



VITAL ECONOMIC OPERATIONS MANAGEMENT (VEOM)

PLANNING AND DEVELOPMENT DEPARTMENT, GOVERNMENT OF KHYBER PAKHTUNKHWA

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KP PANDEMIC RESPONSE DECISION TOOL

COLOUR CODES FOR SECTORS



BACKGROUND

At the start of 2020, hardly anyone could have predicted the emergence of a pandemic like COVID-19. Most governments were caught off guard and had to respond through hastily designed plans. However, a few governments had response plans in place to meet such unforeseen challenges. These governments (like Hong Kong, Thailand and Vietnam) had drawn response plans in light of the SARS pandemic, which had affected them in the early 2000s.¹

Among the first decisions that a government takes when faced with the spread of a pandemic is about closure or continuity of various sectors of the economy.² This policy brief proposes a decision tool designed specifically for KP since many experts are of the opinion that a decrease in the COVID-19 cases does not necessarily mean that there could not be another surge.³

Several models suggest that during autumn and winter seasons of 2020-21, there could be another wave as people might be inclined to lower their guard while they have not been vaccinated.⁴

PANDEMIC RESPONSE DECISION TOOL

The KP pandemic response decision tool evaluates key sectors of the economy on 3 criteria, which are:



Necessity



Risk



Enforcement of standard
operating procedures

The scores on all 3 criteria grade the sectors and finally a colour code is assigned based on the scores. Thus, at the conclusion of the exercise, the decision-makers have an analytical model to base their decision on.

¹ <https://www.washingtonpost.com/health/2019/10/24/none-these-countries-us-included-is-fully-prepared-pandemic-report-says/>

² Rand corporation has developed tools (for the USA), which uses data analytics to track cases, make projections as well as policy measures. The outcome is a 5 level "escalating level of interventions" that guide government on closures of sectors. This type of framework can be adapted for use in KP. <https://www.rand.org/pubs/tools/TLA173-1/tool.html>

³ <https://www.dawn.com/news/1568999>

⁴ <https://www.cnn.com/2020/06/28/what-second-wave-of-covid-19-means-and-how-to-prevent-it.html>

DETERMINING NECESSITY

Necessity means how critical the sector is to the economy. The tool calculates necessity of the sector to the economy using three parameters, namely:



Employment - in the sector



Interaction - with the sector
per capita per week



Interdependence - of other sectors
on the sector being evaluated

For the above parameters, numbers are assigned from 1 to 3, where 3 means higher importance and 1 means lower importance. After numbers have been assigned, the total necessity score is calculated by addition of score from all the three parameters i.e.

$$\text{Necessity score for the sector} = A + B + C$$

EMPLOYMENT SCORE

A sector, which employs 5% or more of the total workforce, gets 3 marks while a sector with less than 1% of employment in KP will get 1 mark. Sectors with employment in between 1% and 5% will get 2 marks.

INTERACTION SCORE

It measures how much an average citizen would be interacting with the sector. Therefore, a sector with quarter or more of the population likely to be interacting within a week scores 3 marks. If the interaction per week of the percentage of the population is likely between 10% and 24%, then the score will be 2 marks. If the interaction of the population interacting with the sector during a week is likely to be less than 10% of the population, then the sector is assigned a score of 1.

INTERDEPENDENCE SCORE

Interdependence, measures the extent of reliance of other sectors on the operations of the sector being evaluated. Therefore, a sector, which directly affects 5 or more sectors, will get 3 marks. While a sector, which affects only 1 sector (itself), will get 1 mark. Any sector impacting between 2 to 4 sectors gets 2 marks. Here, impact on another sector means that the dependent sector cannot operate if the impacting sector (the one being evaluated) is closed for more than two weeks.

SECTOR NECESSITY SCORE

Necessity score is the sum of scores that the sector gets on the three parameters i.e.

$$\text{Sector necessity score} = \text{Employment score} + \text{interaction score} + \text{interdependence score}$$

If the sector necessity score is equal to or higher than 8, then the sector has to remain open at all costs. It is assigned the red color code. If the necessity score is 4 or greater than 4 but less than 8, then the sector is important and should be partially opened. Partial opening also means that the sector is subjected to “smart lock downs” or a certain percentage of the sector is allowed to be opened. Such sectors are assigned the yellow color code. For the sectors scoring less than 4, the government can decide to close them for longer periods. Such sectors are assigned the color code green.

DETERMINING RISK

Risk means how likely is a person to get infected with COVID-19, while working or interacting within the sector. The tool calculates risk using three parameters⁵:



Average distance - feet
between two individuals
working or interacting



Time spent - in a typical
day or per visit



Interaction - number of
interactions while working
or interacting

For the purpose of risk calculation, numbers are assigned from 1 to 3. A score of 3 would mean highest risk, while 2 would mean moderate risk and 1 as low risk.

$$\text{Risk score for the sector} = A + B + C$$

AVERAGE DISTANCE SCORE

A sector that requires close proximity between individuals, such as less than 6 feet of distance, is high risk and assigned 3 marks. Alternately, a sector in which the distance between two individuals is between 6 and 10 feet, it is assigned 2 marks. Finally, a sector where two individuals usually are more than 10 feet apart is assigned 1 mark.

TIME SPENT SCORE

The more time that is spent in confined space, the higher is the risk. If the time spent in the sector by individuals is 8 hours or more per day, then the sector is assigned 3 marks. If the time spent is between 1 hour and 8 hours, then it is assigned 2 marks. If it is less than 1 hour, then only 1 mark is assigned.

INTERACTION SCORE

Interaction score attempts to capture the impact of number of interactions between individuals likely to take place in a typical day. The more interactions that take place, the higher are the risk. If the interactions between individuals are more than 10 per day or per visit, then the sector is assigned 3 marks. If the interactions are less than 10 and greater than 5, then the sector is assigned 2 marks. If the interactions are less than 5, then the sector is assigned 1 mark.

⁵ Several online tools are available for detailed assessment of risks: One such tool has been produced by the European Agency for Safety and Health at Work <https://osha.europa.eu/> and on https://oshwiki.eu/wiki/Main_Page. The official page of Safe Work Australia is another important source, which provides information on risk assessment and mitigation strategies for individuals as well as for enterprises. <https://www.safeworkaustralia.gov.au/about-us>



SECTOR RISK SCORE

Risk score is the sum of scores that the sector gets on the three parameters i.e.

$$\text{Sector risk score} = \text{Average distance score} + \text{time spent score} + \text{interaction score}$$

If the sector risk score is equal to or higher than 8, it means that it is a high-risk sector and is assigned the red color code. Such sector would require strict application of the standard operating procedures. If the score is 4 or greater than 4, but less than 8, then the sector poses moderate threats to those working or interacting individuals within the sector and such sectors are assigned the yellow color code. A sector that scores less than 4 means that there is little risk for those working or interacting with the sector and is assigned the green color code.

DETERMINING ENFORCEMENT OF STANDARD OPERATING PROCEDURES

The enforcement of standard operating procedures is not likely to be effective at the same level across different sectors. Therefore, a sector where enforcement of standard operating procedures is relatively easy or the sector is likely to voluntarily adopt them to a significantly large extent is classified as “ordinary” and assigned a green color code. While a red color code means that enforcement is not easy or the sector is not likely to adopt significant standard operating procedures.

IMPLICATIONS FOR THE GOVERNMENT OF KP

The KP pandemic response decision tool is an analytical approach that facilitates informed decision-making. The tool attempts to focus on sectors rather than the economy as a whole and establishes criteria upon which the sectors ought to be evaluated in the context of a pandemic.

- The tool is able to identify sectors essential to a functioning economy in KP and the risks associated with them. Therefore the Government of KP can pre plan its response to the pandemic.
- The departments of the Government of KP would have prior information about their role in case of a pandemic outbreak since the opening / closing of sectors is almost evident based on the use of this tool.
- The tool highlights the sectors where the enforcement of standard operating procedures is likely to be voluntary or where a stricter application is required owing to the risks associated.
- The Government of KP can launch an awareness campaign for the population about the meaning of the color codes. Color codes can be used at the front of the buildings, offices, markets etc. so that individuals visiting these places are aware of the risks associated. Similarly, the employees and workers can also become sensitised about the risks that they are being exposed to at the workplace.⁶

⁶ US OSHA has developed a risk pyramid that uses 4 color codes to inform the workers (and the visitors) about the hazards.
<https://www.osha.gov/SLTC/covid-19/hazardrecognition.html>



**NECESSITY, RISK AND DEGREE OF ENFORCEMENT OF STANDARD OPERATING PROCEDURES
(MAJOR SECTORS IN KP)**

Sector	Necessity			Risk			Enforcement of SoPs	
	Low	Moderate	High	Low	Moderate	High	Ordinary	Strict
Government offices			High			High	Green	
Private office (services)			High			High	Green	
Education (primary and secondary)		Moderate				High		High
Education (colleges and universities)		Moderate			Moderate			High
Healthcare			High			High		High
Manufacturing		Moderate			Moderate		Green	
Agriculture			High	Green			Green	
Tourism	Green			Green			Green	
Public transport			High			High		High
Goods transport			High		Moderate		Green	
Construction		Moderate		Green			Green	
Wholesale			High		Moderate		Green	
Mining	Green				Moderate		Green	

METHODOLOGY

How to determine Necessity (A + B + C)

- A** Employment (% employment)
- B** Impact / capita / week (basket of goods)
- C** Interdependence (judgement)

Scale (1 / 2 / 3)		

Source of Information
Bureau of Statistics / Pakistan Bureau of Statistics data
State Bank of Pakistan
VEOM Team

How to determine Risk (E + F + G)

- E** Distance / square feet between 2 people
- F** Time spent / typical day or per visit
- G** Social interaction

Scale (1 / 2 / 3)		

Sector Specialist
Sector Specialist
Sector Specialist



**NECESSITY, RISK AND DEGREE OF ENFORCEMENT OF STANDARD OPERATING PROCEDURES
(MAJOR MARKETS IN KP)**

Market	Necessity			Risk			Enforcement of SoPs	
	Low	Moderate	High	Low	Moderate	High	Ordinary	Strict
Cloth	Green			Green			Green	
Construction	Green			Green			Green	
Electronics	Green			Green			Green	
Essentials			Red		Yellow			Red
Fruits			Red		Yellow			Red
Hotels and restaurants		Yellow			Yellow			Red
Livestock		Yellow		Green			Green	
Manufacturing			Red	Green			Green	
Milk shops			Red	Green			Green	
Meat shops	Green			Green			Green	
Pharmaceuticals			Red		Yellow			Red
Repairing and maintenance			Red	Green			Green	
Tailoring	Green			Green			Green	
Transport			Red			Red		Red
Vegetable			Red		Yellow			Red
Wheat			Red	Green			Green	