppression are chiefly based on a single statistical estimate, R_0 but more recently has included positivity rate and hospital capacity. Science advisory bodies must defend R_0 and the other estimates to the government and in the public sphere. The estimates will have incorporated all statistical uncertainties in this number. OCTA has done this by publicly reporting low, moderate and high R_0 scenarios and the consequent projections for new cases, hospital utilization and attack rates at the national, regional and local government level. The government has used these estimates in its monthly policy responses.

Considering that both use the same DOH Data Drop dataset, dissonance between OCTA and government scientists’ recommendations have been reported in print, broadcast, and social media. This involves largely the differences in interpreting the framework of quarantine status and risks, with government experts tending to question OCTA’s projections with a very conservative precautionary interpretation of evidence. One doctor with the IATF-EID has accused OCTA of using “erroneous” and “incomplete” data (Kho, 2021). This dissonance has led politicians to label OCTA as “alarmist” (David, 2021).

OCTA is a knowledge producer in science advice since it constructs DOH epidemiological data into models informed by epidemiological theory. Even if OCTA has decided to remain completely independent as a science advisory body, it is not completely insulated from political attack. Political attack is a result of perceived role conflation in the science advice ecosystem and process which is exacerbated by the nature of uncertainty in

science advice leading to accusations of OCTA being “alarmist. OCTA was misconstrued by the government as its own knowledge producer and its critics demanded that it be completely alienated from its academic institutional linkages. OCTA’s weakness and the weakness of the Philippines crisis science advisory system overall, is the lack of external and extended peer review. This is a consequence of a small science community where there are few actors who can perform this role with citizen scientists. In a postnormal science advisory environment, the role of extended peer review is important in validating policy options and creating public consensus.

OCTA has recently partnered with Go Negosyo, a small and medium business entrepreneurship (SME) advocacy, headed by Presidential advisor for entrepreneurship, Joey Concepcion. Mr. Concepcion has a minister’s portfolio. OCTA in this arrangement will provide data analytics services and science advice for SMEs for a business friendly COVID exit policy with a safe reopening of the economy based on vaccination prioritization strategies (Cordero, 2021). This move also evidences OCTA’s influence in setting new policy directions in government’s adoption of a new quarantine classification system of Alert Levels, an idea first proposed by OCTA Fellow and medical molecular biologist Rev Dr. Nicanor Austriaco OP and mathematical modeler Dr. Fredgusto Guido David. This is a political move on OCTA’s part to deflect critics in Congress as the business sector has a large political clout in government.

While a pandemic crisis like COVID 19 gives political leaders an advantageous occasion to demonstrate personal leadership, their constituencies will tend to expect a more personalistic crisis management. In this independent science advice plays a crucial political dynamic by building public trust, ensuring reliable statistical estimates reviewed by the academic science community, and managing political advantages and risks. These are all in the context of epidemiological uncertainties. In the Philippines, public criticism of the pandemic response is fierce due to the primarily law and order policing approach which raised concerns on human rights violations (Hapal, 2021) as well as those cases began to rise in the first quarter of 2021 (Robles and Robles, 2021). The failure to deal with uncertainties in science without effective science advice may entail large political costs. Managing public perception and the use of government scientific and technical advice is a delicate balancing act in liberal democracies. The press and media will report and scrutinize science informed decisions while shaping public opinion of crisis decisions. Academic science and civil society organizations not part of the advisory system provide another level of scrutiny and critique. Social media has extremely broadened the venue for public scrutiny and, open or extended peer review of crisis decisions.

These realities were not faced by political leaders as recently as 30 years ago. However unfair or unrealistic the critique by constituencies and the press, public expectation is real in political terms. And while politicians can “write off” certain social and political sectors in deciding which crisis response is best, this is no longer tenable in democracies in the 21st century.

In these realities emerge new actors of engaged independent academic science advisors such as OCTA. It has certainly played the role of a knowledge generator and to some extent a knowledge broker. And like any science advice actor, OCTA was not immune to political attack, and this would suggest that SAGE with its embeddedness in the administrative and ministerial structures in the UK, largely missing in the Philippines (Berse, 2020), will be subject to great political interference which may limit its effectiveness. Political interference may masquerade as technical in nature (Smallman, 2020).

The Philippines government response to COVID 19 has been described as “deficient in strategic agility” (Aguilar Jr, 2020) partly due to its inability to mobilize scientific expertise and synthesize science informed advice options in governance. Thus, a plausible proposal to strengthen science advice is in reframing the DRRM policy and advisory structures and applying these to crisis in order to strengthen science advice capacity at all levels of governance. As Berse (2020) suggests “tweaking the National Disaster Risk Reduction and Management Council structure, which has a seat for an academic representative, might do the trick. This national set-up is replicated by law at the provincial, city and municipal levels”.

Berse also suggests that an academic should be appointed to sit at each of these councils. The major constraint is that there are very few academics willing to sit as this will expose them to political criticism and interference. If academics are appointed, then their expertise should not be unduly constrained by political interference. They should be backed by several researchers and citizen scientists coming from multiple disciplines in reviewing science informed policies. More and more citizen scientists have come up with science advice which for consistency of policy should be reviewed in extended consensus by scientists and stakeholders (Funtowicz and Ravetz, 1993; Marshall and Picou, 2008).

The closed and elitist system of science advice in the Philippines with its handful of actors, mainly appointed by government, are inordinately prone to political pressure. This necessitates the role of independent science advisors. Independent science advisors can act as a “challenge function” to government experts whose recommendation if ignored contributes to further erosion of public trust in government (Dommett and Pearce, 2019). Independent science advice when framed in the context of parliamentary democracy can be likened to “shadow cabinets” in this way they provide a check, balance and review of science evidence and is called “shadow science advice” (Pielke, 2020)

As pandemics and other environmentally related public health emergencies are expected to be more frequent in the 21st century, the public will be less tolerant of social and political instability and demand a clear science informed response from their politicians. However, most politicians do not have enough scientific and technical competency to do so and so will have to rely on science informed advice which has degrees of outcome uncertainty (Gluckman, 2016b). If science informed options are ignored for political gains, this is not a result of broken science advice and knowledge generation systems but a dysfunctional political and governance system. The huge cost in life and economic opportunity left by the pandemic demands functional government informed by science advice.

Furthermore, any government to cement its legacy must find a COVID 19 crisis exit strategy after the operational aspects such as a mass vaccination strategy have been met and the social, health (Dickens et al., 2020), economic and political situation has been stabilized (Gilbert et al., 2020). In COVID 19, this is a gradual relaxation of lockdown and quarantine (Leung and Wu, 2020) with the roll out of vaccines.

Vaccination is the main COVID-19 exit strategy of the government (Congress of the Philippines, 2021) and given the large existing vaccine hesitancy of 46% as OCTA estimated in February 2021 (Tomacruz, 2021), there is a need to increase public confidence on vaccines (Vergara et al., 2021). Public distrust of vaccines became a major public health concern due to the Dengvaxia vaccine rollout controversy in November 2017 when Sanofi publicly released a warning that vaccination posed a risk if given to people who never had a dengue infection (Larson et al., 2019). The political impact was damaging to the Benigno Aquino

III presidential administration, which rolled out the vaccine in 2016 before Aquino III's term ended. The drop in vaccine confidence was significant, from 93% in 2015 to 32% in 2018. The new presidential administration of Rodrigo Duterte placed the blame on Aquino III, and this resulted in social and political polarization, loss of trust in the public health system which have continued in the COVID-19 pandemic. The "blame game" is political risk in any liberal democracy. This can be a long drawn out affair where government will have to establish accountability and the "blame game" is expected with various independent boards and blue ribbon committees setting the narrative (Boin et al., 2016). In the Philippines, several hearings in the House and Senate in which Sanofi and previous Department of Health leadership were called to give testimonies, further worsened political and social polarization to vaccination. These independent boards, blue ribbon committees and fact-finding investigations, however, are prone to agency capture by ruling party politics. This is evident in the Philippines. The government exit strategy for COVID-19 is clouded by these polarizations. OCTA will be expected by the public to provide government science advice on vaccination policies, and this will have great political costs for independent science advice. As vaccination in the Philippines has become a political issue more than as a public health issue, other think tanks and academic research institutions which have investigated Dengvaxia, and vaccine compliance have been more guarded as not to attract undue negative political comment. OCTA to its credit, has successfully navigated political risks in its COVID-19 forecasts and in a political move, has allied with a SME advocacy headed by a close Presidential advisor on economic affairs. OCTA can continue to maintain its credibility by periodically issuing forecasts and policy option recommendations and reducing social and political polarizations through consensus building with the public, government, and science community. Here is where the independent science advice actors will have a place, and that is to set the objective bases for science informed policy decisions while recognizing the political dynamic. How independent science advice will result in lasting policy impacts in the Philippines remains to be seen. The government and the public have relied on OCTA forecasts because of OCTA's increasing presence in broadcast, print, and social media. This is evidence of the effective science communication strategy of the organization. But with the Government increasingly using OCTA's forecasts and policy recommendations, this is evidence that government science advice has political dividends and risks which may affect politicians' political standing with the electorate in the 2022 election.

Data availability

COVID-19 open data cited in this paper can be accessed through the Philippines Department of Health Data Drop <https://doh.gov.ph/covid19tracker> and through OCTA Research <https://www.octaresearch.com/>.

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Competing interests

The authors declare no competing interests.

Ethical approval

This article does not contain any studies with human participants performed by any of the authors. Ethics review is not required.

Informed consent

All statements attributed to specific individuals used in this study are in the public record and no informed consent from individuals is required.

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