COMMENT: The COVID-19 Pandemic and Decision-Making:
Early Warning, Risk Analysis[1] & the Precautionary Principle

Dr Ted Christie, *17 June 2020*

Disclosure Statement

Ted Christie does not work for, consult to, own shares in or receive funding from any company or organisation that would benefit from this article, and has no relevant affiliations

KEY WORDS: COVID-19; preparedness; risk assessment - communication; precautionary principle; epidemiological assessment; resilience; sustainable development; SDG3

SUMMARY: ***A pathway to address global concerns related to the "early warning, risk reduction and management of national and global health risks", is outlined.***

The linkage between the application of the precautionary principle and epidemiological assessment is the trigger for a risk assessment - the basis for decision-making on preparedness and the early warning of a pandemic.

The World Health Assembly resolution in May 2020,
referred to the need for making
"recommendations to improve
global pandemic
prevention, preparedness and ***response capacity***".

The need for this recommendation resonates with one of the Targets of ***Sustainable Development Goal 3*** *("Good Health and Well-Being")* of the *UNs 2020 Agenda for Sustainable Development*:

- ☑ *To "strengthen the capacity of all countries, in particular developing countries, for* ***early warning, risk reduction and management*** *of national and* ***global health risks****": SDG 3 Target 3.D.*

The WHA resolution is also appropriate given the global controversy that has emerged over the effectiveness of "*early warning*" and "*preparedness*" and the outbreak of the COVID-19 pandemic.

A recent study posted by the ***United Nations Development Programme*** (29 April 2020) highlighted an additional related problem area: **"*Response capacity*"** and **"*management of global health risks.*"**

The UNDP study identified *significant disparities in the ability of countries* to ***"cope with"*** *and to* ***"recover from"*** *the COVID-19 crisis.*

The UNDP concluded
"That the pandemic provides
a watershed moment
for health emergency preparedness…"

- ***The use of the terms "to cope with" and "to recover from" by the UNDP are relevant as they are the foundations for the process of resilience. Resilience refers to the ability of government, the community … to respond (or adapt) to a global pandemic as well as the ability to recover from it.***

Health Emergency Preparedness: *A Decision-Making Pathway*

A pathway for decision-making that addresses the needs and concerns highlighted by the WHA resolution and the UNDP research study is outlined.

The pathway can also be relevant consideration to avoid history repeating for future health emergency preparedness: Specifically, the global controversy over the time taken before a early warning was given for COVID-19.

A chronology of key events for COVID-19 is summarised in Appendix I.

Using COVID-19 as an example, decision-making under the pathway would consider a sequence of steps within the framework of *preparedness, early warning, risk analysis, resilience,* and *sustainable development*: -

❖ ***1. The Precautionary Principle***:
Early awareness for an early warning of the coronavirus as a global health risk; and the potential need for a ***risk assessment.***

❖ ***2. Epidemiological Assessment:***
Essential complement to the application of the precautionary principle. Evaluation of available relevant and reliable information on the coronavirus as a potential ***global health hazard*** at the time of assessment.

❖ ***3. Risk Assessment***:
Characterization of the coronavirus hazard as a ***global health risk*** based on the probability of its occurrence and consequences for human health if it were to occur.

❖ ***4. Risk Communication***:

Information communicated to facilitate national decisions being made fully aware of the risks and consequences of COVID-19 as a global health emergency.

❖ ***5. Risk Management~Resilience~Sustainable Development Linkage:***

Identification of risks that require management, as well as control measures, based on the probability of global health risks estimated from the risk assessment: measures that could be used to effectively manage the risks to an acceptable level in such a way to protect the health and safety of people.

Global health risk management,
resilience
and sustainable development
should be seen as interdependent and mutually supporting.

Precautionary Principle

The precautionary principle is a guide for environmental decision-making, when scientific uncertainty exists in order to avoid, wherever practicable, serious or irreversible environmental harm *e.g. global health risks.*

An example of the application of the precautionary principle
would be to have reason to assume
that the emergence and spread of an infectious disease
posed a threat as a global health risk.

The application of the principle does not require conclusive scientific evidence. Instead, a key element of its application requires an "*assessment of the risk-weighted consequences of various options*" to manage risk:

The use of risk assessment methodology
is central to the application of the precautionary principle.
To deal with uncertainties,
the science of risk assessment
makes use of statistics and probability theory:
Probability is the mathematical measure of risk.

- *The application of the precautionary principle would be a relevant decision-making aid on preparedness and early warning of a global pandemic.*
- *It would enable the time to be determined where there was sufficient reason to assume that the emergence and spread of an infectious disease posed a threat as a global health risk.*

Epidemiological Assessment[2]

Epidemiological assessment provides the information base for activating the application of the precautionary principle i.e. in situations where the information base indicates a *reason to assume that the emergence and spread of an infectious disease e.g. the coronavirus, posed a global health hazard.*

The linkage between the precautionary principle
and epidemiological assessment
provides an objective mechanism
for determining the need for a risk assessment.

Any controversy over the epidemiological assessment of a global health hazard would be offset if a basic principle from conflict resolution was adopted:

- *To rely on **"objective criteria"** to assess the available epidemiological information to decide whether a risk assessment should be undertaken.*
- *The objective criteria to be based on **fair standards and procedures**.*

An excellent example of such an approach are the objective criteria defined as ***Epidemiological triggers for a risk assessment of influenza viruses with pandemic potential*** **(WHO, May 2016).**

They "*include but are not limited to*": -

- *"First documented cases of human infection with a non-seasonal or animal influenza virus;*
- *Increased detection of a virus with reduced antiviral susceptibility;*
- *Cluster of human cases with potential human-to-human transmission of a virus;*
- *Cluster of human cases involving infections beyond blood-related family members; and*

- ❖ *Changes in epidemiological trends associated with the virus infection such as number of cases detected, disease severity, mortality ratio or geographic dispersion".*

Risk Assessment

Risk assessment involves an objective scientific evaluation of the potential ***hazard*** posed by the coronavirus at the time of the epidemiological assessment.

- *A **hazard** refers to a source of potential harm to human health.*
- *A **risk** refers to a chance or the probability that harm to human health will actually occur.*
- *The outcome of a **risk assessment** would be an estimate of the likelihood (or probability) of the identified global health risk and its consequences for human health if it were to occur.*

Risk assessment can be determined *quantitatively e.g. mathematical techniques such as predictive modelling.*

Risk assessment may also be *qualitative* because of *complexity of the risk, number of variables for which data are required or the level of detail required.*

In the case of the coronavirus, ***qualitative risk assessment*** may be the appropriate methodology as some of the above reasons may apply. However, there are a number of qualitative risk assessment models that are accepted scientific methodologies which can be adopted for specific cases.

Risk Communication

Risk communication represents a cornerstone as part of preparing for, responding to, and recovering from any global health emergency.

Following the risk assessment, the ***goal of risk communication,*** in the case of a global pandemic, such as COVID-19, would be: -

- *To provide meaningful, relevant, and reliable information for countries on the risk assessment of a global pandemic - expressed in the language and experiences of everyday life; and*
- *To enable informed decision-making, specific for each country, on the measures to be taken for **preparedness**. Also, for **risk management*** at the national level, ***to respond to and recover from*** the ***global pandemic***.

Risk Management ~ *Resilience* ~ Sustainable Development Linkage

Decisions for COVID-19 ***risk management***, aimed at protecting the health and safety of people need to focus on ***resilience*** as an outcome. Decisions must be made for both the ***response*** and ***recovery phases*** of the pandemic.

Ultimately, global pandemics, such as the *COVID-19* pandemic, become a classic ***sustainable development*** problem to resolve.

Conclusion: *Early Warning & COVID-19 ~ Must History Repeat*

Based on the chronology in Appendix I, the first element of the precautionary principle - reason to assume that that the emergence and spread of the coronavirus posed a threat as a global health risk – would have applied in December 2019.

But the need for a risk assessment would not be triggered until an epidemiological assessment (and/or virological assessment) had characterized the coronavirus as a global health hazard based on assessment of the reliable and relevant evidence at a number of points of time.

In making recommendations to ensure history does not repeat, it would be prudent for any evaluation of the COVID-19 pandemic consider the potential applications of the above pathway.

In 1993, Dr Ted Christie published one of the earliest articles in Australia on the precautionary principle: ***'The precautionary principle and environmental decision-making', Queensland Planner, 33, 10–14.***

In 1994 Ted - as a barrister in professional legal practice - was awarded a ***Fulbright Professional Scholarship*** *for research and scholarship in the United States": The research topic, "The Precautionary Principle and Environmental Decision-Making".*

During the 15-year period Ted held a part-time appointment as the ***Environmental Member and a Presiding Member of the Commonwealth Administrative Appeals Tribunal****, Ted applied the precautionary principle in deciding appeals from decisions on development applications made by the Great Barrier Reef Marine Park Authority.*

Appendix I: *Chronology of the COVID-19 Pandemic*

i. ***Early December 2019**: The WHO Situation Report-94 refers to: "the first human cases of COVID-19, the disease caused by the novel coronavirus … being first reported by officials in Wuhan City, China, in December 2019. Retrospective investigations by Chinese authorities identified human cases with onset of symptoms".*

ii. ***30 January 2020**: the World Health Organization (WHO) declared the outbreak a Public Health Emergency of International Concern.*

iii. ***11 March 2020**: The WHO declared the coronavirus, COVID-19, a global pandemic. It has spread to nearly every country in the world.*

There are now more almost 7 million coronavirus cases, worldwide. The global death toll from the coronavirus has climbed above 400,000.

(iv) ***19 May 2020**: A landmark resolution by the World Health Assembly was sponsored by more than 130 countries and adopted by consensus. It sought to bring the world together to fight the COVID-19 pandemic.*

(v) ***26 May 2020**: In a media briefing Dr Mike Ryan, Executive Director, WHO Health Emergencies Programme warned that the international threat of this pandemic had not ended. That most of the world was still experiencing the first wave of infection; that a second wave could still emerge.*

End Notes

[1] ***Risk analysis is a broad concept that incorporates the processes of*:**

- ***risk assessment****;*
- ***risk management; and***
- ***risk communication***

[2] ***Where appropriate, "virological" triggers can also be incorporated in the process for evaluating the need for a risk assessment of viruses with pandemic potential*.**