

## Sustainable Development of Healthcare Industry (Environment, Society, Governance)

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### Synopsis

The United Nations Sustainable Development Goals (SDGs) are part of a plan to end poverty, protect the planet, and improve the lives and prospects of everyone by 2030. The 15-year plan has 17 goals (Fig. 1) with 169 targets aimed at stimulating action in areas of critical importance to humanity and the environment. From 2016 to 2020, nearly 30% of publications in Scopus (the largest abstract and citation database of peer-review literature) were mapped to at least one SDG. SDG3: Good Health and Well-being (Fig. 1) was the goal with the most publications produced in the above period. It recorded a 46% share of total SDG-related publications (Fig. 2).

Figure 1: The Global Goals consisting of SDG3: Good Health & Well-being

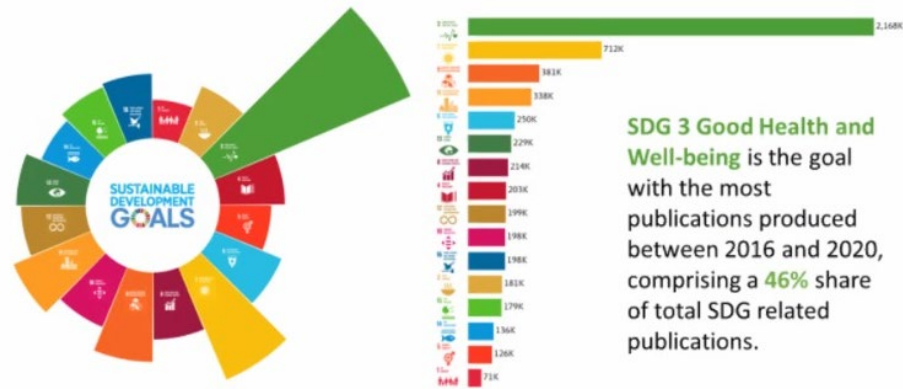


(Source: Sou, 2023a, 2023c, 2023d & 2023g)

SDG3: Ensuring healthy lives and promoting well-being at all ages is essential to Sustainable Development. Our world has faced a global health crisis unlike any other — COVID-19 is spreading human suffering, destabilizing the global economy and upending the lives of billions of people around the globe. Before the global pandemic, major progress was made in improving the health of millions of people. Significant strides were made in increasing life expectancy and reducing some of the common killers associated with child and maternal mortality. But more efforts are needed to fully eradicate a wide range of diseases and address many different persistent and emerging health issues.

Figure 2: Publications in Scopus mapped to SDGs

Nearly 30% of publications in Scopus are mapped to at least one SDG



(Source: Sou, 2023a, 2023c, 2023d & 2023g)

SDG3 could be aligned with the other 16 SDGs in a constructive manner (Fig. 3). However, healthcare practitioners have limited knowledge of its integral application. Data science and case studies reveal that Education for Sustainable Development (ESD) can help healthcare practitioners track and demonstrate integral application of 17 SDGs towards global sustainability. Though healthcare practitioners are working in different streams of this industry, they could shoulder individual responsibilities whilst their organizations are meeting their corporate obligation in Environment, Society and Environment (ESG) (IBM, 2022).

Figure 3: SDG3 Roulette



(Source: Sou, 2023a, 2023c, 2023d & 2023g; WHO, 2022 & 2023)

## **Application of Transformative Pedagogy in Retraining/Uptraining**

As an ESD expert of United Nations Educational, Scientific & Cultural Organization (UNESCO) and a freelance Expert in Policy Review of World Health Organization (WHO), the Corresponding Author and his team has developed a upskills course for the Employees Retraining Board (ERB) of Hong Kong. ERB coordinates, funds and monitors training courses and services that are market-driven and employment-oriented so as to meet the changing needs of the job market. It has appointed about 80 Training Bodies with around 400 training centers across the territory to provide training courses and services. ERB offers around 700 training courses straddling nearly 30 industries.

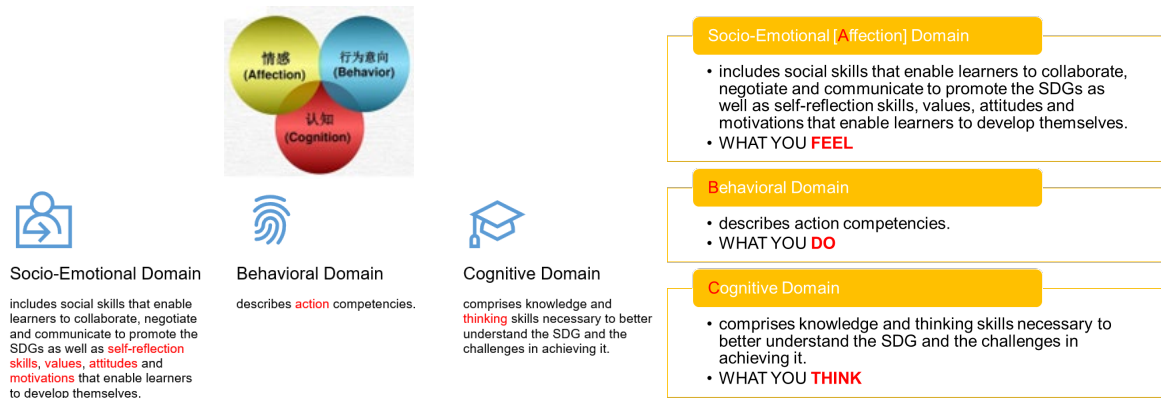
Professionals are always required to have Continued Professional Development (CPD) that is also regarded as retraining or uptraining (Sou, 2023e&g). When SD is vital to our world nowadays, we should incorporate SD training into the CPD of professionals. It adds value to the professionalism of an individual who wishes to be a Global Citizen (APCEIU, 2018, 2020 & 2022). Simultaneously through individual involvement in global sustainability as a global citizen, his or her organization stands a better chance to become a corporate citizen in our sustainable world. To achieve such objectives of ESD, we could apply Transformative Pedagogy of Global Citizen Education (GCED) in the retraining or uptraining of professionals.

GCED aims to equip learners of all ages with those values, knowledge and skills that are based on and instill respect for human rights, social justice, diversity, gender equality and environmental sustainability and that empower learners to be responsible global citizens (Castillo, 2022; Hall, 2022, Klein, 2022; Nikolitsa-Winter, Mauch & Maalouf, 2019; United Nations, 2021a). 'Global Citizenship' is a sense of belonging to a broader community and common humanity. It emphasizes political, economic, social and cultural interdependency and interconnectedness between the local, the national and the global (Pun & Chen, 2017).

GCED gives learners the competencies and opportunities to realize their rights and obligations to promote a better world and future for all. Grounded in a lifelong learning perspective, it targets all learners of all ages – children, youth and adults (Sou, 2005). GCED can be delivered in all modes and venues, including formal, non-formal and informal education. In most countries, the formal education system will be the main mode of delivery of GCED. This will require the integration of GCED into education systems, either as a stand-alone subject, a component of existing programs and/or the ethos of a learning environment and system (Pun & Chen, 2017). Nonetheless, it does not hinder the integration of GCED into retraining or uptraining of professionals.

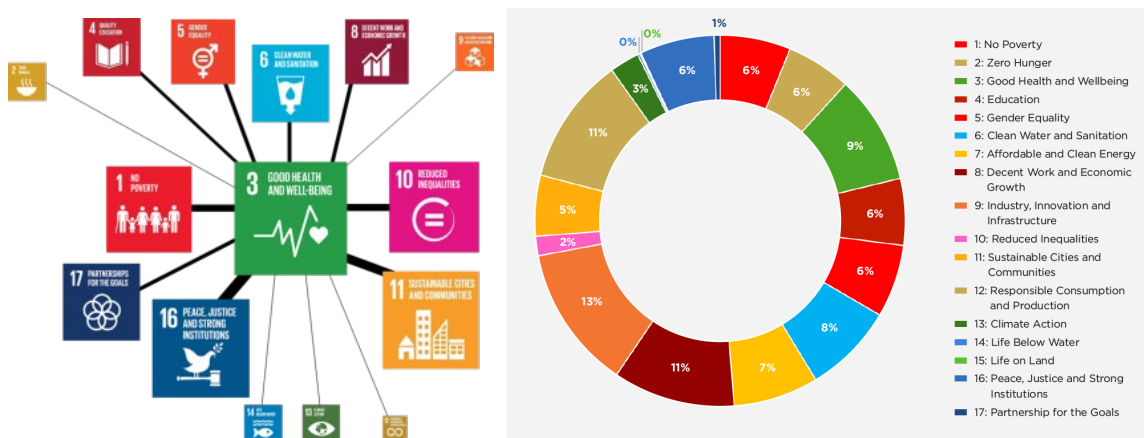
In short, Transformative Pedagogy (APCEIU, 2008 & Sou, 2023b-d) is represented by three domains that could be construed as an ABC Model. Affection symbolizes Socio-Emotional Domain whereas B and C respectively represent Behavior Domain and Cognition Domain (Fig. 4). Transformative pedagogy of GCED is compatible with the CPD of professionals. Cultivating professionals to be Global Citizens invariably leads to favorable learning outcomes. They are guided how to feel, to think and to do in their profession for global sustainability. Furthermore, they could know how to work in the focus areas specific to their industry and how to flexibly map ESG with 17 SDGs in the light of their importance (Fig. 5), interrelationship and relevance to Good Health and Well-being (Fig. 6).

Figure 4: Three Domains of Transformative Pedagogy in line with ABC Model of Socioemotional Learning



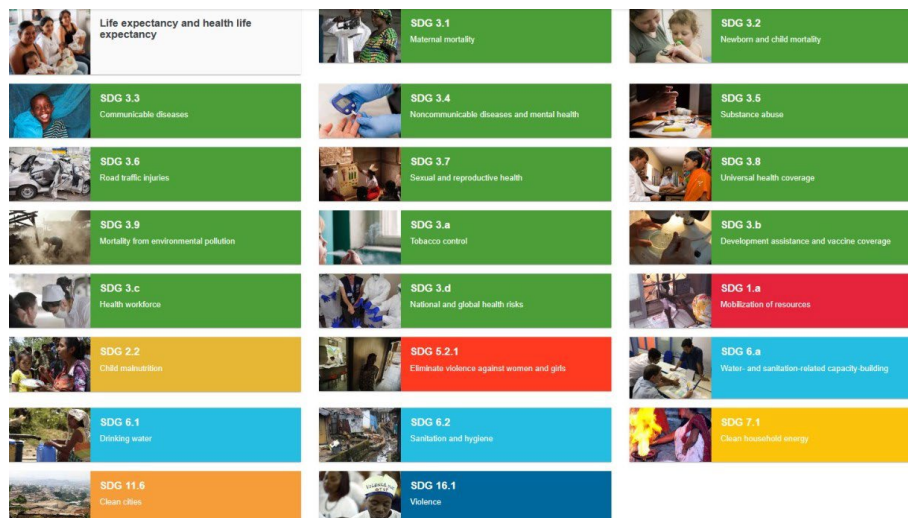
(Source: Sou, 2023b-d)

Figure 5: Mapping of SDG3 with Other 14 SDGs and Overall Importance of 17 SDGs



(Source: Sou, 2023a, 2023c, 2023d & 2023e)

Figure 6: Relevance of SDGs to Health & Wellbeing: Life Expectancy & Health Life Expectancy



(Source: Sou, 2023a, 2023c, 2023d & 2023g)

## Experience-Sharing, Modeling & Benchmarking

The Authors have developed a first-ever Sustainable Development (SD) Course for the Healthcare Industry. The course introduces the correlation of Environment, Society and Economics (ESE) with ESG. Under the social-emotional approach of ESD, Healthcare practitioners are guided to study local and overseas success and failure cases of their industry. They are somewhat surprised by the findings of a gap analysis (Fig. 7) and benchmarks of the healthcare industry in our world.

Figure 7: Data Science of Health-related SDGs and Global Gap

General health-related SDG data availability and gaps globally				
Indicator topic	Country data availability	Disaggregation	Comparable estimates	Source estimates
3.1.1 Maternal mortality	Fair	Poor	Annual	UN MMEIG
3.1.2 Skilled birth attendance	Good	Good	In prep.	UNICEF, WHO
3.2.1 Under-five mortality rate	Good	Good	Annual	UN IGME
3.2.2 Neonatal mortality rate	Good	Good	Annual	UN IGME
3.3.1 HIV incidence	Fair	Fair	Annual	UNAIDS
3.3.2 TB incidence	Fair	Fair	Annual	WHO
3.3.3 Malaria incidence	Fair	Fair	Annual	WHO
3.3.4 Hepatitis B incidence	Poor	Poor	In prep.	WHO
3.3.5 Neglected tropical diseases at risk	Fair	Poor	Annual	WHO
3.4.1 Mortality due to NCD	Fair	Poor	Every 2-3 years	WHO
3.4.2 Suicide mortality rate	Fair	Poor	Every 2-3 years	WHO
3.5.1 Treatment substance use disorders	Poor	Poor	Not available	UNODC, WHO
3.5.2 Harmful use of alcohol	Fair	Poor	Annual	WHO
3.6.1 Deaths road traffic injuries	Fair	Poor	Every 2-3 years	WHO
3.7.1 Family planning	Good	Good	Annual	UNPD
3.7.2 Adolescent birth rate	Good	Good	Annual	UNPD
3.8.1 Coverage index UHC	Good	Fair	In prep.	WHO, World Bank
3.8.2 Financial protection	Fair	Fair	In prep.	WHO, World Bank
3.9.1 Mortality due to air pollution	Fair	Poor	Every 2-3 years	WHO
3.9.2 Mortality due to WASH	Fair	Poor	Every 2-3 years	WHO
3.9.3 Mortality due unintentional poisoning	Fair	Poor	Every 2-3 years	WHO
3.a.1 Tobacco use	Fair	Good	Annual	WHO
3.b.1 Access to medicines and vaccines	Poor	Poor	Not available	WHO
3.b.2 ODA for medical research	Fair	n.a.	In prep.	OECD, WHO
3.c.1 Health workers	Fair	Poor	Not available	WHO
3.d.1 IHR capacity and emergency preparedness	Fair	n.a.	n.a.	WHO
6.1.1 Drinking water services	Good	Good	Annual	WHO, UNICEF
6.2.1 Sanitation services	Good	Good	Annual	WHO, UNICEF
7.1.1 Clean household energy	Fair	Fair	In prep.	WHO
11.6.1 Air pollution	Good	Good	Annual	WHO
13.1.1 Mortality due to disasters	Fair	Poor	Every 2-3 years	WHO
16.1.1 Homicide	Fair	Fair	Every 2-3 years	WHO
16.1.2 Mortality due to conflicts	Fair	Poor	Every 2-3 years	WHO, UNPD

(Source: Sou, 2023a, 2023c, 2023d & 2023e)

They are also surprised that Hong Kong was once named as one of the Top 5 Healthy Cities in the world a decade ago. Unfortunately in the global pandemic, they witnessed critical failure cases here. In the midpoint of 2030 Agenda: Sustainable Development Goals, we are delighted to see that more organizations in various industries have shown their interest in the achievement of SDGs. The Corresponding Author has published a Training Manual which comprises data sciences, case studies, modeling and benchmarking, and also illustrates the most recent situations (Fig. 8) of our world.



Figure 8: Univariate Correlations of SDGs in 6 Regions of Our World

SDG	REGION						
	All	Europe	Former Soviet Union	Asia	MENA	Sub-Saharan Africa	Americas
1 No Poverty	0.65*	0.49*	-0.03	0.44	0.22	0.50*	0.76*
2 Zero Hunger	0.62*	0.44	0.30	0.41	0.70*	0.23	0.38
3 Good Health	0.77*	0.76*	0.40	0.69*	0.82*	0.15	0.89*
4 Quality Education	0.64*	0.48*	0.12	0.55*	0.67*	0.14	0.62*
5 Gender Equality	0.61*	0.78*	0.55	0.69*	0.75*	-0.29	0.66*
6 Clean Water and Sanitation	0.73*	0.69*	0.16	0.83*	0.26	0.00	0.61*
7 Affordable and Clean Energy	0.69*	0.40	-0.40	0.71*	0.47	0.51*	0.68*
8 Decent Work and Economic Growth	0.69*	0.62*	0.68*	0.54*	0.77*	0.34	0.61*
9 Industry, Innovation and Infrastructure	0.80*	0.90*	0.36	0.78*	0.92*	0.35	0.62*
10 Reducing Inequality	0.32*	0.71*	0.06	0.12	0.01	0.07	-0.08
11 Sustainable Cities and Communities	0.61*	0.74*	0.51	0.56*	0.08	0.00	0.77*
12 Responsible Consumption and Production	-0.75*	-0.69*	-0.39	-0.78*	-0.80*	-0.26	-0.51
13 Climate Action	-0.35*	-0.19	-0.19	-0.54*	-0.71*	-0.10	-0.23
14 Life Below Water	-0.02	0.12	0.44	0.18	-0.14	-0.02	0.28
15 Life on Land	0.03	-0.06	0.50	-0.13	-0.24	-0.06	0.09
16 Peace, Justice and Strong Institutions	0.69*	0.85*	0.12	0.72*	0.73*	0.06	0.72*
17 Partnerships for the Goals	0.16	-0.03	-0.28	0.27	0.21	0.04	-0.02
<b>ALL</b>	<b>0.79*</b>	<b>0.79*</b>	<b>0.37</b>	<b>0.74*</b>	<b>0.55</b>	<b>0.32</b>	<b>0.77*</b>

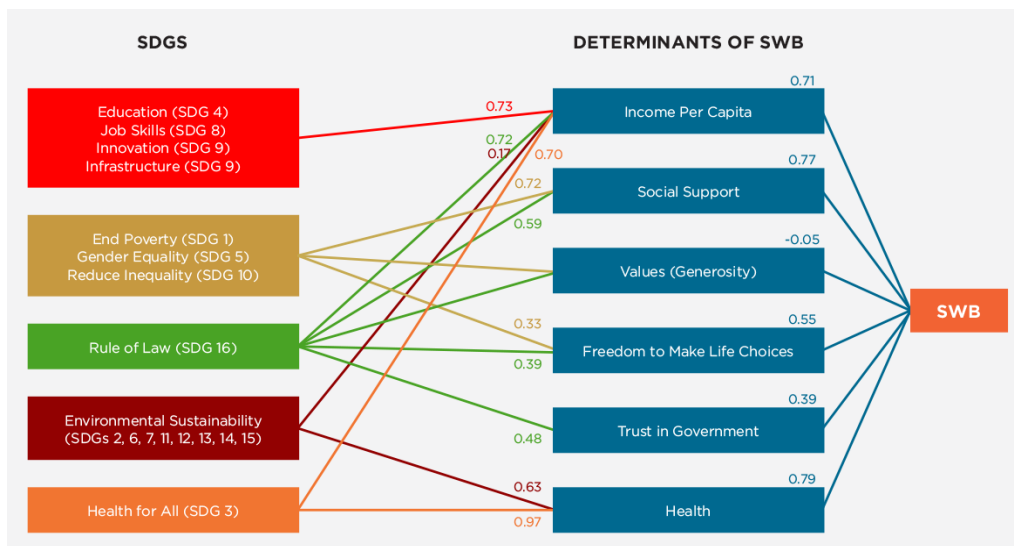
Note: Univariate correlations where \* represents statistical significance at the 1% level. In line with SDG Index methodology, regional averages are used for missing values.

(Source: Sou, 2023a, 2023c, 2023d & 2023g)

## Social Wellbeing

Social Wellbeing (SWB) deals with how and why people are happy in their lives. SWB is based on the **Affective** and **Cognitive** evaluations about their perceived state of happiness. On top of the thematic SDG3, other SDGs are immensely supporting six Determinants of SWB (Fig. 9).

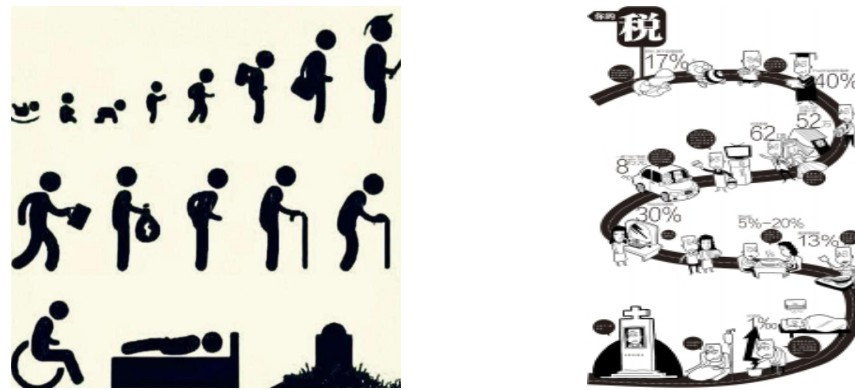
Figure 9: SDGs in support of Determinants of Social Wellbeing



(Source: Sou, 2023a, 2023c, 2023d & 2023g)

In parallel, Good Health and Wellbeing of human beings is supported by societal and economic development of a nation. Across the Human Life Cycle (Fig. 10), human lives are influenced by environmental factors that are external but essential. To ensure sustainable development, ESE becomes its three pillars. A sound healthcare system of a nation relies on public investment and private involvement. In the public sector, the government invests in people, trains and hires professionals by means of public coffer that is usually sourced from taxation (Fig. 10). Public accountability calls for basic but bearable healthcare services to the general public, particularly to the underprivileged citizens. In the private sector, business organizations offer supplementary and/or premium healthcare services to the people who could bear higher costs.

Figure 10: Health & Wellbeing across Human Life Cycle & Contribution of Taxation to Human Growth



(Source: Sou, 2023a, 2023c, 2023d & 2023g)

In the healthcare services industry, both the public and private sectors are working hand-in-hand to ensure an equitable healthcare system. They have to maintain an adequate workforce of healthcare professionals to serve the society. A Healthy City needs a “healthy” density (Fig. 11) of healthcare professionals. For instance, numbers of medical practitioners, paramedical and healthcare workers are indicators of the capacity of a society in tackling Good Health and Wellbeing. Failing that, SWB of a nation will be in distress.

Figure 11: Density of Healthcare Practitioners in Different Regions of Our World



(Source: Sou, 2023a, 2023c, 2023d & 2023e)

Benchmarking the Developed Countries, their healthcare systems are always commendable. With high scores, they are ranked high in the Sustainable Development

Report 2023 (Fig. 12). The commonality of these high-scored countries is their high Human Development Index (HDI) as well as distinctive Global Citizenship (Fig. 13). Their public sectors work hard on ESE whereas their private sectors strive for ESG.

Figure 12: Top 10 Countries of Sustainable Development

SUSTAINABLE DEVELOPMENT REPORT		
Rank	Country	Score
1	Finland	86.51
2	Denmark	85.63
3	Sweden	85.19
4	Norway	82.35
5	Austria	82.32
6	Germany	82.18
7	France	81.24
8	Switzerland	80.79
9	Ireland	80.66
10	Estonia	80.62
11	United Kingdom	80.55

(Source: Sou, 2023a, 2023c, 2023d & 2023g; United Nations, 2022)

Figure 13: Human Development Indices & Populations of Developed Countries



(Source: Helliwell, 2023; Sou, 2023a, 2023c, 2023d & 2023g; United Nations, 2021b)

Both national Leaders and business leaders have genuine concerns over the healthcare system and its prerequisite resources and manpower that are proportionate to population. They are aware of its importance to national and business development as well as SWB. For the sake of synergy or collaboration, they expect that individual members of their workforces in the healthcare services are also Global Citizens. Through ESD, healthcare professionals are more likely to become Global Citizens through retraining or uptraining in SDGs:

**Affection** Healthcare Practitioners experience a sense of belonging to a common humanity, sharing values and responsibilities, based on human rights. They develop attitudes of empathy, solidarity and respect for differences and diversity.

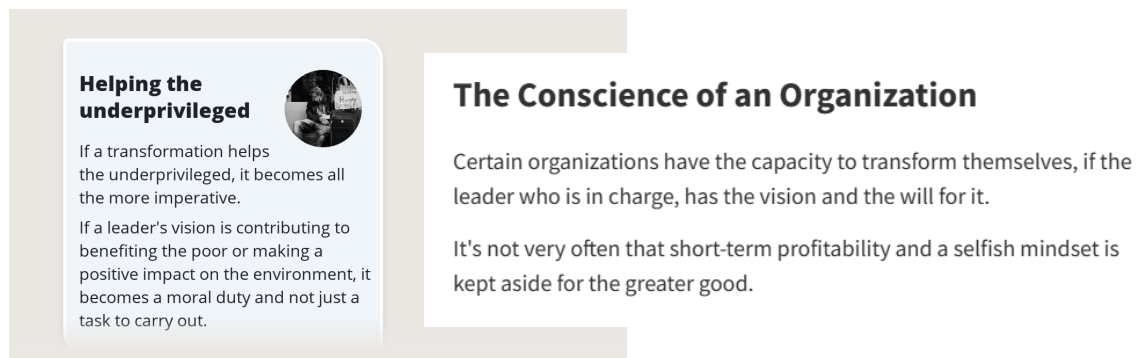


**Behavior** Healthcare Practitioners act effectively and responsibly at local, national and global levels for a more peaceful and sustainable world. They develop motivation and willingness to take necessary actions.

**Cognitive** Healthcare Practitioners acquire knowledge and understanding of local, national and global issues and the interconnectedness and interdependency of different countries and populations. They develop skills for critical thinking and analysis.

In the industry-led course, Healthcare Professionals at whatever levels (Fig. 14) are taught how to fulfil individual and corporate responsibilities of SD. They are shown ample local and overseas successful cases and contemporary SD planning tools (Sou, 2023f) for the transformation of their mindsets and upgrading of their skillsets. After training, they know how to map 17 SDGs with their profession and align them with ESE as well as ESG for global sustainability. Modeling on mature healthcare systems and/or benchmarking the best practices in developed countries can be the startpoint and checkpoints of organizational resonant and so forth sustainable development.

*Figure 14: A Quote of Deepstash.com (a Contemporary Ideas Database)*



*(Source: Credit to Deepstash.com, 2023; Sou, 2023a, 2023c, 2023d & 2023g)*

Individual and corporate obligations are mutually supported. Simultaneously, national sustainability is not exclusive to industrial support, in particular unyielding support of primary services industries. In store, SDGs can be readily realized with ESD such as GCED and concerted efforts of leaders, practitioners and frontline workers in the healthcare industry that is indispensable in a nation. With concerted efforts towards healthcare services, Health and Wellbeing and so forth Social Well Being is not a dream. With the societal and industrial support, it is anticipated that SDGs could be achieved within a nation meaningfully.

In the Healthcare Industry, business organizations are keen on ESG. Understandably, they are required to comply with the mandatory ESG reporting requirements when they are listed companies. In contrast, public bodies target ESE such as environmental protection, social and economic development. Either way, they are playing vital as well as moral roles in Sustainable Development.

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