

### Topic A: Assuring Access to Clean Energy in Developing Economies

#### Introduction

The Paris Accords and the UN Sustainable Development Goals have set ambitious targets for the reduction of greenhouse gases (GHG) in order to limit global temperature change to 1.5°C by the end of the century. Reforming the industrial sector is crucial to meeting these targets. Industrial activity is estimated to contribute almost 30% of global GHG emissions.<sup>1</sup> By far, the largest contributor is the energy used in production – in particular, industrial production that relies on fossil fuels (coal, oil, natural gas).<sup>2</sup> Thus, it is imperative to reduce industrial reliance on fossil fuels. At the same time, many developing countries suffer from “energy poverty” – a lack of consistent and reliable energy for a significant portion of the population to pursue its domestic and industrial needs.<sup>3</sup> In addition, many economies are only just developing viable industrial sectors, and the need for energy is certainly going to increase.<sup>4</sup>

While there have been several innovations in the provision of renewable energy, the reality is that most developing economies are more likely to rely on non-renewable energy sources – though that is slowly changing. Development of renewable energy sectors requires both capital investment and technical skills that are often difficult to come by in the global South. In this case, the challenge for UNIDO becomes how to encourage adoption of cleaner, renewable energy sources without endangering the industrial development in the countries that need it the most. Nevertheless, there are reasons to believe that the transition to more renewable energy will benefit economic development. These include ending reliance on energy imports, increased food and energy security, and improvements in local health and biodiversity.<sup>5</sup> Yet, projects to date have not been sufficient to truly impact total GHGs – efforts need to be scaled up and developing countries need much greater access to investment and technology transfer.<sup>6</sup>

#### Current Situation

One big step forward in helping industry adopt clean energy was the formation of the Climate Technology Centre and Network (CTCN) in 2010 – a joint program hosted jointly by UNIDO and the United Nations Environment Programme (UNEP). The CTCN is located in Copenhagen, Denmark but has a network of organizations that deliver services worldwide.<sup>7</sup> The goal of CTCN

---

<sup>1</sup> UNIDO. *Promoting climate resilient energy*. 2015. UNIDO: Vienna., p. 5

<sup>2</sup> Ibid.

<sup>3</sup> UNIDO. *Vienna Energy Forum: Sustainable Energy for Inclusive Development*. 2015. UNIDO: Vienna, p. 6

<sup>4</sup> Ibid.

<sup>5</sup> UNIDO. *Promoting climate resilient energy*., p. 13

<sup>6</sup> UNIDO. *Promoting climate resilient energy*., p. 25

<sup>7</sup> United Nations Climate Technology Centre and Network. “About the Climate Technology Centre and Network (CTCN)” <https://www.ctc-n.org/about-ctcn> Accessed 8 January 2022.

# Saint Peter's University High School Model United Nations

## United Nations Industrial Development Organization

---

is to promote “the accelerated transfer of environmentally sound technologies for low carbon and climate resilient development at the request of developing countries.”<sup>8</sup> CTCN accomplishes this by providing technical assistance, creating access to information on new technologies, and fostering collaboration among academia, the private sector, and government research institutions.<sup>9</sup> The CTCN has had much success in assisting the adoption of cleaner energy<sup>10</sup>, but there still remain impediments to scaling up these efforts to meet the challenge of climate change.<sup>11</sup> In particular, not enough has been done to acknowledge local “path dependencies” in many countries and to include local stakeholders in transition planning.<sup>12</sup> Access to reliable and sustainable funding also remains an issue.<sup>13</sup>

Another important initiative is UNIDO’s Global Programme for Green Hydrogen in Industry, founded in July 2021.<sup>14</sup> Hydrogen is an abundant, clean-burning natural fuel. It can be used in its pure form or converted to hydrogen-based fuels such as synthetic methane, ammonia, and methanol. Traditionally, hydrogen has been hard to store, but the technology creating hydrogen fuel cells has also helped address such problems. The only byproduct of hydrogen energy reactions is water.<sup>15</sup> UNIDO hopes the program will assist in the creation and dissemination of new hydrogen fuel technologies, as well as create road maps and pilot projects for developing countries to adopt green hydrogen. As part of the initiative, UNIDO launched the International Hydrogen energy Centre (IHEC) located in Beijing, China.<sup>16</sup> IHEC is slated to be completed in 2026 and will be crucial to UNIDO’s strategy of supporting clean energy adoption in industry.<sup>17</sup>

### Questions to Address

- How can UNIDO help countries balance the need for industrial growth with the need to reduce GHGs?
- What steps can UNIDO take to further encourage both local and global investment in renewable energy production and adoption by industry?
- How can UNIDO further accelerate the adoption of Green Hydrogen?

---

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> Jacobs, Heather, et al. *CTCN Technology Mechanism 2021 Progress Report*. 2021. CTCN Secretariat: Copenhagen.

<sup>11</sup> Haselip, James A. *Scaling up investment in climate technologies: Pathways to realising technology development and transfer in support of the Paris Agreement*. 2021. UNEP DTU Partnership.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> UNIDO. “Global Programme on Green Hydrogen in Industry” <https://www.unido.org/green-hydrogen> Accessed 8 January 2022.

<sup>15</sup> UNIDO. *Supporting the establishment and development of the International Hydrogen Energy Centre*. 2021. UNIDO: Vienna.

<sup>16</sup> Ibid.

<sup>17</sup> Ibid.

### Topic B: Addressing the Global Digital Divide

#### Introduction

New technologies such as intelligent automation, big data, machine learning and the Internet of Things have prompted some to declare that we are in the midst of a fourth industrial revolution, dubbed Industry 4.0.<sup>18</sup> The first three industrial revolutions were based on mechanization (steam and water power), electrification (mass production), and automation (computers, CAD-CAM).<sup>19</sup> Industry 4.0 is digital and data-driven. Access to and efficient use of these digital technologies is crucial to future industrial development. In many advanced industrial economies, businesses have begun to adopt these technologies to reduce cost, spur innovations, and increase productivity.<sup>20</sup> UNIDO's challenge is to ensure the benefits of Industry 4.0 can be realized by developing countries as well.<sup>21</sup> The ability to make this happen will depend on overcoming the *digital divide* that has come to characterize the disparity between higher and lower income countries.

In terms of Industry 4.0, the digital divide manifests in two important areas. The first is in worker skills. Just as lower-income households often lag behind higher-income households in access to and use of digital technology, so too do poorer nations often lag behind more wealthy ones.<sup>22</sup> Less access to education, lack of dependable electricity, and less money for investment mean that historically a smaller percentage of workers have the technical skills and experience needed to fill jobs in the digital economy.<sup>23</sup> As a result, firms adopting Industry 4.0 practices have trouble finding qualified workers. Second, most small and medium-sized enterprises (SMEs) have difficulty implementing digital technologies due to a lack of access to investment capital and technical knowledge.<sup>24</sup> In order for developing countries to fully participate in Industry 4.0, both of these digital divides will need to be addressed.

#### Current Situation

UNIDO has sponsored several research articles that support the importance of helping developing economies embrace Industry 4.0. These studies basically point to three areas in

---

<sup>18</sup> UNIDO. "Industry 4.0" <https://www.unido.org/unido-industry-40> Accessed 9 January 2022.

<sup>19</sup> UNIDO. "Industry 4.0: An Introduction." [https://www.unido.org/sites/default/files/files/2019-10/Industry40\\_training\\_flyer\\_A4.pdf](https://www.unido.org/sites/default/files/files/2019-10/Industry40_training_flyer_A4.pdf) Accessed 9 January 2022.

<sup>20</sup> UNIDO. *Industry 4.0: Opportunities and Challenges of the New Industrial Revolution for Developing Countries and Economies in Transition*. 2017. UNIDO: Vienna, p. 4

<sup>21</sup> Ibid.

<sup>22</sup> International Telecommunications Union. *Measuring digital development: Facts and figures*. 2020. ITU: Geneva, p. 4

<sup>23</sup> UNIDO, *Building e-competence: Enabling small business to access opportunities through Information and Communication Technology*. 2008. UNIDO: Vienna

<sup>24</sup> Pianta, Mario. The challenge of digitalization for firms in developing countries. 2019. *Working Paper 18/2019*. UNIDO: Vienna.

# Saint Peter's University High School Model United Nations

## United Nations Industrial Development Organization

---

which UNIDO can focus its efforts: encouraging a better enabling environment for businesses to adopt new technologies, the technical transfer needed in adopting these new technologies, and increasing human capital development.<sup>25</sup> UNIDO has been working with member states through its Programme for Country Partnership, which seeks to aid developing countries in adopting new technology for sustainable development.<sup>26</sup> It has also been working through its Business, Investment and Technology Services Branch (BITS) to provide technical assistance directly to businesses.<sup>27</sup> Finally, UNIDO has create an Industry 4.0 Training Academy, which has online courses for stakeholders on the basics of digitalization and what is necessary for it to be better implemented.<sup>28</sup> These efforts are just beginning and may need to be scaled up to become more effective.

A second area that UNIDO has been working on is the creation and adoption of common standards in digitalization.<sup>29</sup>

“Establishing a clear and reliable standards framework for these advanced technologies will help achieve inclusive and sustainable development in this age of rapid digital transformation, and make global value chains accessible to all.”<sup>30</sup>

Common standards in digital technology will help industries in developing economies know what to plan for, avoid making costly mistakes, and have better access to trade by meeting industry expectations.<sup>31</sup> Such standards also will make it easier for workers to get the proper training to obtain jobs in the Industry 4.0 economy.<sup>32</sup>

### Questions to Address

- How does UNDO encourage more public-private partnerships in the adoption of digital technologies by businesses in developing countries?
- What steps can UNIDO take to help develop common standards in digital technologies that will enable business and workers access to better trade and jobs?

---

<sup>25</sup> Lavopa, Alejandro and Elisa Calza. “Capturing the ‘digital dividend’ in developing economies” <https://iap.unido.org/articles/capturing-digital-dividend-developing-economies> Accessed 10 January 2022.

<sup>26</sup> UNIDO. “Programme for Country Partnership” <https://www.unido.org/programme-country-partnership> Accessed 10 January 2022.

<sup>27</sup> UNIDO. *Business, Investment and Technology Services Branch Enhancing the contribution of the private sector to sustainable industrial development and poverty reduction*. [https://www.unido.org/sites/default/files/2013-10/BIT\\_Brochure\\_Web\\_0.pdf](https://www.unido.org/sites/default/files/2013-10/BIT_Brochure_Web_0.pdf) Brochure (undated) Accessed 8 January 2022

<sup>28</sup> UNIDO. “Training Academy: Industry 4.0” <https://hub.unido.org/training-modules-industry-4> Accessed 8 January 2022.

<sup>29</sup> UNIDO. “High-Level GMIS Panel debates the role of standards in the Fourth Industrial Revolution” 25 September 2019. <https://www.unido.org/news/high-level-gmis-panel-debates-role-standards-fourth-industrial-revolution> Accessed 10 January 2022.

<sup>30</sup> Ibid, quoted from Badr Al Olama.

<sup>31</sup> UNIDO. *Standards & Digital Transformation: Good Governance in a Digital Age*. 2021. UNIDO: Vienna, p. 27

<sup>32</sup> Ibid., p. 23