

# Health and Development Resilience in the Face of COVID-19



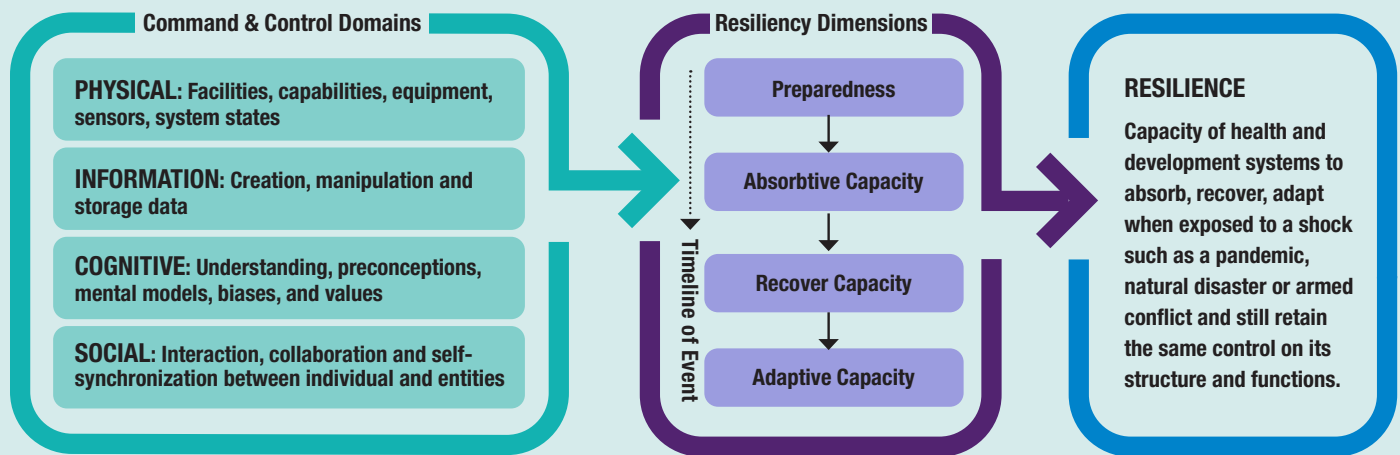


## Health and Development Resilience in the Face of COVID-19

**H**ealth and Development Resilience in the Face of COVID-19 Considering the health and socioeconomic impacts of COVID-19, and its close relationship with policies that enable a DD-favorable policy environment, this DDEI has integrated a module to assess the resilience and sustainability of systems in each sector. The scoring follows existing frameworks and key principles of sustainable and resilient systems that can effectively respond to adverse events, security attacks, emerging infectious disease threats and other public health emergencies.

Our framework, presented in Figure 13, is an adaptation of existing frameworks to measure resilience in different sectors by Blanchet et al. and Linkov et al. This framework combines the National Academy of Sciences (NAS) recommended four stages of event management cycle that are needed for a system to be resilient and the four domains proposed by the Network-Centric Warfare (NCW) doctrine that ensure a shared awareness of the situation and inform effective decision making across system levels.<sup>14,15</sup> Due to the critical importance of timely intervention and frequently irreversible impact of delayed action as proven by the COVID-19 pandemics, an additional element was added to assess timeliness of interventions to mitigate the impact of the crisis.<sup>16,17</sup>

**Figure 13.** A conceptual framework: Health and Development Systems resilience domains.



Source: Adapted from Blanchet et al. (2017)<sup>18</sup> and Linkov et al. (2013)<sup>14</sup>.



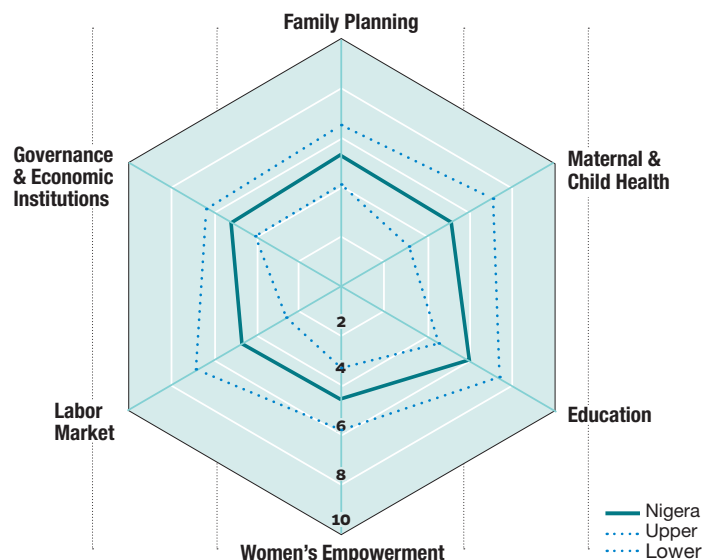
## Sectoral Resiliency Summary Results

Up to 25 questions were asked over the 4 Command and Control Domains, pertaining to each of the Resiliency Dimensions. Responses were recorded on a Likert scale of 1 to 10, where 1 represents the lowest score (poor state/capability) and 10 represents the highest score (great state/capability). This resulted in a total of **60** surveys completed for the module across all sectors: FP (15), MCH (7), ED (11), WE (9), LM (8), GEI (22). Results by sector are presented in Figure 14. The score values are as follows:

- |                                  |                                  |
|----------------------------------|----------------------------------|
| 1. FP: <b>5.3</b> (CI: 4.1-6.5)  | 4. WE: <b>4.5</b> (CI: 3.3-5.8)  |
| 2. MCH: <b>5.2</b> (CI: 3.2-7.1) | 5. LM: <b>4.6</b> (CI: 2.5-6.7)  |
| 3. ED: <b>6.0</b> (CI: 4.6-7.4)  | 6. GEI: <b>5.1</b> (CI: 4.0-6.3) |

Confidence intervals are presented in the dotted lines to show the upper and lower bounds. The overall resiliency score of the six sectors is 5.2 (CI: 4.7-5.7).

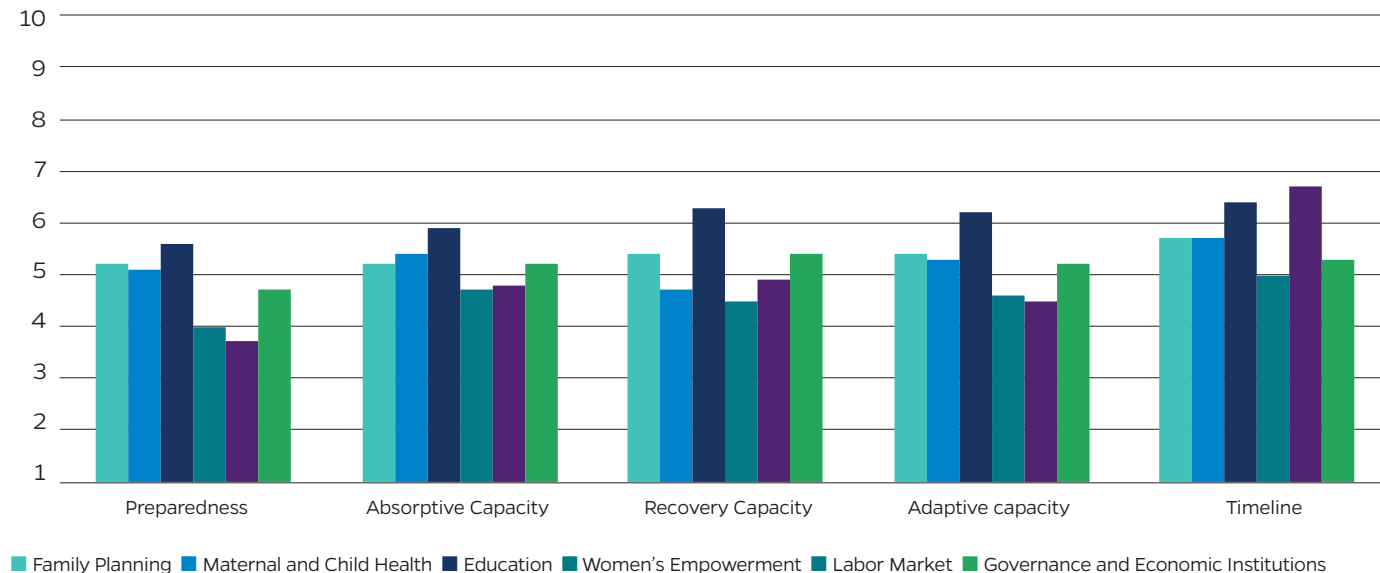
**Figure 14:** Radar plot of DDEI results across all sectors in Nigeria.



## Resiliency Module Results Across Sectors

The resiliency module results across sectors, by resilience dimension, are presented in Figure 15. This demonstrates the variations of scores within and across DDEI sectors. See sector-specific results for details.

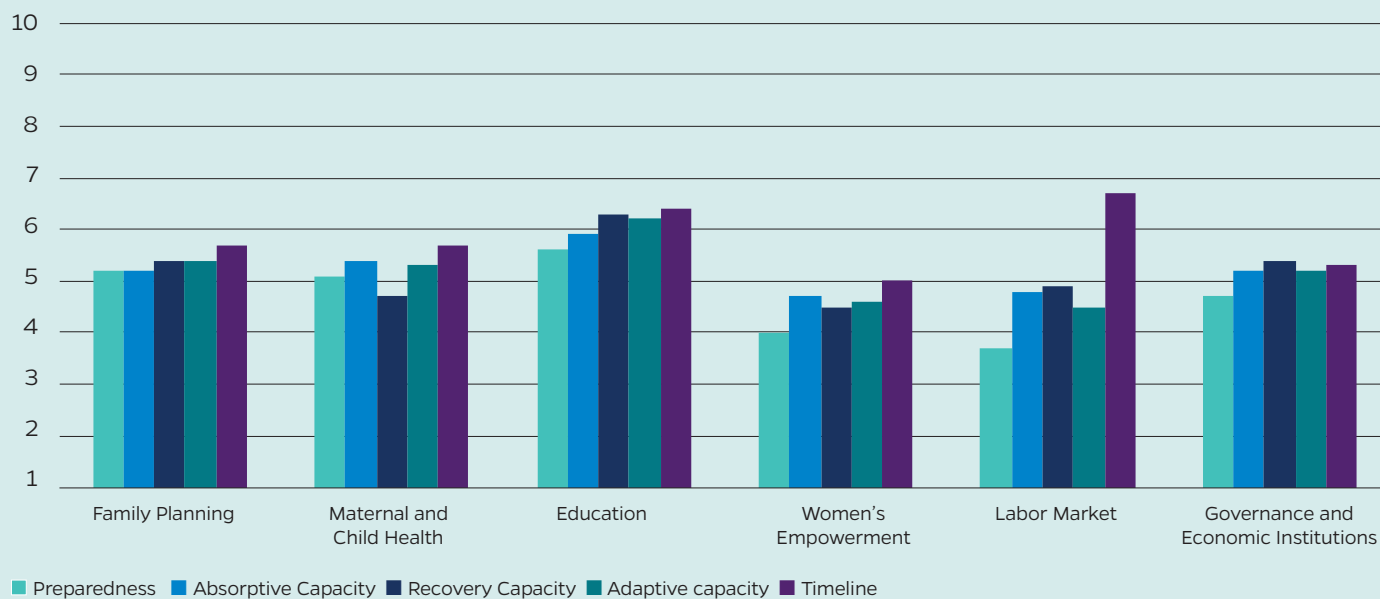
**Figure 15:** Bar chart of resilience module results across DDEI sectors, by resiliency dimensions in Nigeria.



## Resiliency Module Results Across Resiliency Dimensions

The resiliency module results across resiliency dimensions, by DDEI sector, are presented in Figure 16. This demonstrates the variations in scores within and across resiliency dimensions. See sector-specific results for details.

**Figure 16:** Bar chart of resilience module results across resiliency dimensions, by DDEI sectors in Nigeria.





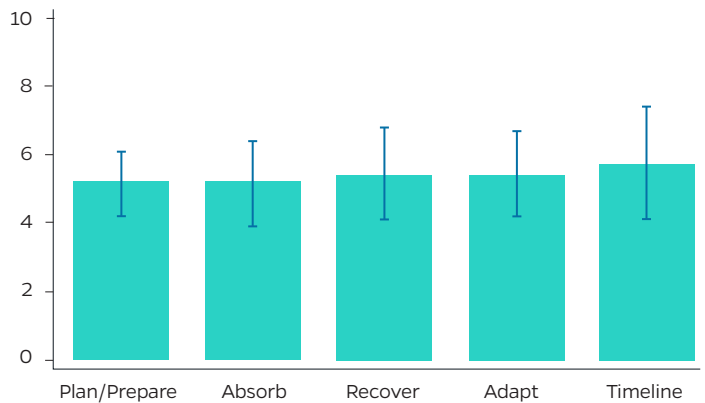
## Family Planning Resiliency Scores

The FP sector survey included questions ranging across the four resiliency dimensions: preparedness, absorptive capacity, recovery capacity, and adaptive capacity, in addition to the timeline of responsiveness. Perceived resiliency scores are presented in Figure 17. The results are based on responses from **15** FP experts working in Nigeria. The scores for each dimension within FP are as follows:

1. Preparedness: **5.2** (CI: 4.2-6.1)
2. Absorptive Capacity: **5.2** (CI: 3.9-6.4)
3. Recovery Capacity: **5.4** (CI: 4.1-6.8)
4. Adaptive Capacity: **5.4** (CI: 4.2-6.7)
5. Timeline: **5.7** (CI: 4.1-7.4)

Based on weighted statistical analysis, the overall score for the level of resiliency in the FP sector is **5.3** (CI: 4.1-6.5).

**Figure 17.** Bar chart of resiliency results in the FP sector in Nigeria, by dimension. (95% Confidence Interval)

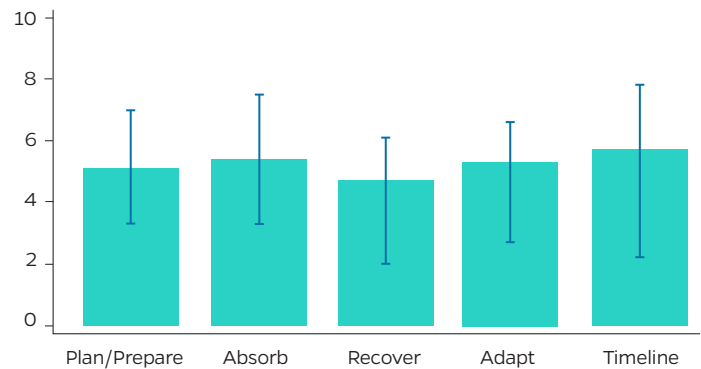


## Maternal and Child Health Resiliency Scores

The MCH sector survey included questions ranging across the four resiliency dimensions: preparedness, absorptive capacity, recovery capacity, and adaptive capacity, in addition to the timeline of responsiveness. Perceived resiliency scores are presented in Figure 18. The results are based on responses from **7** MCH experts working in Nigeria. The scores for each dimension within MCH are as follows:

1. Preparedness: **5.2** (Ci: 4.2-6.1)
2. Absorptive capacity: **5.2** (Ci: 3.9-6.4)
3. Recovery capacity: **5.4** (Ci: 4.1-6.8)
4. Adaptive capacity: **5.4** (Ci: 4.2-6.7)
5. Timeline: **5.7** (Ci: 4.1-7.4)

**Figure 18.** Bar chart of resiliency results in the MCH sector in Nigeria, by dimension. (95% Confidence Interval)



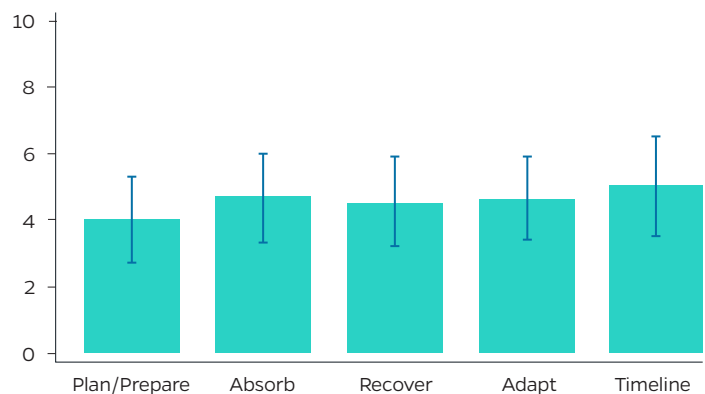
## Women's Empowerment Resiliency Scores

The WE sector survey included questions ranging across the four resiliency dimensions: preparedness, absorptive capacity, recovery capacity, and adaptive capacity, in addition to the timeline of responsiveness. Perceived resiliency scores are presented in Figure 19. The results are based on responses from **9** WE experts working in Nigeria. The scores for each dimension within WE are as follows:

1. Preparedness: **4.0** (CI: 2.7-5.3)
2. Absorptive Capacity: **4.7** (CI: 3.3-6.0)
3. Recovery Capacity: **4.5** (CI: 3.2-5.9)
4. Adaptive Capacity: **4.6** (CI: 3.4-5.9)
5. Timeline: **5.0** (CI: 3.5-6.5)

Based on weighted statistical analysis, the overall score for the level of resiliency in the WE sector is **4.5** (CI: 3.3-5.8).

**Figure 19.** Bar chart of resiliency results in the WE sector in Nigeria, by dimension. (95% Confidence Interval)





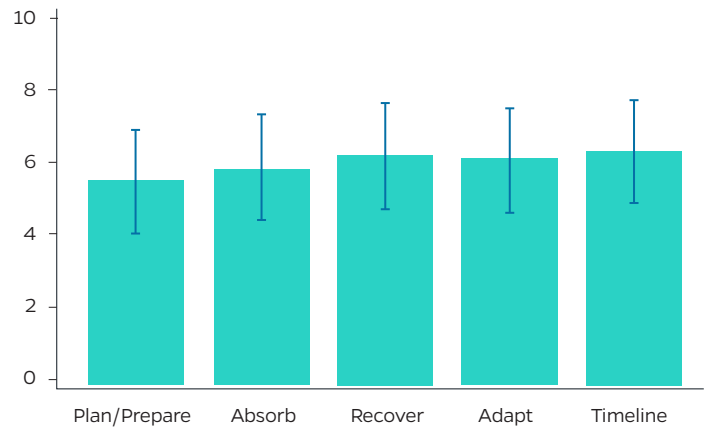
## Education Resiliency Scores

The ED sector survey included questions ranging across the four resiliency dimensions: preparedness, absorptive capacity, recovery capacity, and adaptive capacity, in addition to the timeline of responsiveness. Perceived resiliency scores are presented in Figure 20. The results are based on responses from **11** ED experts working in Nigeria. The scores for each dimension within ED are as follows:

1. Preparedness: **5.6** (CI: 4.1-7.0)
2. Absorptive Capacity: **5.9** (CI: 4.5-7.4)
3. Recovery Capacity: **6.3** (CI: 4.8-7.7)
4. Adaptive Capacity: **6.2** (CI: 4.7-7.6)
5. Timeline: **6.4** (CI: 5.0-7.8)

Based on weighted statistical analysis, the overall score for the level of resiliency in the ED sector is **6.0** (CI: 4.6-7.4).

**Figure 20.** Bar chart of resiliency results in the ED sector in Nigeria, by dimension. (95% Confidence Interval)

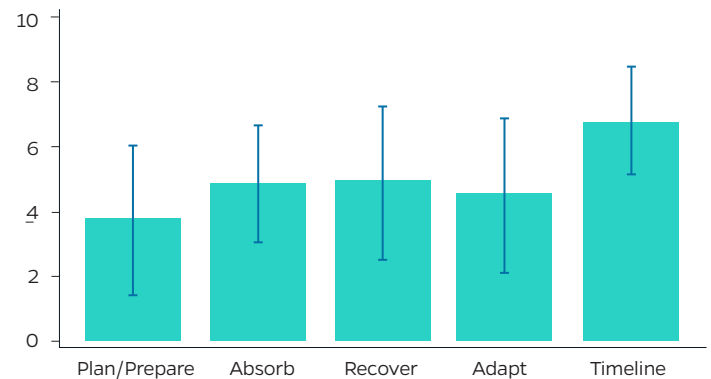


## Labor Market Resiliency Scores

The GEI sector survey included questions ranging across the four resiliency dimensions: preparedness, absorptive capacity, recovery capacity, and adaptive capacity, in addition to the timeline of responsiveness. Perceived resiliency scores are presented in Figure 22. The results are based on responses from **10** GEI experts working in Nigeria. The scores for each dimension within GEI are as follows:

1. Preparedness: **3.7** (Ci: 1.4-6.0)
2. Absorptive capacity: **4.8** (Ci: 3.0-6.6)
3. Recovery capacity: **4.9** (Ci: 2.5-7.2)
4. Adaptive capacity: **4.5** (Ci: 2.1-(Ci: 2.1-6.8)
5. Timeline: **6.7** (Ci: 5.1-8.4)

**Figure 21.** Bar chart of resiliency results in the GEI sector in Nigeria, by dimension. (95% Confidence Interval)

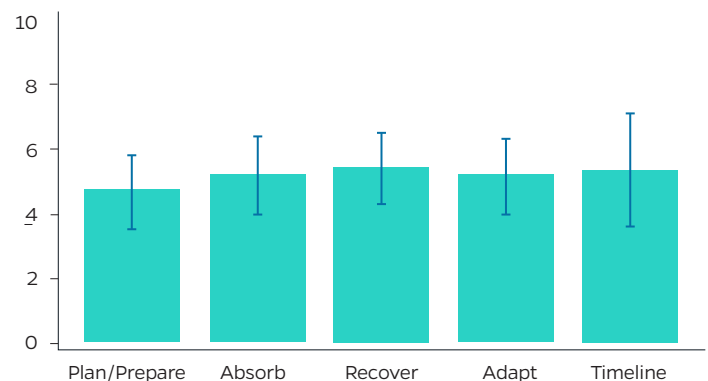


## Governance and Economic Institutions Resiliency Scores

The GEI sector survey included questions ranging across the four resiliency dimensions: preparedness, absorptive capacity, recovery capacity, and adaptive capacity, in addition to the timeline of responsiveness. Perceived resiliency scores are presented in Figure 22. The results are based on responses from **10** GEI experts working in Nigeria. The scores for each dimension within GEI are shown below. Based on weighted statistical analysis, the overall score for the level of resiliency in the GEI sector is 5.1 (CI: 4.0-6.3)

1. Preparedness: **5.4** (Ci: 3.5-5.8)
2. Absorptive capacity: **5.2** (Ci: 4.0-6.4)
3. Recovery capacity: **5.4** (Ci: 4.3-6.5)
4. Adaptive capacity: **5.2** (Ci: 4.0-6.3)
5. Timeline: **5.3** (Ci: 3.6-7.1)

**Figure 22.** Bar chart of resiliency results in the GEI sector in Nigeria, by dimension. (95% Confidence Interval)



## Key Effort Levers to Improve Health and Development Resilience

<b>Family Planning</b>	
Preparedness	Integrate FP into the early warning systems and national preparedness and intervention mechanisms.
Absorptive capacity	Ensure continuous dialogues, skills update, use of quality FP in the communities and strengthen the role of the community-based distributors.
Recovery capacity	Integrate FP supplies management into the state logistics management system and sustain availability of commodities to the last mile.
Adaptive Capacity	Review and update all policies and protocols to align them to the experiences and lessons learnt from the COVID-19 pandemic.
<b>Maternal and Child Health</b>	
Preparedness	Integrate critical elements of MNCH into the early warning system and integrate MNCH messaging into all communications on the pandemic and other public health emergencies.
Absorptive capacity	Ensure the full roll out of the CHIPS program in communities to bridge the gaps in community-based home visits.
Recovery capacity	Ensure full integration and implementation of the new focus on integrated RMNCAEH+N approach.
Adaptive Capacity	Review all protocols and adapt contents to lessons from COVID-19 and update providers' skills to effectively respond to future challenges.
<b>Education</b>	
Preparedness	Review and restructure the educational system to ensure ease of adaptation to the needs of every child in future emergencies.
Absorptive capacity	Review and update the national guidelines on education and admissions in response to lessons learnt for COVID-19 pandemic and other national and local emergencies.
Recovery capacity	Expand the provisions of the UBEC and Education Trust Fund to accommodate the peculiarities of private schools.
Adaptive Capacity	A comprehensive review of the system of student assessment and evaluation may be necessary.
<b>Women Empowerment</b>	
Preparedness	Government needs to enforce the approved laws protecting women and children from gender-based violence, including the full domestication of the Child Rights Act.
Absorptive capacity	Review the National Gender Policy and Strategic Plan in line with the lessons of the COVID-19 and other humanitarian emergencies in Nigeria.
Recovery capacity	Increase opportunities for more voices and champions on women issues by women, particularly in communities.
Adaptive Capacity	Education of the girl child and her retention to full secondary school should be made compulsory and enforced.
<b>Governance and Economic Institutions</b>	
Preparedness	Strengthen the mechanisms and frameworks for national, state and local preparedness and ensure training of all relevant cadres to respond as required and when needed.
Absorptive capacity	Conduct independent review of performance during the pandemic and share lessons learnt for future improvements.
Recovery capacity	Implement transparent peer review mechanisms in all sectors of the economy.
Adaptive Capacity	Promote the policy that promotes youth participation in all political and economic spheres governance.
<b>Labor Market</b>	
Preparedness	Rapidly scale up small and medium scale enterprises and ensure availability of capital to young people.
Absorptive capacity	Government should scale up youth-focused income generation enterprises and opportunities for youth and women.
Recovery capacity	Promote revenue generation from other sectors, including agriculture, mineral, oil and human resources and other forms of social capital.
Adaptive Capacity	Scale up intentional investment and job creation among the teeming Nigerian youths.



## References

- <sup>1</sup> Bloom D, Canning D, Sevilla J. The demographic dividend: A new perspective on the economic consequences of population change: Rand Corporation; 2003.
- <sup>2</sup> Cardona C, Rusatira J, Cheng X, Silberg C, Salas I, Li Q, et al. Generating and capitalizing on the demographic dividend potential in sub-Saharan Africa: a conceptual framework from a systematic literature review [version 1; peer review: 1 approved with reservations]. Gates Open Research. 2020;4(145).
- <sup>3</sup> Ahmed SA, Cruz M, Go DS, et al.: How Significant is Africa's Demographic Dividend for its Future Growth and Poverty Reduction? The World Bank. 2014.
- <sup>4</sup> Gates Institute for Population for Population and Reproductive Health. Available at [https://demographicdividend.org/country\\_highlights/nigeria/](https://demographicdividend.org/country_highlights/nigeria/).
- <sup>5</sup> UN Population Division. World Population Prospects. Available at <https://population.un.org/wpp/Graphs/DemographicProfiles/Pyramid/231>.
- <sup>6</sup> National Population Commission (NPC) [Nigeria] and ORC Macro. 2004. Nigeria Demographic and Health Survey 2003. Calverton, Maryland: National Population Commission and ORC Macro. Available at <https://dhsprogram.com/pubs/pdf/FR148/FR148.pdf>.
- <sup>7</sup> National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF. Available at <https://dhsprogram.com/pubs/pdf/FR359/FR359.pdf>.
- <sup>8</sup> National Population Commission [Nigeria]. 2000. Nigeria Demographic and Health Survey 1999. Calverton, Maryland: National Population Commission and ORC/Macro.
- <sup>9</sup> National Population Commission (NPC) [Nigeria] and ICF International. 2014. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International.
- <sup>10</sup> Federal Office of Statistics of Nigeria. 1990. Nigeria Demographic and Health Survey 1990. Lagos, Nigeria, and Columbia, Maryland, USA: Federal Office of Statistics of Nigeria and IRD/Macro International.
- <sup>11</sup> National Population Commission (NPC) [Nigeria] and ORC Macro. 2004. Nigeria Demographic and Health Survey 2003. Calverton, Maryland: National Population Commission and ORC Macro.
- <sup>12</sup> National Population Commission (NPC) [Nigeria] and ICF Macro. 2009. Nigeria Demographic and Health Survey 2008. Abuja, Nigeria: National Population Commission and ICF Macro.
- <sup>13</sup> National Population Commission (NPC) [Nigeria] and ICF International. 2014. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International.
- <sup>14</sup> Linkov I, Eisenberg DA, Plourde K, Seager TP, Allen J, Kott A. Resilience metrics for cyber systems. Environment Systems and Decisions. 2013;33(4):471-6.
- <sup>15</sup> Linkov I, Eisenberg DA, Bates ME, Chang D, Convertino M, Allen JH, et al. Measurable resilience for actionable policy. ACS Publications; 2013.
- <sup>16</sup> Baldwin R, Tomiura E. Thinking ahead about the trade impact of COVID-19. Economics in the Time of COVID-19. 2020;59.
- <sup>17</sup> Lauer SA, Grantz KH, Bi Q, Jones FK, Zheng Q, Meredith HR, et al. The incubation period of coronavirus disease 2019 (COVID-19) from publicly reported confirmed cases: estimation and application. Annals of internal medicine. 2020;172(9):577-82.
- <sup>18</sup> Blanchet K, Nam SL, Ramalingam B, Pozo-Martin F. Governance and capacity to manage resilience of health systems: towards a new conceptual framework. International Journal of Health Policy and Management.



**JOHNS HOPKINS**  
BLOOMBERG SCHOOL  
*of* PUBLIC HEALTH

**Bill & Melinda Gates Institute for  
Population and Reproductive Health**  
**Department of Population, Family  
and Reproductive Health**