Inequality

Pandemic

Trade War

中華文化永續發展基金會

Wang Dao
Sustainability Index
2020

Introduction

The Wang Dao Sustainability Index (WDSI), unlike various existing comprehensive indices in the world, is characterized by use of a sustainable development indicator based on the Wang Dao ("Kingly Way") precept of traditional Chinese culture to measure the sustainable development performance of individual countries.

The term "Kingly Way" as it was first used in ancient times was not referring to the ways of a monarch during the era of autocracy; but rather, "the way of ruling that is worthy of a sovereign," i.e., possessing a wholistic spirit of sustainable engagement with worldly matters and humanistic caring that is pervaded by the fusion of heaven, earth, and Humankind. The core principles of Benevolent governance (derived from benevolence) and Empathy, as well as the concepts of Counter-hegemony, People-orientedness and Sustainability in the "Kingly Way," from which the WDSI's three major domains of Global Ethics, Inclusive Development and Environmental Equilibrium have been formulated, fully correspond to the three pillars of Economic Development, Environmental Equilibrium and Social Equity proposed in the United Nations 1987 Brundtland Report "Our Common Future" regarding sustainable development. We believe that this system of indices can provide an alternative set of reference coordinates for countries around the world to review their sustainable development plans.

中華文化永續發展基金會
Foundation of Chinese Culture for Sustainable Development

The Foundation of Chinese Culture for Sustainable Development (FCCSD), a Taiwan-based NGO, was established by various experts from enterprises, public sectors, and academic institutions in 2016. The founder and the chairman of the organization, Dr. Chao-shiuan Liu, served as the president of National Tsing Hua University and a Premier of the Republic of China (Taiwan), currently dedicates himself to promoting Chinese culture. FCCSD has been committed to inheriting and preserving the essence of Chinese culture for the purpose of carrying forward Chinese culture. We are convinced that Chinese culture will bring about a new renaissance for contemporary era by joining forces with mainstream sustainable development thinking and will make a greater contribution to the world.

FCCSD has long promoted the modernization and popularity of Chinese culture. This includes combining other traditional Chinese arts such as cross talk performances and dissemination of traditional Chinese axioms and poems to produce online audio-visual programs with educational, cultural and entertainment functions; establishing a cross-strait Chinese character art platform; jointly organizing with mainland China traditional calligraphy and seal carving exhibitions, contemporary Chinese character art exhibitions and forums; and inaugurating the WDSI in 2018.

Full details can be found on the website at
www.fccsd.org.tw

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Foreword

Since the l990s the United Nations having confronted the challenges of the century; issued its most important strategic recommendation, the report of Sustainable Development proposed by the Brundtland Commission. Over the past three decades, considerable progress has been made with respect to two of the three pillars of Sustainable Development—Economic Development and Environmental Protection—and concrete results are evident, especially in some advanced countries. However, regarding the third pillar—Social Justice—to date, there has not been much to speak of; and in some aspects, not only has there been little progress, the situation has actually regressed. Ultimately, some scholars suggest adding a fourth pillar or circle to the conceptual foundation and framework—namely, Culture.

We regard culture as in fact the very foundation of Sustainable Development across the board. If so, we cannot help but ask: "What contribution might Chinese culture, with its roots extending back as far as 5,000 years, make? The historian Arnold J. Toynbee once opined that solutions to the predicament of post-20th century human civilization might well be sought from Confucianism and Mahayana Buddhism. This appears to provide an encouraging hint regarding the question of how Chinese culture might contribute to the sustainable development of mankind.

Global development over the past century manifested prodigious change. The more technology advanced, the more industries developed; the more supply and demand gained complexity, the more benefits ended up being concentrated in the hands of a few. The stronger feasted on the weaker, conflicts became more intense, and wars became more frequent. In international politics, the two world wars of the twentieth century both caused a post-war redistribution of international political power. A balance of terror formed between the two major hegemonic camps, and weaker, smaller countries either aligned themselves with one or the other hegemon for protection or sought survival through non-alignment. The biggest problems left to mankind in the twentieth century are a chaotic world order, a widening gap between rich and poor, energy resource depletion, ecological imbalance, and global warming.

Promotion of a new Renaissance is necessary if Chinese culture is to make a major contribution to the world today. This does not mean trying to restore an ancient order or go back to how things were the past; but rather, aligning the essence of traditional culture with 21st-century thought and culture to propose a new universal value for the world. To this end, we seek to proffer the Wang Dao precept advocated by Mencius to represent what traditional Chinese culture corresponds to Sustainable Development. From the Wang Dao precept we have extracted five elements: Benevolent Governance, Counterhegemony, People-orientedness, Sustainability and Empathy. We then take these five elements as starting points and the UN's Sustainable Development Goals as benchmarks in an attempt to develop the Wang Dao Sustainability Index. Injecting Chinese culture into the process of measuring sustainable development affords 21st-century nations and economies a new way of thinking as they proceed toward sustainable development.

This is indeed the time for Chinese culture to make a greater contribution to the culture of all humanity. As global problems become more and more serious, solutions based on Western thoughts have gradually hit limits. "Looking to the East for answers" has become a new world trend. In the words of Mencius: "At the present time, in a country of ten thousand chariots, let benevolent governance be practiced and the people will be delighted, as if being relieved from hanging by their heels. Even with only half the effort of the ancients, double the achievement is sure to result. Only at this time can such be the case" (modified Legge translation).

We look forward via academic, educational, cultural and promotional channels to the Wang Dao Sustainability Index becoming an alternative system of reference coordinates for the global community (especially developing countries) in the effort to achieve sustainable development; and to this serving as a contribution by Chinese culture of one small step forward for 21st-century human civilization.

Chairman,
Foundation of Chinese Culture for Sustainable Development

Background Context

In 2018, we launched the first edition of Wang Dao Sustainability Index (WDSI). The index is based on the Precept of Wang Dao, a core philosophy of Chinese culture. We begin our analysis through modernity, sorting out the thoughts of Wang Dao into 5 core elements: Benevolent governance, Counterhegemony, People-orientedness, Sustainability, and Empathy (Figure 1). From these 5 elements we arrive at the 3 domains connected to sustainability of human life in the 21st-century: "Global Ethics", "Inclusive Development", and "Environmental Equilibrium". From these we derive the 11 dimensions and the 64 indices of the WDSI (with each domain consisting of 15, 32, and 17 indices, respectively). Through our investigation on 74 countries/economies, a high correlation coefficient of 0.93 was found between our ranking system and that of the United Nations Sustainable Development Goals Index (SDGI). This proved that the WDSI system based on Chinese culture has universal value and universal practicality, a worthwhile endeavor to go further its scope and depth.

In 2020, the second edition of the WDSI was published, in which we evaluated datasets from 97 countries/economies (only partial datasets available for Hong Kong), including 33 advanced economies and 64 emerging economies from across 5 continents: 30 of which are in Europe, 28 in Asia, 15 in America, 22 in Africa, and 2 in Oceania (Figure 2) (Figure 3).

Figure 1 | 5 Core Elements of Wang Dao: Benevolent Governance, Counterhegemony, People-orientedness, Sustainability, and Empathy
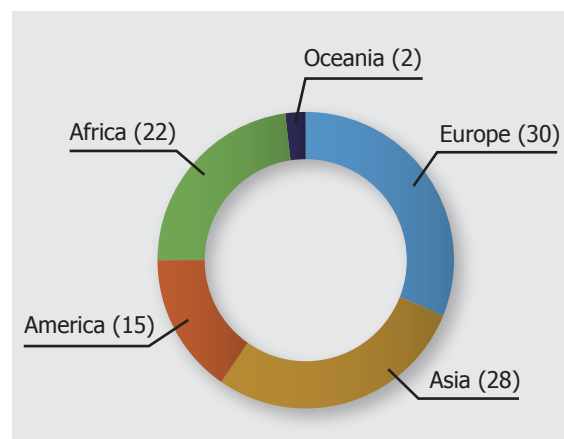
Figure 2 | WDSI Coverage by Continental Distribution
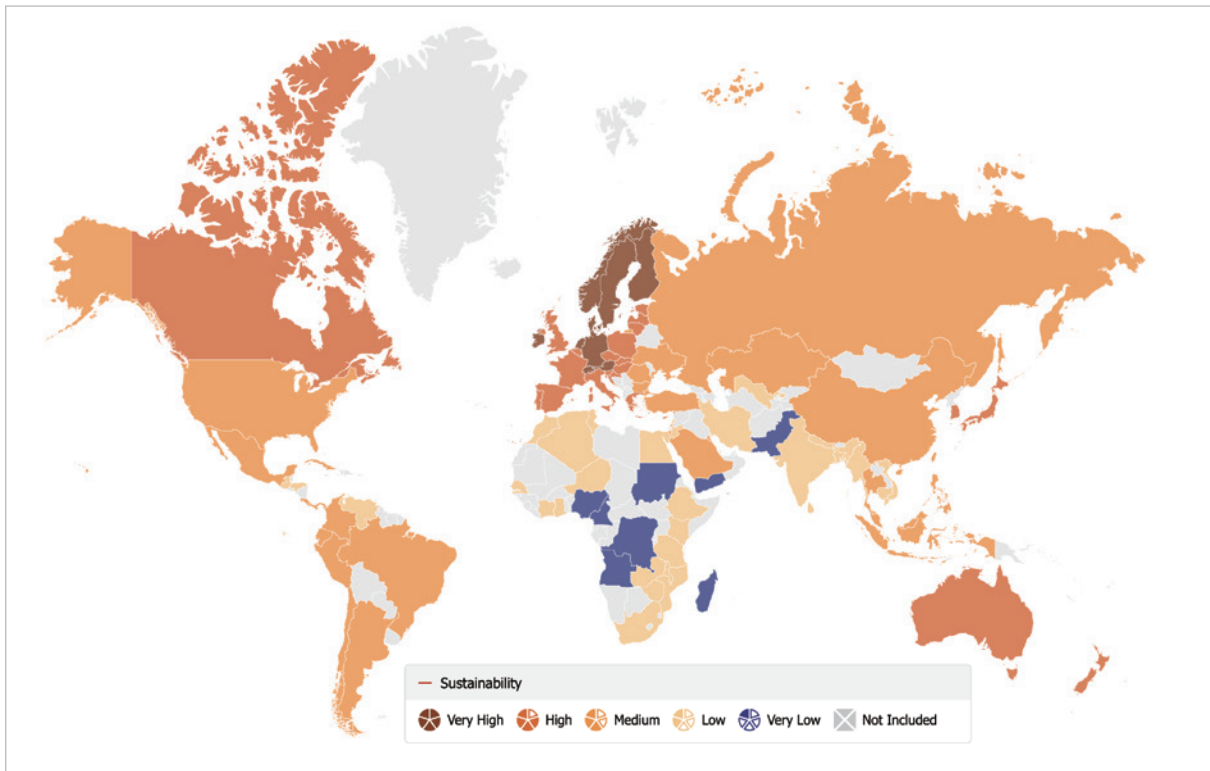
Figure 3 | Sustainability Performance of the 2020 WDSI

Since from 2018, the world has seen alarming changes. Not only have trade wars and deglobalization trends afflicted the global economy, but isolationism has also spurred countries into self-preservation mode. The Covid-19 pandemic at the start of 2020 has resulted in over 60 million infections and 1.5 million deaths (as of December 9, 2020), pushing the global economy into its worst recession since the financial crisis of 2008. The edition of the 2020 WDSI report draws upon the raw data up to the end of 2019, thus offers only a portent of the sea change.

WDSI Scores and Rankings ———————

Table 1 shows the 2020 WDSI rankings of the 97 countries/economies.

Table 1 | Overall Rankings, Scores and Per-domain Rankings (1/2)

WDSI RANK	*RANK Change	Score	Economies	GE	ID	EE	WDSI RANK	*RANK Change	Score	Economies	GE	ID	EE
1	↑2	8.795	Denmark	5	1	1	25	↓2	7.374	Lithuania	71	25	9
2	↓1	8.678	Sweden	4	2	2	26	0	7.355	Slovakia	20	33	13
3	↑4	8.197	Germany	1	11	12	27	↑4	7.305	Hungary	20	34	18
4	0	8.113	Switzerland	12	5	20	28	↑4	7.271	Greece	22	28	33
5	↑4	8.056	Ireland	2	7	32	29	↓2	7.171	Latvia	72	35	6
6	0	8.047	Netherlands	3	9	23	30	↓5	7.099	Singapore	50	26	37
7	↑1	8.028	Austria	9	12	7	31	↓1	7.081	Cyprus	58	29	29
8	↓3	8.026	Finland	18	4	25	32	↓10	7.002	Croatia	74	38	10
9	↓7	8.012	Norway	12	3	59	33	↑4	6.969	Romania	30	48	3
10	↑2	7.930	United Kingdom	28	8	13	34	↑7	6.930	Chile	39	36	37
11	↑5	7.877	Japan	14	13	16	35	↓1	6.888	Israel	92	24	43
12	↑1	7.838	Spain	5	22	8	36	0	6.858	Taiwan	76	23	70
13	↑2	7.795	Belgium	9	16	26	37	↑5	6.855	Malaysia	31	39	43
14	↑6	7.750	Czech Republic	28	15	17	38	↑2	6.811	China	5	40	66
15	↓4	7.744	New Zealand	14	6	57	39	↓6	6.722	Costa Rica	43	41	39
16	↓3	7.739	France	31	19	5	40	↓5	6.679	United States	72	30	77
17	↓7	7.716	Slovenia	23	18	19	41	↑2	6.498	Bulgaria	55	43	52
18	↑6	7.648	Italy	9	31	4	42	↑7	6.492	Indonesia	17	49	50
19	↓2	7.633	Australia	31	10	31	43	↑4	6.418	Thailand	34	44	68
20	↑8	7.623	South Korea	5	20	29	44	N.A.	6.410	Kazakhstan	58	37	90
21	↓4	7.516	Canada	16	14	57	45	↑16	6.359	Saudi Arabia	39	42	84
22	↑7	7.504	Poland	23	27	10	46	↑7	6.304	Mexico	34	61	21
23	↓2	7.486	Estonia	66	17	21	47	↑10	6.301	Ukraine	39	54	52
24	↓5	7.435	Portugal	23	21	28	48	↓9	6.267	Panama	50	52	46

Table 1 | Overall Rankings, Scores and Per-domain Rankings (2/2)

* change from 2018 ranking

WDSI RANK	*RANK Change	Score	Economies	GE	ID	EE	WDSI RANK	*RANK Change	Score	Economies	GE	ID	EE
49	0	6.257	Colombia	58	65	13	73	↓2	5.608	Lebanon	94	71	46
50	↓5	6.242	Peru	48	56	36	74	0	5.574	Ethiopia	34	80	61
51	N.A.	6.238	Cuba	88	47	52	75	↑3	5.566	Egypt	58	79	45
52	↑8	6.231	Russia	76	46	63	76	↓3	5.554	South Africa	23	70	95
53	↓13	6.193	Brazil	47	64	24	77	N.A.	5.549	Senegal	66	78	52
54	N.A.	6.136	Ecuador	58	55	46	78	↑3	5.515	Iran	78	58	95
55	↓6	6.117	Turkey	18	60	65	79	↓8	5.509	Algeria	94	68	70
56	↓2	6.096	Kuwait	58	45	89	80	N.A.	5.454	Honduras	58	76	75
57	↓9	6.070	Argentina	34	51	87	81	↓4	5.199	Mozambique	66	90	50
58	↓5	6.000	Philippines	66	62	39	82	N.A.	5.147	Myanmar	78	86	66
59	↑5	5.946	Morocco	58	69	34	83	↓1	5.134	Venezuela	78	84	74
60	↓3	5.945	Ghana	23	74	39	84	N.A.	5.131	Cote d'Ivoire	86	85	68
61	↓2	5.941	Jordan	78	57	60	85	N.A.	5.071	Niger	48	83	93
62	N.A.	5.937	Tunisia	83	59	42	86	N.A.	5.061	Malawi	43	82	97
63	↓4	5.916	Vietnam	91	50	70	87	N.A.	5.040	Zimbabwe	50	87	91
64	↑9	5.868	India	39	73	46	88	N.A.	5.026	Zambia	50	89	81
65	N.A.	5.833	Uzbekistan	89	53	80	89	N.A.	4.861	Cameroon	78	91	82
66	↑3	5.791	Cambodia	50	72	56	90	0	4.793	Nigeria	43	95	86
67	↓9	5.757	Tanzania	66	77	26	91	N.A.	4.755	Demo Rep of Congo	74	93	78
68	N.A.	5.741	Sri Lanka	83	66	61	92	N.A.	4.714	Madagascar	83	88	94
69	N.A.	5.729	Guatemala	55	67	78	93	N.A.	4.631	Angola	93	92	75
70	N.A.	5.688	Nepal	55	63	84	94	0	4.527	Pakistan	86	94	92
71	↑5	5.682	Bangladesh	43	81	34	95	N.A.	4.260	Yemen	89	97	83
72	↓6	5.677	Kenya	34	75	63	96	N.A.	4.209	Sudan	94	96	88
							N.A.	N.A.	6.132	Hong Kong	N.A.	32	73

The average of the overall 2020 WDSI stands at 6.432, slightly lower than 2018's 6.527. The average falls between the ranking of Indonesia (ranking 42nd) and that of Thailand (ranking 43rd) while the median (6.262) falls between Panama (ranking 48th) and Columbia (ranking 49th) (Figure 4). The average index is 0.17 points higher than the median, quitely larger than the difference of 0.078 points in 2018 WDSI. It indicates that the

gap of sustainability performance among countries continues to grow. It's noteworthy that a major reason for this discrepancy is due to the incorporation of 23 additional countries, most of which are underdeveloped economies.

A progress of the average score stands at 0.242 points between 2018 and 2020 while a comparison is drawn on the scale of the 74 states of 2018 survey (Figure 5).
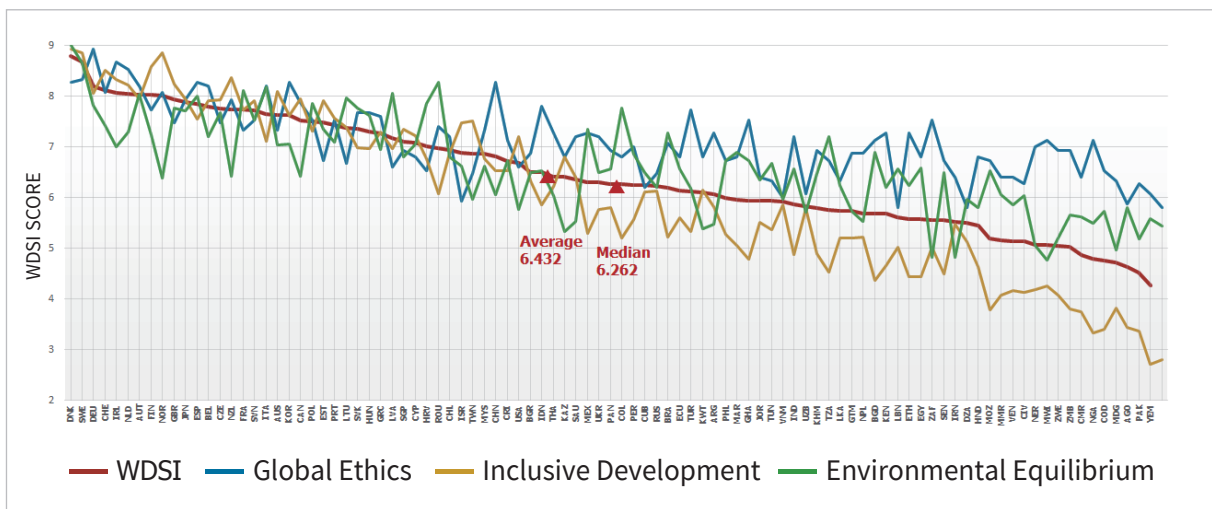
Figure 4 │ Overall and Per-domain Scores of the 2020 WDSI
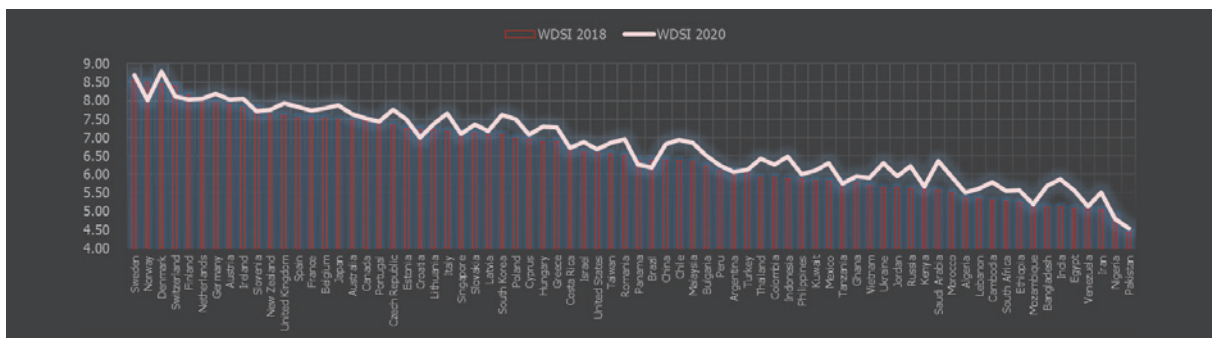
Figure 5 │ WDSI Score Changes between 2018 and 2020

If we evaluate by region, then the regions which show the biggest progress of 0.423 points are Eastern Asia and Southern & Southeaster Asia[1]. Though the average index of Eastern Asia in 2020 is 7.292, remarkably higher than that of Sothern & Southeaster Asia, 6.236. Except for the Nordic, the other regions see slight or moderate increases (Figure 6).

Note:

1. Eastern Asia covers: China, Japan, South Korea, and Taiwan. Southeastern Asia covers Cambridge, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam. Southern Asia covers Bangladesh and India. Western & Central Europe indicates 13 countries including Germany, France, UK and so on. Eastern Europe & Central Asia covers 12 countries including Russia. Sub-Sahara Africa includes 12 countries. The Oceania includes Australia and New Zealand. North America indicates the United States and Canada while Latin America & the Caribbean region cover 10 countries.
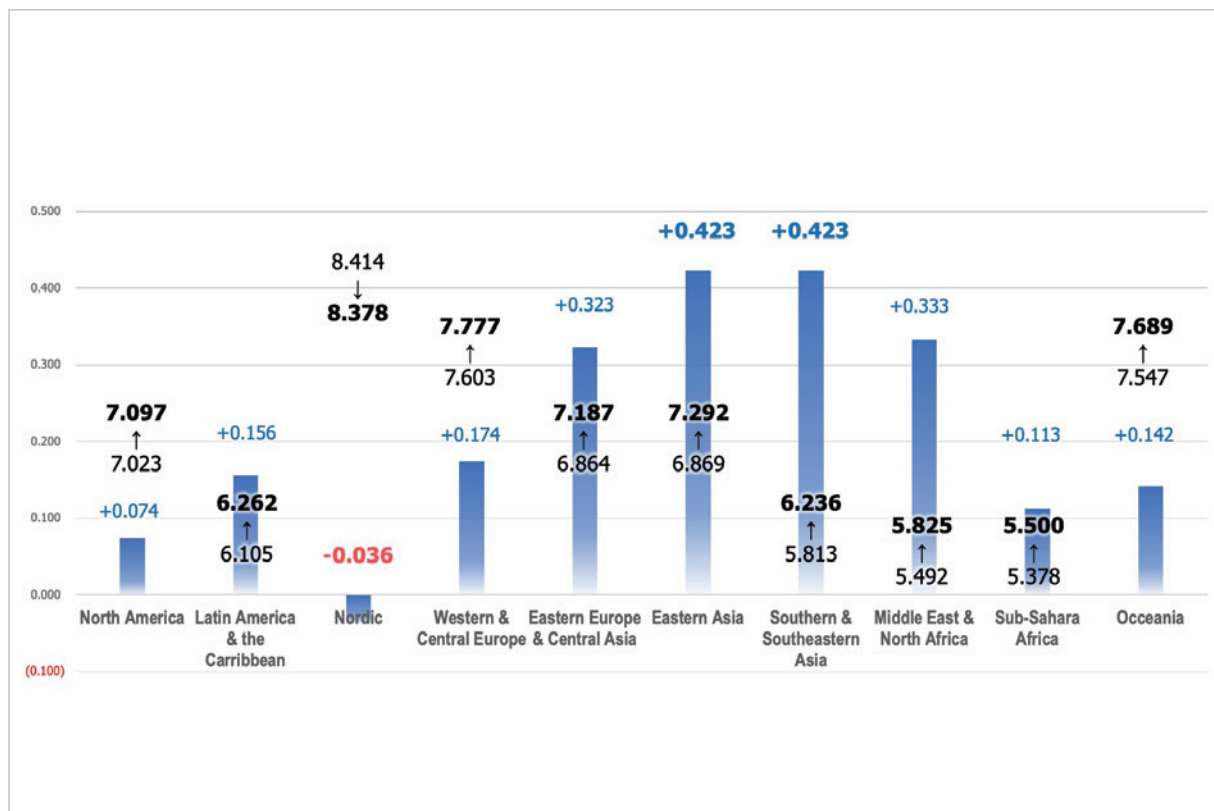
Figure 6 | WDSI Geographic Region Score Changes between 2018 and 2020

Individual Performance

Among individual states, Denmark scores the highest, followed by Sweden, Germany, Switzerland, and Ireland in the top 5 in 2020.

Norway and Finland dropped out of the top 5 of 2018, displaced by Germany and Ireland, with Finland falling 7 places. Countries of the Nordic and Western Europe maintain a generally good standing, capturing the entire top 10.

The US falls 3 places to number 40 in the overall 2020 WDSI rankings compared to 2018. It ranks last among the advanced economies group (32 in total), as it did in 2018 (Table 2). It is to note that it would have precipitated a further fall in its ranking in the following edition for the cause of the Covid-19 pandemic impact.

Of the emerging economies group (64 entities in total), Poland takes the top spot from Croatia, which falls to number 3. Saudi Arabia shows the biggest improvement within the group, up 15 places.

Japan still ranks highly (at 11th place) among the 28 Asian countries, up 5 places compared to 2018. It also ranks number 1 among countries/economies with a population of over 100 million [2].

The Czech Republic is notable among the 11 small and medium-sized "post-communist states", rising to number 14 in the WDSI

2020 index. Except for Romania (ranking 33rd) and Bulgaria (ranking 41st), all 9 other countries in this group place in the top third.

The bottom third of the rankings still consist mostly of countries from Africa and the Middle East. Of the 23 new countries/ economies added to 2020 WDSI, 14 occupy the last 20 places, 12 of which are from Africa and 2 from the Middle East (in the last 2 places): Yemen places 95th while Sudan places 96th. Here we find the observed "three curses": the Curse of Geography, the Curse of Resource, and the Curse of Racism, referenced in the 2018 report.

Among the BRICS countries, Brazil (ranking 53rd) falls 13 places, South Africa (ranking 76th) descends 3 places, while the other 3 countries of China, Russia, and India advance 2 to 9 places.

The East Asian countries long steeped in Confucian culture have stepped forward with the exception of Singapore (ranking 30th) and Vietnam (ranking 63th). These include China (ranking 38th), Japan (11th), and Korea (20th), with Korea advancing 8 places. Taiwan remains in the same place at number 36.

Note:
2. The world population has reached 7.7 billion by 2020. Among the 97 states surveyed by WDSI, there are 14 countries with a population exceeding 100 million. The population of Japan is at 126 million, ranking number 11.

Table 2 | WDSI Scores and Rankings by Economic Group (classified by WEO, IMF)

Advanced Economies		Scores	Rankings in group	Rankings in total
Denmark	DNK	8.795	1	1
Sweden	SWE	8.678	2	2
Germany	DEU	8.197	3	3
Switzerland	CHE	8.113	4	4
Ireland	IRL	8.056	5	5
Netherlands	NLD	8.047	6	6
Austria	AUT	8.028	7	7
Finland	FIN	8.026	8	8
Norway	NOR	8.012	9	9
United Kingdom	GBR	7.930	10	10
Japan	JPN	7.877	11	11
Spain	ESP	7.838	12	12
Belgium	BEL	7.795	13	13
Czech Republic	CZE	7.750	14	13
New Zealand	NZL	7.744	15	15
France	FRA	7.739	16	16
Slovenia	SVN	7.716	17	17
Italy	ITA	7.648	17	17
Australia	AUS	7.633	19	19
South Korea	KOR	7.623	20	20
Canada	CAN	7.516	21	21
Estonia	EST	7.486	22	23
Portugal	PRT	7.435	23	24
Lithuania	LTU	7.374	24	25
Slovakia	SVK	7.355	25	26
Greece	GRC	7.271	26	28
Latvia	LVA	7.171	27	29
Singapore	SGP	7.099	28	30
Cyprus	CYP	7.081	29	31
Israel	ISR	6.888	30	35
Taiwan	TWN	6.858	31	36
United States	USA	6.679	32	40

Emerging Economies		Scores	Rankings in group	Rankings in total
Poland	POL	7.504	1	22
Hungary	HUN	7.305	2	27
Croatia	HRV	7.002	3	32
Romania	ROU	6.969	4	33
Chile	CHL	6.930	5	34
Malaysia	MYS	6.855	6	37
China	CHN	6.811	7	38
Costa Rica	CRI	6.722	8	39
Bulgaria	BGR	6.498	9	41
Indonesia	IDN	6.492	10	42
Thailand	THA	6.418	11	43
Kazakhstan	KAZ	6.410	12	44
Saudi Arabia	SAU	6.359	13	45
Mexico	MEX	6.304	14	46
Ukraine	UKR	6.301	15	47
Panama	PAN	6.267	16	48
Colombia	COL	6.257	17	49
Peru	PER	6.242	18	50
Cuba	CUB	6.238	19	51
Russia	RUS	6.231	20	52
Brazil	BRA	6.193	21	53
Ecuador	ECU	6.136	22	54
Turkey	TUR	6.117	23	55
Kuwait	KWT	6.096	24	56
Argentina	ARG	6.070	25	57
Philippines	PHL	6.000	26	58
Morocco	MAR	5.946	27	59
Ghana	GHA	5.945	28	60
Jordan	JOR	5.941	29	61
Tunisia	TUN	5.937	30	62
Vietnam	VNM	5.916	31	63
India	IND	5.868	32	64
Uzbekistan	UZB	5.833	33	65
Cambodia	KHM	5.791	34	66
Tanzania	TZA	5.757	35	67
Sri Lanka	LKA	5.741	36	68
Guatemala	GTM	5.729	37	69
Nepal	NPL	5.688	38	70
Bangladesh	BGD	5.682	39	71
Kenya	KEN	5.677	40	72
Lebanon	LBN	5.608	41	73
Ethiopia	ETH	5.574	42	74
Egypt	EGY	5.566	43	75
South Africa	ZAF	5.554	44	76
Senegal	SEN	5.549	45	77
Iran	IRN	5.515	46	78
Algeria	DZA	5.509	47	79
Honduras	HND	5.454	48	80
Mozambique	MOZ	5.199	49	81
Myanmar	MMR	5.147	50	82
Venezuela	VEN	5.134	51	83
Cote d'Ivoire	CIV	5.131	52	84
Niger	NER	5.071	53	85
Malawi	MWI	5.061	54	86
Zimbabwe	ZWE	5.040	55	87
Zambia	ZMB	5.026	56	88
Cameroon	CMR	4.861	57	89
Nigeria	NGA	4.793	58	90
Demo Rep of Congo	COD	4.755	59	91
Madagascar	MDG	4.714	60	92
Angola	AGO	4.631	61	93
Pakistan	PAK	4.527	62	94
Yemen	YEM	4.260	63	95
Sudan	SDN	4.209	64	96

Discussions on Three Domains

Within the Global Ethics domain, the Armed Forces Personnel indicator has been modified from the total number of armed forces personnel indicator of the 2018 index to armed forces personnel as a percentage of total labor force population indicator in 2020. The Global Ethics domain as a whole decreased by 0.261 from 2018, primarily due to the impact of trade wars, which invokes Cold War tendencies in which countries strong in arms-related industry ramp up arms sales to offset their losses in trade. Some of the small-sized economies increased their military spending to counter regional disputes. As a consequence, a wave of arms deals generated a record high trading volume of 360 billion US dollars within 2020[3].

Another negative impact of trade wars is diminished multinational initiatives resulting from global protectionism. These negative impacts weighed more heavily on the top-ranking half of the countries (-0.453) than on the latter half (-0.048) (Table 3).

Note:

3. According to new data released by the Stockholm International Peace Research Institute (SIPRI) in 2020, sales of arms and military services by the sector's largest 25 companies totaled US$361 billion in 2019, 8.5 per cent more than in 2018. In total, 12 US companies appear in the top 25, accounting for 61 per cent of the sales.

Table 3 | Comparison between the Top Half and the Latter Half of the WDSI Rankings in the Period of 2018-2020

	The average index of the top half rankings			The average index of the latter half rankings		
	2020	**2018**	**Diff.**	**2020**	**2018**	**Diff.**
WDSI	7.594	7.414	+0.179	5.945	5.639	**+0.305**
Global Ethics	7.662	8.115	**-0.453**	6.827	6.874	-0.048
Inclusive Development	7.718	7.292	+0.426	5.262	4.554	**+0.708**
Environmental Equilibrium	7.435	7.394	+0.041	6.243	6.132	**+0.111**

In the Inclusive Development domain, a new indicator Research and Innovation succeeded the previous Social Security Contributions indicator. The importance of the new indicator is self-evident, while the original one exhibited numerous redundancies to the pre-existing Social Expenditure indicator. The domain as a whole has seen a large increase of 0.567 points, with the top-ranking half of the countries increasing by 0.426 points, and the latter half contributing an even larger 0.708 increase, which is a positive and optimal tendency (Table 3). The Inclusive Development domain comprises 4 dimensions: Human Needs, Social Equity, Social Harmony and Socio-economic Empowerment. They include numerous indicators accounting for social and economic inequality. If such trend remains, we look forward to a decline in world inequality among all nations. That said, it does not necessarily reflect the inequality between the rich and the poor within any particular country.

In the Environmental Equilibrium domain, the original Persistent Organic Pollutants indicator was replaced with Plastics indictor. Based on a study published by the journal Science, the amount of plastics accumulated in the oceans will triple by the year 2040[4], yet the impact is to be felt, accelerating with each day. Environmental Equilibrium domain has seen a slight progress (+0.075) as shown in Table 3. It indicates the main contribution provided by the latter half of the countries (+0.111), with the top half of countries presenting only 0.041 points.
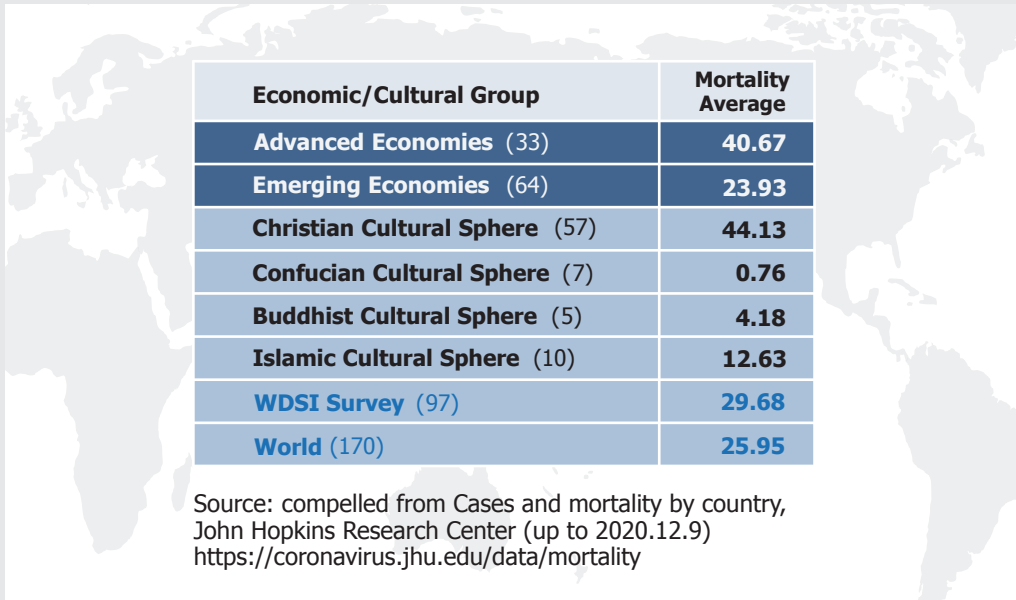
Note:
4. An analysis by The Pew Charitable Trusts and SYSTEMIQ, finds that without immediate action, the annual flow of plastic into the ocean could nearly triple by 2040.
The amount would grow from 11 to 29 million metric tons each year over the next 20 years. This article was published in the journal Science.

Impact of Covid-19 on Various Cultural Spheres

As first explained, despite the single shock of the year 2020 being the Covid-19 pandemic, the reliable data will not be available until late 2021. It was an ineffective endeavor to correlate the elements of public health, medical services, health insurance, and hospital capacity with infection rate and death rate. We came to a chaotic conclusion. Against intuition, infection cases and death rate are higher in certain developed countries with matured medical-care system than developing countries. But some interesting correlations emerge as we factor in the respective cultural value of each cultural sphere.

Table 4 | Covid-19 National Mortality by Country Group

Economic/Cultural Group	Mortality Average
Advanced Economies (33)	40.67
Emerging Economies (64)	23.93
Christian Cultural Sphere (57)	44.13
Confucian Cultural Sphere (7)	0.76
Buddhist Cultural Sphere (5)	4.18
Islamic Cultural Sphere (10)	12.63
WDSI Survey (97)	29.68
World (170)	25.95

Source: compelled from Cases and mortality by country, John Hopkins Research Center (up to 2020.12.9) https://coronavirus.jhu.edu/data/mortality

Table 4 lists the number of deaths per 100,000 persons across representative cultural spheres, which reaches the average of 29.68 across the 97 countries of the WDSI survey. The Confucian cultural sphere (presenting China, Japan, Korea, Taiwan, Hong Kong, Singapore, and Vietnam) averages 0.76 deaths per 100,000 persons, compared with the Christian (of Catholic, Eastern Orthodox, and Protestant combined, 57 countries in total) 44.13, the Buddhist 4.18, and the Islamic 12.63. The death rates in the Christian cultural sphere are 58 times higher than that in the Confucian sphere. Despite the preliminary nature of the data and single-minded approach, the contrasting figures suggest the importance of the culture factors cannot be ignored. For a sustainability index which was initiated from cultural concern, this perhaps suggest a deeper think of the implications brought about by the analyses of WDSI.

WDSI vs. SDGI
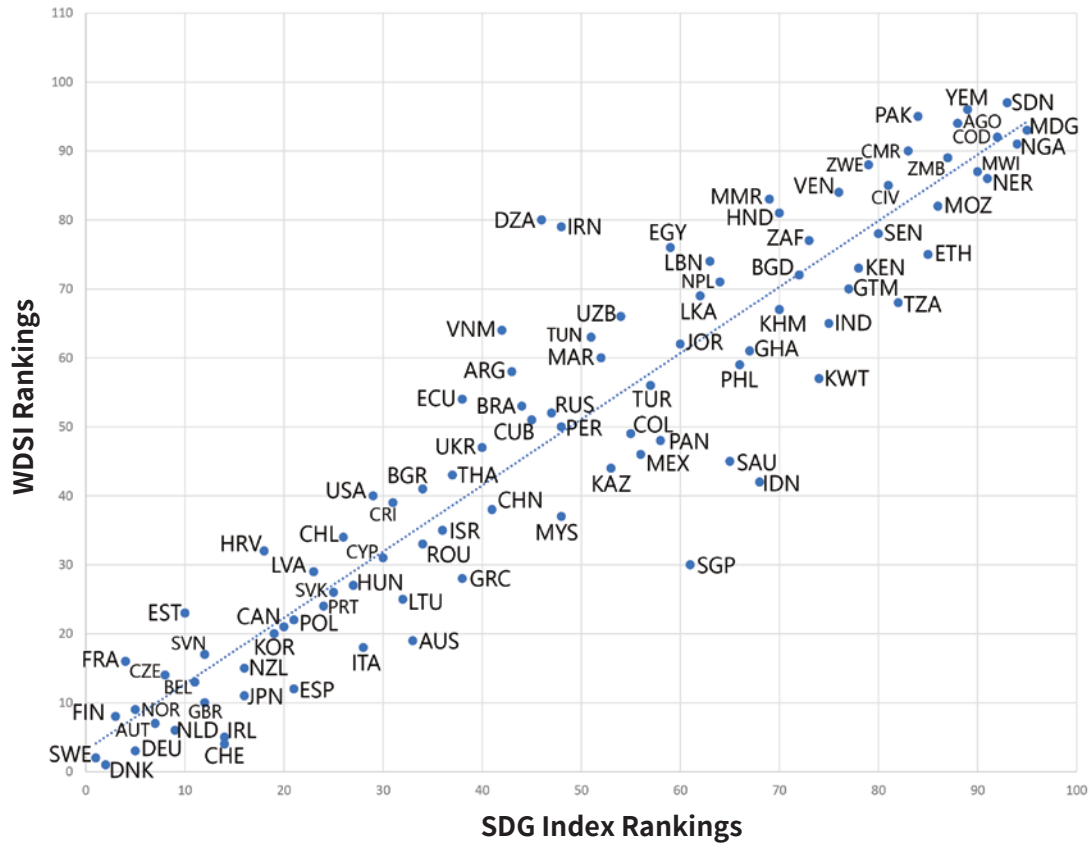
Figure 7 | Scattering of the Relative WDSI and SDGI Rankings of the 95 States in 2020 [5]

Lastly, we revisit the question of how the WDSI rankings correlate to those of the SDG index in 2020 (Figure 7). The analysis came up with a correlation coefficient of 0.904. This means that the 3 WDSI domains intersect essentially with the 17 goals of the UN's Sustainable Development Goals (SDGs).

It's also worth noting that the correlation coefficient between each of the 3 domains of WDSI values from 0.5 to 0.63. It is regarded as a moderate strength of the association (Figure 8). For a comprehensive index system, we consider a moderate correlation to be healthy for better echoing an integrate cultural value.
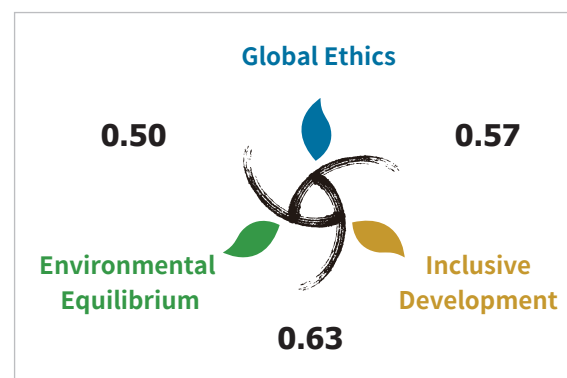
Figure 8 | Correlation Coefficients between the WDSI Three Domains

Note:
5. Taiwan and Hong Kong are absent in the chart for not being scored in SDGI. 95 countries are presented in Figure 7.

I Global Ethics

Global Ethics

The Global Ethics domain of the 2020 Wang Dao Sustainable Development Index includes 15 component indicators grouped into four dimensions: External Peace, Military Buildup, International Exchange and International Aid (see Table 5).

Table 5 | Global Ethics Dimensions and Component Indicators

【 Global Ethics 】

External Peace

Interstate War Participation
Interstate War Casualties
Contributions to International
Peacekeeping Operations

Military Buildup

Military Expenditure
Armed Forces Personnel
Nuclear Warheads
Exports of Conventional Weapons

International Exchange

Attractiveness of International Migration
Participation in International
Trading Regime
Total Trade per Capita
Freedom of International Migration

International Aid

International Developmental Aid
International Humanitarian Aid
International Refugee Admissions
International Charity Giving

To test the validity of the Global Ethics domain indicators, we proceeded in two steps. First, we analyzed the correlation between the average scores of all Global Ethics domain component indicators and the corresponding scores of the 2020 Global Peace Index (GPI, 2020). The result was as high as 0.561, showing that the Global Ethics component indicators have good convergent validity. Secondly, we conducted a pair-wise correlation test of the average scores of each indicator in the four dimensions. The result is shown in Figure 9 below. Virtually all four dimensions of indicators in the Global Ethics domain demonstrate a low degree of correlation to each other; this means that they have excellent divergent validity. Thus, we can say that the indicators selected for use in the Global Ethics domain for 2020 have quite good validity.

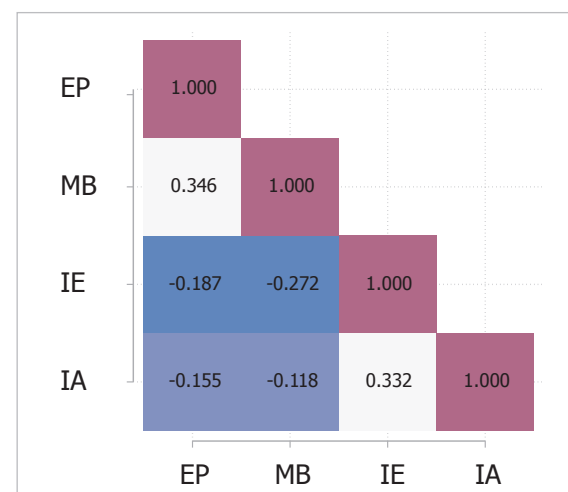|	EP	MB	IE	IA
EP	1.000			
MB	0.346	1.000		
IE	-0.187	-0.272	1.000	
IA	-0.155	-0.118	0.332	1.000

Figure 9 | Correlational Matrix of the Four Dimensions of Indicators in the Global Ethics Domain

After confirming the validity, we proceeded to analyze the international rankings. Table 6 shows the total scores and rankings in the Global Ethics domain of the 2020 Wang Dao Sustainable Development Index.

Table 6 | Total Scores and Rankings in the Global Ethics Domain (1/2)

*Change from 2018 Rankings
**A/E indicates advanced/emerging economies

GE RANK	*GE RANK Change	Economies	**A/E	GE SCORE	WDSI RANK	GE RANK	*GE RANK Change	Economies	**A/E	GE SCORE	WDSI RANK
1	↑5	Germany	A	8.933	3	28	↓10	Czech Republic	A	7.467	14
2	0	Ireland	A	8.667	5	28	↑7	United Kingdom	A	7.467	10
3	↑3	Netherlands	A	8.533	6	30	↑10	Romania	E	7.400	33
4	↑1	Sweden	A	8.333	2	31	↓14	Australia	A	7.333	19
5	↑21	China	E	8.267	38	31	↑19	France	A	7.333	16
5	↓4	Denmark	A	8.267	1	31	↓15	Malaysia	E	7.333	37
5	↑13	South Korea	A	8.267	20	34	↓4	Argentina	E	7.267	57
5	↑9	Spain	A	8.267	12	34	↑22	Ethiopia	E	7.267	74
9	↑2	Austria	A	8.200	7	34	↑6	Kenya	E	7.267	72
9	↓3	Belgium	A	8.200	13	34	↓9	Mexico	E	7.267	46
9	↑9	Italy	A	8.200	18	34	↑6	Thailand	E	7.267	43
12	↓10	Norway	A	8.067	9	39	↓2	Chile	E	7.200	34
12	↓8	Switzerland	A	8.067	4	39	↑17	India	E	7.200	64
14	↓4	Japan	A	7.933	11	39	↑6	Saudi Arabia	E	7.200	45
14	↓5	New Zealand	A	7.933	15	39	↑26	Ukraine	E	7.200	47
16	↓4	Canada	A	7.867	21	43	↑26	Bangladesh	E	7.133	71
17	↑23	Indonesia	E	7.800	42	43	↓13	Costa Rica	E	7.133	39
18	↓5	Finland	A	7.733	8	43	N.A.	Malawi	E	7.133	86
18	↑5	Turkey	E	7.733	55	43	↑15	Nigeria	E	7.133	90
20	↓2	Hungary	E	7.667	27	47	↓16	Brazil	E	7.067	53
20	↑6	Slovakia	A	7.667	26	48	N.A.	Niger	E	7.000	85
22	↑4	Greece	A	7.600	28	48	↑6	Peru	E	7.000	50
23	↑26	Ghana	E	7.533	17	50	↑19	Cambodia	E	6.933	66
23	↓5	Poland	E	7.533	22	50	↓13	Panama	E	6.933	48
23	↑10	Portugal	A	7.533	24	50	↑14	Singapore	A	6.933	30
23	↓9	Slovenia	A	7.533	60	50	N.A.	Zambia	E	6.933	88
23	↑23	South Africa	E	7.533	76	50	N.A.	Zimbabwe	E	6.933	87

Blue: European   Yellow: Asian   Indigo: Oceania   Brown: American   Green: African

Table 6 | Total Scores and Rankings in the Global Ethics Domain (2/2)

*Change from 2018 Rankings
**A/E indicates advanced/emerging economies

GE RANK	*GE RANK Change	Economies	**A/E	GE SCORE	WDSI RANK	GE RANK	*GE RANK Change	Economies	**A/E	GE SCORE	WDSI RANK
55	↓5	Bulgaria	E	6.867	41	76	↑4	Russia	E	6.467	52
55	N.A.	Guatemala	E	6.867	69	76	↓19	Taiwan	A	6.467	36
55	N.A.	Nepal	E	6.867	70	78	N.A.	Cameroon	E	6.400	89
58	↑10	Colombia	E	6.800	49	78	0	Iran	E	6.400	78
58	↓29	Cyprus	A	6.800	31	78	↓7	Jordan	E	6.400	61
58	N.A.	Ecuador	E	6.800	54	78	N.A.	Myanmar	E	6.400	82
58	↑1	Egypt	E	6.800	75	78	↓10	Venezuela	E	6.400	83
58	N.A.	Honduras	E	6.800	80	83	N.A.	Madagascar	E	6.333	92
58	N.A.	Kazakhstan	E	6.800	44	83	N.A.	Sri Lanka	E	6.333	68
58	↓12	Kuwait	E	6.800	56	83	N.A.	Tunisia	E	6.333	62
58	↑6	Morocco	E	6.800	59	86	N.A.	Côte d'Ivoire	E	6.267	84
66	↓31	Estonia	A	6.733	23	86	↑2	Pakistan	E	6.267	94
66	↑5	Tanzania	E	6.733	81	88	N.A.	Cuba	E	6.200	51
66	↓7	Philippines	E	6.733	58	89	N.A.	Uzbekistan	E	6.067	65
66	N.A.	Mozambique	E	6.733	77	89	N.A.	Yemen	E	6.067	95
66	↓7	Senegal	E	6.733	67	91	0	Vietnam	E	6.000	63
71	↓28	Lithuania	A	6.667	25	92	0	Israel	A	5.933	35
72	↓35	Latvia	A	6.600	29	93	N.A.	Angola	E	5.867	93
72	↓7	United States	A	6.600	40	94	↑1	Algeria	E	5.800	79
74	↓37	Croatia	E	6.533	32	94	↓8	Lebanon	E	5.800	73
74	N.A.	Demo Rep of Congo	E	6.533	91	94	N.A.	Sudan	E	5.800	96

Blue: European   Yellow: Asian   Indigo: Oceania   Brown: American   Green: African

From the table, it can be found that most of the top 20 are developed countries in continental Europe; while most of the bottom 20 are developing countries in the Middle East, Africa, Asia and Latin America. This phenomenon of geographical clustering is evident in the results of the top and bottom 20 country rankings in the Global Ethics domain for both 2020 and 2018.

The continued divergence of performance in the Global Ethics domain by continental European countries from that of countries in the Middle East, Africa and Latin America is not a historical accident. After the Second World War, European countries gradually realized political integration through mutual economic, social, and cultural exchanges; and coordinated common security and foreign policies to establish what European and American international relations scholars refer to as a Security Community and become one of the world's Zones of Peace. However, during the same period, most of the countries established later in the Middle East, Africa, Asia, and Latin America, with the support of the former Soviet Union or the United States, underwent colonial independence movements or dealt with unclear territorial delimitation issues full of geopolitical controversy that have led to continuous beggar thy neighbor security dilemmas and becoming the world's Zones of Conflict. It can be said that the top and bottom 20 rankings in the Global Ethics domain for 2020 roughly sketch the geographic contours of Zones of Peace and Zones of Conflict in the current global political and economic order.

It is worth noting that among the top 20 countries in the Global Ethics domain indicators for 2020 there are seven exceptions: Mainland China, South Korea, and Japan in East Asia, New Zealand in Oceania, Canada in North America, Indonesia in Southeast Asia, and Turkey in the Middle East. Although these are not developed countries located on the European continent, they have made significant contributions of development aid, humanitarian assistance, acceptance of refugees and charitable donations in the International Assistance dimension, or significant contribution of International Public Goods in the form of peacekeeping manpower in the External Peace dimension. The types of International Public Goods are becoming more and more diverse in the 21st century, even developing countries such as Mainland China, Indonesia and Turkey have the opportunity to enhance the sustainable development of international relations by promoting global ethics.

Similarly, there are two exceptions among the bottom 20 countries in the Global Ethics domain for 2020: Israel in the Middle East and Taiwan in East Asia. Although both Israel and Taiwan are already advanced economies, they remain caught up in a security dilemma with neighboring countries, so that massive resources are being poured into arms imports and exports in the Military Buildup dimension, exacerbating tensions in the regional security situations of the Middle East and East Asia.

The major factor prompting the appearance of 20 exceptions among the top and bottom 20 countries in the 2020 Global Ethics domain index rankings was the US Administration of Donald J. Trump. It pursued an "America First" policy of abandoning US international commitments and withdrawing from various functional multilateral international organizations set up by the US after the Second World War to provide international public goods, in order to serve as a bargaining chip for seeking greater national benefit to the US. These measures indirectly created an opportunity and structure for other countries to fill the gap in International Public Goods. At the same time, the United States under Trump administration has also actively intensified political conflicts among countries in various regions with a tough foreign policy, indirectly increasing the armament needs of countries in Zones of Conflict such as the Middle East, Africa, Asia, and Latin America, thereby helping the US defense industry. Weapons sales and exports serve as engines to revitalize the domestic economic growth of the United States. As a result, all countries have been involved in an arms race to strengthen national defense in a deteriorating international environment.

On the whole, the 15 component indices selected by the Wang Dao Sustainability Index in 2020 for the Global Ethics domain have quite obvious convergence and discriminative validity, and together present two important findings:

1) The phenomenon of geographical clustering evident in the top and bottom 20 rankings is roughly the same as that of 2018, making it worthwhile to look further at some time in the future into the background impetus for the performance divergence of different geographic regions in the Global Ethics domain.

2) The Trump Administration's "America first" foreign policy worsened the security environment and roiled the waters of the arms race, an effect especially noticeable in Zones of Peace and Zones of Conflict. With the change of occupants to the White House following the 2020 US election, it will be worthwhile to monitor whether the Biden Administration slightly modifies or fundamentally changes or scraps the Trump doctrine in the future, given the impact that this will have on the international rankings in the Global Ethics domain and the sustainable development of international relations.

Inclusive Development

Inclusive Development

The Wang Dao Sustainability Index looks forward to addressing the uneven distribution of wealth globally and nationally via the Inclusive Development indices, and also hopes that countries can better plan the optimal path to sustainable development according to their own development levels and cultural characteristics. We have proposed several important areas of concern from the perspective of Wang Dao thought, as reflected in the four dimensions of Humanistic needs, Social Equality, Social Harmony and Socio-economic Empowerment, and their 32 component indicators, as shown in Table 7.

In 2020, we discontinued the Social Security indicator of 2018 because it largely overlaps with the Social Welfare as a Percentage of GDP indicator. A new indicator, R&D and Innovation, has been added to the Socio-economic Empowerment dimension to measure the capacity of R&D and innovation in various countries. The total scores and rankings in the Inclusive Development domain for 2020 are shown in Table 8.

Table 7 | Inclusive Development Dimensions and Component Indicators

【 Inclusive Development 】

Humanistic Needs

Infant Mortality rate	Ratio of house price to income
Life Expectancy	
Health Care Resources	Getting Electricity
Literacy Rate, adult total	Personal Freedom
Employment	

Social Equity

Inequality-adjusted life expectancy	Poverty Headcount Ratio at National Poverty Lines
Labor Force, Female	Gini Index
Inequality-adjusted Education	Reduced Number of Undernourished People over the Last 10 Years
Equal Opportunity	

Social Harmony

Suicide Mortality rate	Social Tolerance
Violence Impact and Small Arms Threat	Corruption Perception
Safety & Security	

Socio-economic Empowerment

GDP per Capita, PPP	Account Ownership
GDP per Capita Growth	General Government Gross Debt
Education Expenditure	
Health Expenditure	Price Stability
Social Expenditure	Individuals Using the Internet
School Enrollment, Secondary	Growth in Internet Users
	Research and Innovation

Table 8 shows the total scores and rankings in the Inclusive Development domain of the 2020 Wang Dao Sustainable Development Index.

Table 8 | Total Scores and Rankings in the Inclusive Development Domain (1/2)

*Change from 2018 Rankings
**A/E indicates advanced/emerging economies

ID RANK	*ID RANK Change	Economies	**A/E	ID SCORE	WDSI RANK	ID RANK	*ID RANK Change	Economies	**A/E	ID SCORE	WDSI RANK
1	↑5	Denmark	A	8.934	1	25	↑1	Lithuania	A	7.389	25
2	0	Sweden	A	8.856	2	26	↓7	Singapore	A	7.339	30
3	↓2	Norway	A	8.853	9	27	↑1	Poland	E	7.305	22
4	↓1	Finland	A	8.583	8	28	↑7	Greece	A	7.293	28
5	0	Switzerland	A	8.507	4	29	↓2	Cyprus	A	7.225	31
6	↑5	New Zealand	A	8.364	15	30	0	United States	A	7.201	40
7	↑2	Ireland	A	8.330	5	31	↓2	Italy	A	7.108	18
8	↑6	United Kingdom	A	8.235	10	32	N.A.	Hong Kong	A	7.027	55
9	↓5	Netherlands	A	8.220	6	33	↓9	Slovakia	A	6.991	26
10	↑3	Australia	A	8.094	19	34	↑1	Hungary	E	6.969	27
11	↓3	Germany	A	8.050	3	35	↓3	Latvia	A	6.966	29
12	↓3	Austria	A	7.946	7	36	↑3	Chile	E	6.876	34
13	↑8	Japan	A	7.941	11	37	N.A.	Kazakhstan	E	6.805	44
14	↓3	Canada	A	7.939	21	38	↓3	Croatia	E	6.770	32
15	↑2	Czech Republic	A	7.922	14	39	↑4	Malaysia	E	6.757	37
16	0	Belgium	A	7.918	13	40	↓2	China	E	6.528	38
17	↑1	Estonia	A	7.910	23	41	↓2	Costa Rica	E	6.523	39
18	↓11	Slovenia	A	7.900	17	42	↑9	Saudi Arabia	E	6.406	45
19	↓4	France	A	7.729	16	43	↓2	Bulgaria	E	6.325	41
20	↑5	South Korea	A	7.621	20	44	↑9	Thailand	E	6.227	43
21	↓1	Portugal	A	7.573	24	45	0	Kuwait	E	6.145	57
22	0	Spain	A	7.551	12	46	↑1	Russia	E	6.134	52
23	↑8	Taiwan	A	7.513	36	47	N.A.	Cuba	E	6.117	51
24	0	Israel	A	7.479	35	48	↓5	Romania	E	6.079	33

Blue: European Yellow: Asian Indigo: Oceania Brown: American Green: African

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Table 8 | Total Scores and Rankings in the Inclusive Development Domain (2/2)

*Change from 2018 Rankings
**A/E indicates advanced/emerging economies

ID RANK	*ID RANK Change	Economies	**A/E	ID SCORE	WDSI RANK	ID RANK	*ID RANK Change	Economies	**A/E	ID SCORE	WDSI RANK
49	↑6	Indonesia	E	5.860	42	73	0	India	E	4.878	65
50	↓1	Vietnam	E	5.848	64	74	↓6	Ghana	E	4.780	61
51	N.A.	Argentina	E	5.827	58	75	N.A.	Kenya	E	4.651	73
52	↓5	Panama	E	5.800	48	76	N.A.	Honduras	E	4.643	81
53	N.A.	Uzbekistan	E	5.790	66	77	↓8	Tanzania	E	4.529	68
54	↓2	Ukraine	E	5.773	47	78	N.A.	Senegal	E	4.488	78
55	N.A.	Ecuador	E	5.599	54	79	↑3	Egypt	E	4.445	76
56	↓1	Peru	E	5.563	50	80	0	Ethiopia	E	4.430	75
57	↑2	Jordan	E	5.508	62	81	↓2	Bangladesh	E	4.364	72
58	↑3	Iran	E	5.468	79	82	N.A.	Malawi	E	4.247	87
59	N.A.	Tunisia	E	5.358	63	83	N.A.	Niger	E	4.173	86
60	↑1	Turkey	E	5.328	56	84	↑2	Venezuela	E	4.158	84
61	↑7	Mexico	E	5.295	46	85	N.A.	Cote d'Ivoire	E	4.122	85
62	↓3	Philippines	E	5.266	59	86	N.A.	Myanmar	E	4.075	83
63	N.A.	Nepal	E	5.220	71	87	N.A.	Zimbabwe	E	4.064	88
64	↓10	Brazil	E	5.213	53	88	N.A.	Madagascar	E	3.818	93
65	↓1	Colombia	E	5.201	49	89	N.A.	Zambia	E	3.801	89
66	N.A.	Sri Lanka	E	5.200	69	90	0	Mozambique	E	3.774	82
67	N.A.	Guatemala	E	5.193	70	91	N.A.	Cameroon	E	3.739	90
68	↓1	Algeria	E	5.128	80	92	N.A.	Angola	E	3.433	94
69	↑7	Morocco	E	5.049	60	93	N.A.	Demo Rep of Congo	E	3.400	92
70	↑4	South Africa	E	5.015	77	94	0	Pakistan	E	3.366	95
71	↑1	Lebanon	E	5.013	74	95	0	Nigeria	E	3.320	91
72	↓2	Cambodia	E	4.895	67	96	N.A.	Sudan	E	2.808	97
						97	N.A.	Yemen	E	2.708	96

Blue: European   Yellow: Asian   Indigo: Oceania   Brown: American   Green: African

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Overall, the average Inclusive Development score of 97 economies in 2020 was 6.042. The average scores of the 74 economies ranked in 2018 were 6.490 and 5.923 in 2020 and 2018 respectively, representing an increase of 0.567 (Figure 10). It is heartening that this widespread progress came from most countries in the world, regardless of region or degree of development.

GDP had a significant impact on country performance in the Inclusive Development domain. The top group was still high-income countries, especially the Nordic countries, such as Denmark (this time 1st, last time 6th), Sweden (2nd this time and last), Norway (this time 3rd, last time 1st) and Finland (this time No. 4, last time No. 3). The political and economic systems of these countries were outstanding in many Inclusive Development indicators, which merits the attention of other countries. In addition, the top rankings also include other Central and Western European countries, such as Switzerland, which ranked 5th in both evaluations. Although the political and economic system of Switzerland differs

from those of the Nordic countries, it has always been regarded as a model of consensus democracy in comparative political studies. The high degree of autonomy in the three Swiss language areas, respect for the institutional designs of different cultural groups, and the mature use of referendums have enabled Switzerland to display an extremely tolerant national culture. Another example is Canada, one of the countries that advocates multiculturalism, which placed among the top 15 in both rankings.

At the same time, we also found that while traditional advanced countries monopolized virtually the entire top segment of the ranking, Eastern European countries such as the Czech Republic, Estonia, and Slovenia also placed 15th, 17th and 18th respectively, and Poland (27th) was the only emerging economy to rank in the top 30. This shows that after market economy reforms, these countries are still capable of pursuing the distributive justice of the socialist era, and are not comprehensively heading in the direction of becoming a laissez-faire market economy.
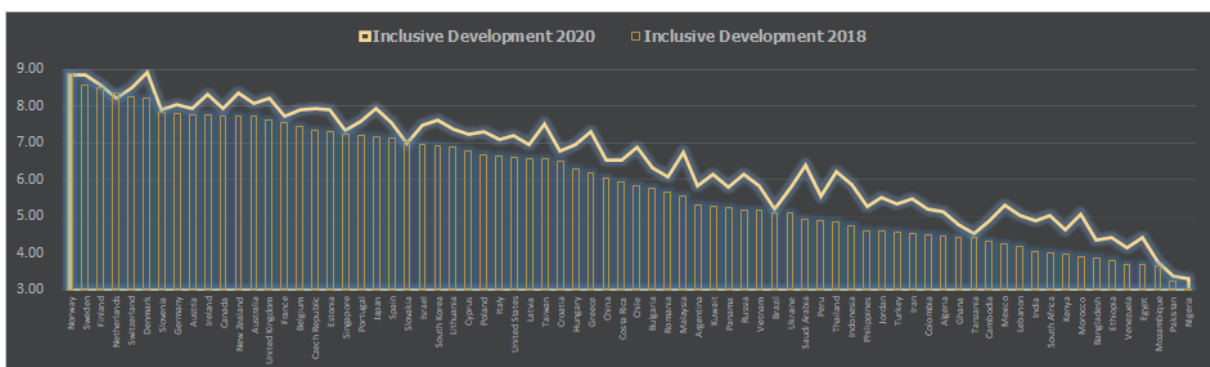

Figure 10| Inclusive Development Score Changes between 2018 and 2020

Turning back to Asia we note a few outstanding cases. First, Japan ranked 13th, the highest among Asian countries. Secondly, South Korea ranked 20th; Taiwan, 23rd; and Singapore, 26th. Their common feature is the heritage of Confucian culture, which has the characteristic of tolerance, and stresses caring about and caring for the disadvantaged in society. Thus, they demonstrated good performance in this indicator. However, Hong Kong, which has a Confucian cultural foundation and is deeply rooted in a freely competitive market culture, is slightly behind, ranking 32nd. Furthermore, the world's leading power, the United States, ranked at the bottom of the upper half. This can be seen from the social polarization, the gap between rich and poor, and racial issues within the United States in recent years. Although the US ranks first globally in overall national strength, in terms socio-economic development inclusiveness, there appears to be much room for improvement. In the US presidential election that ended not long ago, the huge gap in political view and campaign styles between the two presidential candidates was glaringly obvious; yet, in the popular vote, the two candidates also received virtually the same number of votes, demonstrating a trend in American society toward polarization of many values. Finding the foundation for succeeding generations to coexist in American society will be an enormous challenge.

In the middle segment of rankings, the country that is hard to ignore is mainland China, which ranked 40th. Although mainland China also has a Confucian culture heritage, the major pressures of development and population make it difficult to catch up with the advanced countries that have for many years ranked in the top segment among the many indicators of the Inclusive Development domain. Although the government of mainland China has been actively engaged in poverty alleviation projects in recent years with considerable success; nevertheless, mainland China obviously still has a way to go before it can achieve a better balance between economic development and social tolerance. The remaining countries in the middle segment are mostly spread across the Central and East Asia, Southeast Asia and Latin America. The development of these countries is still at the stage of emphasizing economic growth, and therefore it is more difficult to satisfy the portion of Inclusive Development indicators that stress redistribution.

Most of the lowest-ranking 30 countries are located in Africa; however, among them is India, a major developing country. First of all, most African countries are constrained at the current stage of development, and much of the infrastructure needed for inclusive development is lacking. In addition, many countries rely on exporting natural resources. This has led to a predicament that scholars term the resource curse. The more they rely on natural resources, the more local infrastructure and investment are relatively reduced due to the magnetic attraction of the resource sector. India has a vast population and land, and is rich in resources. However, its development is limited by divisions between localities, and it is unable to design inclusive institutions to promote social development.

Performance in the Inclusive Development Dimensions

The four dimensions in the Inclusive Development domain: Humanistic Needs, Social Equity, Social Harmony and Socio-economic Empowerment represent the two major pillars of sustainable development: economy and society. This domain is closely related to the United Nations Sustainable Development Goal Index (SDGI) and reflects the four major themes of the Wang Dao Sustainability Index: national basic infrastructure, equal opportunities for social development, social security and inclusive peace, and the stability and momentum of social development.

Not surprisingly, the Nordic countries excelled among the top three rankings in each of the four dimensions (see Table 9); but, unlike the Social Equity and Socio-economic Empowerment dimensions where all three top places were held by Nordic countries, an Asian country, Japan ranked first in the Humanistic Needs dimension, and an Eastern European country, the Czech Republic placed third. This dimension addresses the fundamental aspects of civil life, such as survival, quality of life, livelihood, knowledge acquisition, and personal freedom. And in the Social Harmony dimension, a southeast European country, Greece, took the second place; and three countries were ranked third with the same score: Ireland, New Zealand and

Norway, making the regional concentration less obvious. This dimension aims to measure whether a people live in a social network that is safe, inclusive, free of corruption and governable, and provides the safeguards needed by different ethnic groups in the country.

Table 9 | Top Three Rankings in the Four of the Inclusive Development Dimensions

	Humanistic Needs	Social Equity	Social Harmony	Socio-economic Empowerment
1	Japan	Finland	Denmark	Denmark
2	Norway	Sweden	Greece	Sweden
3	Czech Republic	Denmark Norway	Ireland Norway New Zealand	Norway

Box. Covid-19 and Sustainable Development

The COVID-19 pandemic has spread worldwide to more than 100 countries since it erupted in January of 2020 and continues to intensify. Although the WDSI 2020 survey is based on statistics from 2019 before the outbreak of the disease, to a certain extent the data reflects in advance the effectiveness of governance shown by countries when faced with severe epidemics.

The countries that ranked among the top in the Inclusive Development indicators also achieved positive results in the prevention and treatment of the respiratory ailment. For example, 11th-ranked Germany had many confirmed cases, but managed to control the outbreak properly during the first wave of rapid spread throughout the European continent, achieving the lowest mortality rate among major European countries at the time. This can be attributed to Germany's enduring investment in medical care. In fact, Germany ranks first in the Health Care Resources indicator [6] data (Figure 11).

Secondly, Taiwan's epidemic prevention effort has also achieved considerable results. Although it only ranks 23rd in the Inclusive Development indicator, it ranks 12th in the Health Care Resources indicator. The epidemic prevention performance of the US has been inadequate, as it is one of the top countries of the world in terms of confirmed cases and deaths. This fully accords with its middle-ranking scores among the indicators, such as only 40th in Inclusive Development and 42nd in Health care Resources.
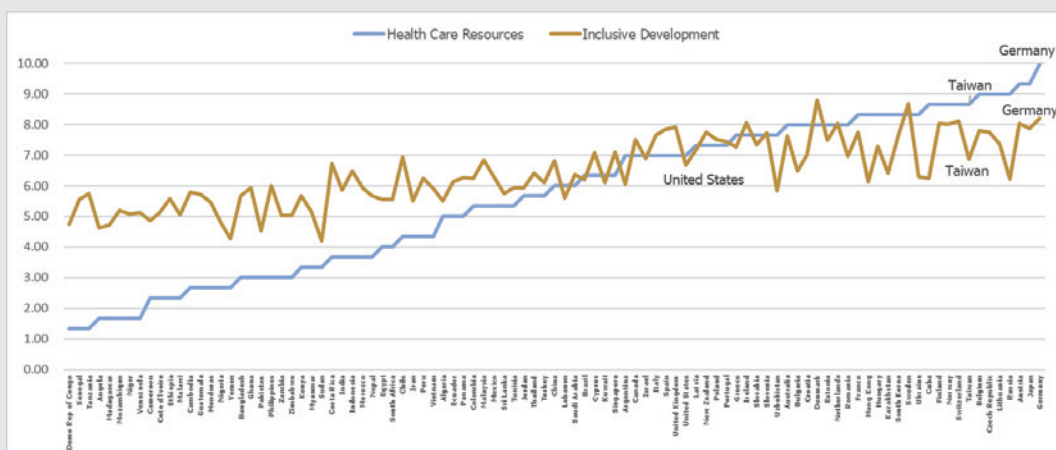

Figure 11 | Total Scores in the Health Care Resources Indicator and the Inclusive Development Indicator

Excluding individual countries with outstanding performance, when economic development status and distribution of different cultural spheres are jointly considered, and the 97 countries surveyed for the Wang Dao Sustainability Index 2018 are the parameter for comparison, we obtain two interesting findings.

1. The average mortality rate of advanced economies was higher than that of emerging economies

Referring to Table 10 and Figure 12, the average Infection Fatality Ratio (IFR)[7] in advanced economies (death rate per 100,000 population) averages 40.67, which is higher than the average of 23.96 in emerging economies, and even higher than the average of 29.68 in all 97 countries/economies. The Case Fatality Ratio (CFR)[7], meaning the proportion of deaths in confirmed cases, in developed areas is 1.75%, which is lower than the 2.79% CFR in emerging areas. This accords with social expectations that a comparatively supportive medical environment can boost the cure rate and reduce the mortality rate.

Many recent studies have pointeout that COVID-19 has deepened the gap between rich and poor, especially due to lockdown measures to counter the pandemic, which have exacerbated the difficulties of the poorer sectors of each economy. On the other hand, COVID-19 has made a more severe impact on wealthy advanced economies in terms of overall death toll. The effect of this world-threatening pandemic on the redistribution of wealth merits further attention.

2. The average mortality rate for different cultural sphere groups varied widely, as much as 60-fold, yet there was little difference in the CFR.

After categorizing cultural sphere groups [8] according to cultural values, the IFR of different cultural sphere groups (the death rate per 100,000 of the total population) was 12.63 for the Islamic cultural sphere; 4.18 for the Buddhist cultural sphere; and in the 57 countries of the Christian cultural sphere (including Roman Catholic, Orthodox, and Protestant), the average mortality rate was 44.13, which was 58 times the 0.76 mortality rate of the East Asian Confucian cultural sphere. Although each country had different policies on whether to implement widespread testing, and there were confusing inconsistencies in the definition of statistics collected,

resulting in enormous discrepancy in the statistics of each country and undeniable biases; nevertheless, there was only a modest difference in the CFR of each cultural sphere group from the lowest of 1.26% for the Buddhist cultural sphere, to the highest of 3.74% for the Islamic cultural sphere. Perhaps this can be attributed to the mutual sharing of global public health intelligence network and medical resources.

Table 10 | The Infection Fatality Ratio (IFR) and the Case Fatality Ratio (CFR) of Various Country Groups

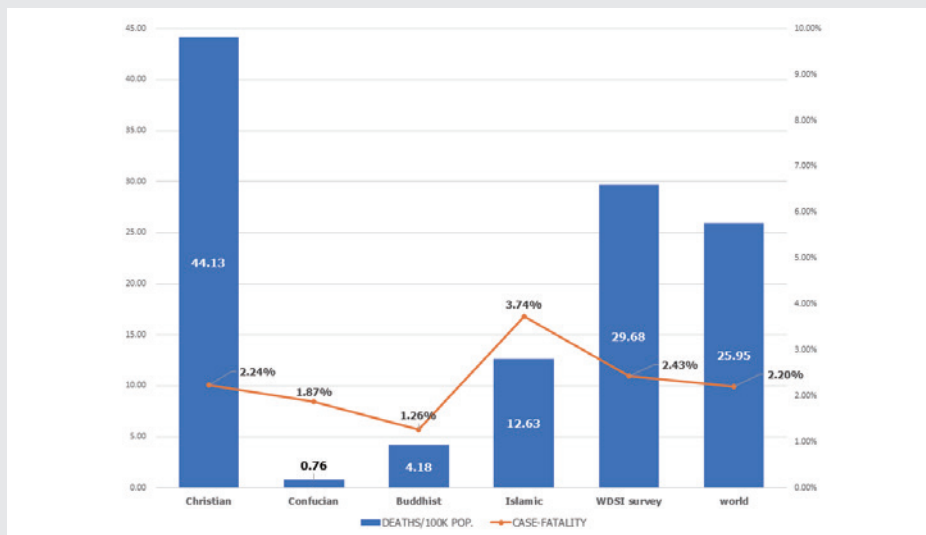| Economic/Cultural Group	DEATHS/100K POP.	CASE-FATALITY
Advanced Economies (33)	40.67	1.75%
Emerging Economies (64)	23.93	2.79%
Christian Cultural Sphere (57)	44.13	2.24%
Confucian Cultural Sphere (7)	0.76	1.87%
Buddhist Cultural Sphere (5)	4.18	1.26%
Islamic Cultural Sphere (10)	12.63	3.74%
WDSI Survey (97)	29.68	2.43%
World (170)	25.95	2.20%

Figure 12 | The Infection Fatality Ratio (IFR) and the Case Fatality Ratio (CFR) of Various Country Groups

Source: compelled from Cases and mortality by country, John Hopkins Research Center
https://coronavirus.jhu.edu/data/mortality（up to 2020.12.9）

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It is to note that cultural sphere groups are classified according to the World Values Survey 2020 database after adjustment. Most cultural sphere groups have geographic origins, but are not limited to geographic regions. For example, Christian countries span Europe and the Americas, including Central and South America, Oceania and parts of Africa, as well as different political systems. Although the Confucian cultural sphere only includes seven economies (mainland China, Japan, South Korea, Taiwan, Hong Kong, Singapore, and Vietnam), and spans vastly different levels of economic development and types of governance, including authoritarian, semi-authoritarian and democratic governing systems, it is still very representative.

The relevant data is based on cumulative numbers obtained as of December 9, 2020. Due to the mutation of the virus and different attitudes of various countries toward countering the pandemic from the winter of 2020 onward, the difference between the Christian cultural sphere and the East Asian Confucian cultural sphere continued to show multiple growth.

Other major factors

We have also observed that among the factors that affect the average mortality rate of various countries, there are other major factors that are worth exploring, including geography and population. Among the 97 countries observed by the Wang Dao Sustainability Index, 13 island countries/economies[9] excelled in pandemic-countering performance (Figure 13). These 13 countries span across the four continents of Europe, Asia, Africa, and Oceania, with an average mortality rate of 12.7. Among them, the UK and Ireland had relatively high mortality rates (92.54, 43.25); but if we ignore these two countries, the average of the other 11 is only 2.67. The high numbers in Britain and Ireland may be attributable to cultural factors.
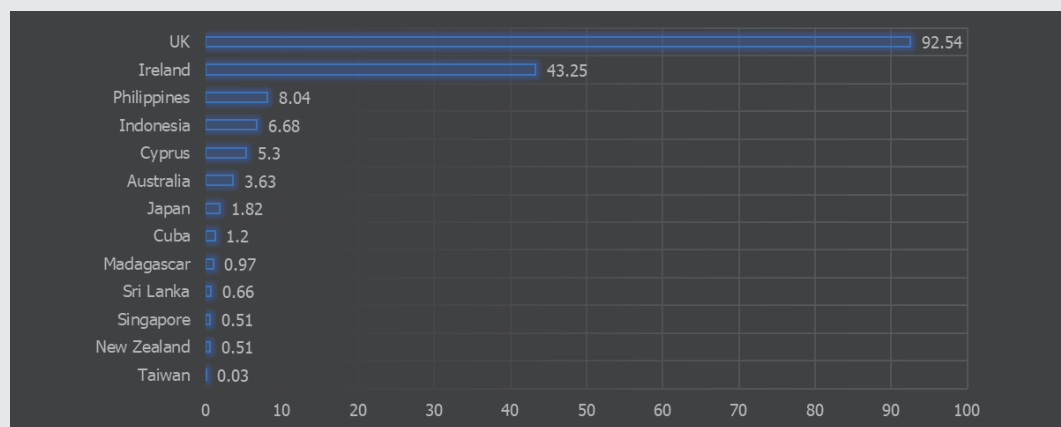

Figure 13 | The Infection Fatality Ratio (IFR) in the Island Countries/Economies

Among the 13 island countries, three are large countries with a population of over 100 million: Japan, Indonesia, and the Philippines. The four with the highest population densities are Singapore (7796 p/km^2), Taiwan (651 p/km^2), the Philippines (339 p/km^2), and Japan (337 p/km^2), but their average mortality rates were far lower than those of the United Kingdom and Ireland. The economic activities and social dynamic of the UK and of Ireland are profoundly influenced by the European continent. Their average mortality rate far exceeded the overall average of 29.68, and was much closer to the average of Central and Western Europe (51.41). The exact reason needs to be further investigated, but the impact of cultural values and individual liberties cannot be ignored.

On the whole, island countries surrounded by sea waters enjoy natural country-to-country "social distancing" during times when there is global restriction of the movement of people between countries. Add to this the maintenance of social distancing between people within each of these countries, and like natural fortresses, they readily excel with minimal effort in waging war against the pandemic. Australia offers an example. Although its actual land area is almost equivalent to that of an independent continent, due to its geographical location and remoteness, it is one of the countries with the lowest population density in the world (3.2 p/km^2). This provides a natural barrier so its average mortality rate was only 3.63, far below the average of the entire Christian cultural sphere (44.13). New Zealand, with the two niches of geographical isolation and sparse population, had an average mortality rate of only 0.51, making it one of the best in the world at countering the pandemic. Taiwan, which had the lowest mortality rate in the island group (0.03), also was one of the best in the world in terms of performance. This is due to its adoption of an isolation policy from nearby mainland China and the high efficiency its use of information technology tools to defend against the pandemic.

Note:

6. The indicator uses the proportion of medical personnel and hospital beds in various countries as a measure of the health care resources of countries.

7. As defined by the World Health Organization, the Infection Fatality Ratio (IFR) is used to estimate the proportion of deaths among all infected persons. The Case Fatality Ratio (CFR) is used to estimate the proportion of deaths among the total number of test-positive confirmed cases.

8. The cultural sphere groups were classified and regrouped according to World Values Survey 2020 (http://www.worldvaluessurvey.org/WVSContents.jsp)

9. An island country is defined as a country whose main territory is located on one or more islands. There are currently 49 island countries in the world.

Environmental Equilibrium

Environmental Equilibrium

The Nordic countries and post-communist countries in Europe performed well, vigorously striving for consumption, governance and ecological equilibrium

The role that the Environmental Equilibrium domain plays in the overall Wang Dao Sustainability Index structure (WDSI) is to guide comprehensive environmental performance. The world has gone through different stages of development from the industrial revolution to today. Exponential growth in consumption of resources, near exhaustion of many key resources, and more and more obvious signs of climate change have become the norm. Since the launch of the Wang Dao Sustainability Index in 2018, the United Kingdom, the European Union and several countries have declared climate change a climate emergency, as the global environment has deteriorated faster and more severely than originally predicted by the scientific community.

The Environmental Equilibrium domain of the WDSI and the design of its component items are based on observations of the concept and structural implications of sustainable development. We hope to lead visionary sustainability toward honest sustainability so that continuing development becomes moderate development, moving from advocated fairness to genuine fairness. Therefore, the corresponding three dimensions of Material

Consumption, Environmental Governance and Natural Law were designed, respectively to correspond to Ethics, Democracy and Science; and the 17 component indicators within these three dimensions were developed to measure the environmental sustainability performance of various economies (Table 11).

Table 11 | Environmental Equilibrium Dimensions and Component Indicators

【 Environmental Equilibrium 】

Material Consumption
Energy Consumption per Capita
Per Capita GHG emission
Water Consumption per Capita
Food Sustainability
Overfishing
Forest Management

Environmental Governance
Biodiversity
Energy Intensity
Green Growth
Air Pollution
Waste Management
Waste Water Treatment
Improved Water Source
Improved Sanitation Facilities

Natural Rules
Nitrogen Control
Plastics
Radioactive Waste

Looking back at 2018, most of the top-ranking countries in the Environmental Equilibrium domain were European. A post-communist country in Eastern Europe, Croatia, placed first with excellent performance. Aside from the European countries, many in Central and South America, such as Colombia, Brazil, Peru, Panama and Costa Rica also ranked among the top 20. Conversely, contrary to general impressions, the bottom-ranking 20 countries included such developed countries as Israel, Canada, and the United States. This reflects the excessive use of natural resources or insufficient control of material consumption in some highly developed countries, and that these substantively affect environmental performance.

Table 12 shows the total scores and rankings in the Environmental Equilibrium domain of the 2020 WDSI.

Table 12 | Total Scores and Rankings in the Environmental Equilibrium Domain (1/2)

*Change from 2018 Rankings
**A/E indicates advanced/emerging economies

EE RANK	EE RANK Change	Economies	**A/E	EE SCORE	WDSI RANK	EE RANK	EE RANK Change	Economies	**A/E	EE SCORE	WDSI RANK
1	↑1	Denmark	A	9.000	1	25	↓8	Finland	A	7.235	8
2	↑1	Sweden	A	8.647	2	26	↑21	Belgium	A	7.206	13
3	↑19	Romania	E	8.265	33	26	↑1	Tanzania	E	7.206	68
4	↑13	Italy	A	8.176	18	28	-13	Portugal	A	7.088	24
5	0	France	A	8.118	16	29	↑18	Cyprus	A	7.059	31
6	↑2	Latvia	A	8.059	29	29	↑11	South Korea	A	7.059	20
7	↑3	Austria	A	8.029	7	31	↑15	Australia	A	7.029	19
8	↓1	Spain	A	8.000	12	32	↑3	Ireland	A	7.000	5
9	↑5	Lithuania	A	7.971	25	33	↓17	Greece	A	6.941	28
10	↓9	Croatia	E	7.853	32	34	↑20	Bangladesh	E	6.882	72
10	↑27	Poland	E	7.853	22	34	↓14	Morocco	E	6.882	60
12	↑10	Germany	A	7.824	3	36	↓26	Peru	E	6.853	50
13	↓7	Colombia	E	7.765	49	37	↑15	Chile	E	6.794	34
13	↑23	Slovakia	A	7.765	26	37	↓15	Singapore	A	6.794	30
13	↓1	United Kingdom	A	7.765	10	39	↓19	Costa Rica	E	6.735	39
16	↑15	Japan	A	7.706	11	39	↓8	Ghana	E	6.735	61
17	↑17	Czech Republic	A	7.676	14	39	↓10	Philippines	E	6.735	59
18	↑12	Hungary	E	7.618	27	42	N.A.	Tunisia	E	6.676	63
19	↓2	Slovenia	A	7.529	17	43	↑14	Israel	A	6.618	35
20	↓16	Switzerland	A	7.412	4	43	↑13	Malaysia	E	6.618	37
21	↑16	Estonia	A	7.353	23	45	↑20	Egypt	E	6.588	76
21	↑12	Mexico	E	7.353	46	46	N.A.	Ecuador	E	6.559	54
23	↑19	Netherlands	A	7.294	6	46	↑25	India	E	6.559	65
24	↓15	Brazil	E	7.265	53	46	↑5	Lebanon	E	6.559	74

Blue: European Yellow: Asian Indigo: Oceania Brown: American Green: African

Table 12 | Total Scores and Rankings in the Environmental Equilibrium Domain (2/2)

EE RANK	EE RANK Change	Economies	**A/E	EE SCORE	WDSI RANK	EE RANK	EE RANK Change	Economies	**A/E	EE SCORE	WDSI RANK
46	↓6	Panama	E	6.559	48	73	↓2	Hong Kong	A	5.859	55
50	↓9	Indonesia	E	6.529	42	74	N.A.	Venezuela	E	5.853	84
50	↑10	Mozambique	E	6.529	82	75	↓5	Angola	E	5.794	94
52	N.A.	Bulgaria	E	6.500	41	75	N.A.	Honduras	E	5.794	81
52	N.A.	Cuba	E	6.500	51	77	N.A.	United States	A	5.765	40
52	↑17	Senegal	E	6.500	78	78	↓9	Demo Rep of Congo	E	5.735	92
52	↑11	Ukraine	E	6.500	47	78	N.A.	Guatemala	E	5.735	70
56	↑3	Cambodia	E	6.471	67	80	N.A.	Uzbekistan	E	5.706	66
57	↓6	Canada	A	6.412	21	81	N.A.	Zambia	E	5.647	89
57	↓30	New Zealand	A	6.412	15	82	N.A.	Cameroon	E	5.618	90
59	↓12	Norway	A	6.382	9	83	N.A.	Yemen	E	5.588	96
60	↓5	Jordan	E	6.353	62	84	N.A.	Nepal	E	5.529	71
61	N.A.	Ethiopia	E	6.235	75	84	N.A.	Saudi Arabia	E	5.529	45
61	↓30	Sri Lanka	E	6.235	69	86	↑4	Nigeria	E	5.500	91
63	↑10	Kenya	E	6.206	73	87	↓29	Argentina	E	5.471	58
63	↓34	Russia	E	6.206	52	88	↓12	Sudan	E	5.441	97
65	↑7	Turkey	E	6.176	56	89	N.A.	Kuwait	E	5.382	57
66	N.A.	China	E	6.059	38	90	↓1	Kazakhstan	E	5.324	44
66	N.A.	Myanmar	E	6.059	83	91	N.A.	Zimbabwe	E	5.206	88
68	↓18	Côte d'Ivoire	E	6.029	85	92	N.A.	Pakistan	E	5.176	95
68	↓13	Thailand	E	6.029	43	93	↑1	Niger	E	5.059	86
70	↑3	Algeria	E	5.971	80	94	N.A.	Madagascar	E	4.971	93
70	↓6	Taiwan	A	5.971	36	95	N.A.	Iran	E	4.824	79
70	↓9	Vietnam	E	5.971	64	95	↑1	South Africa	E	4.824	77
						97	↓9	Malawi	E	4.765	87

Blue: European   Yellow: Asian   Indigo: Oceania   Brown: American   Green: African

Environmental Equilibrium Top and Bottom 20 Rankings

In 2020, the overall top-ranking set was still dominated by European countries. Among the top 20, except for 13th-ranked Colombia and 16th-ranked Japan, all the rest were European countries. Among them, ten nations, namely, Romania (3rd), Latvia (6th), Lithuania (9th), Croatia (10th), Poland (10th), Slovakia (13th), Czech Republic (17th), Hungary (18th), and Slovenia (19th), Switzerland (20th) are in a broad sense post-communist countries. Figure 14 shows the differences in strength and weakness of performance among the top 20 countries across the three dimensions of the Environmental Equilibrium domain.
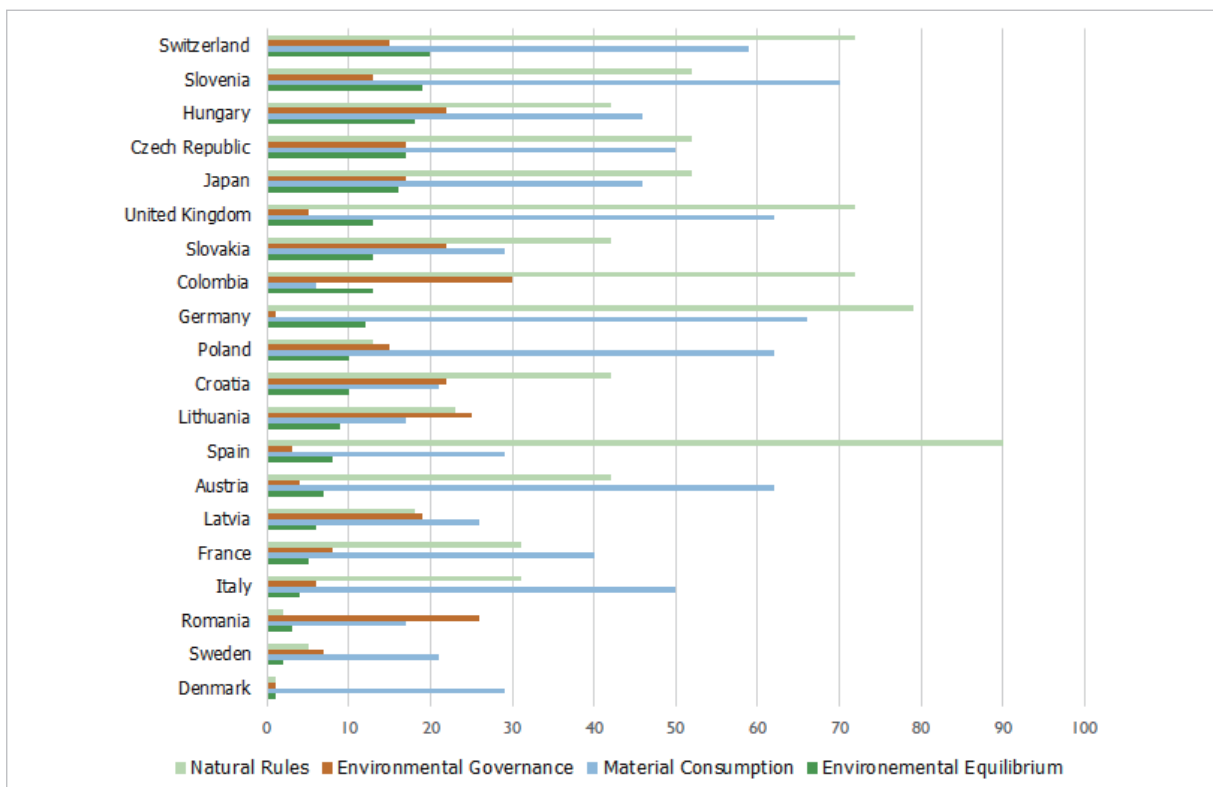

Figure 14 | Top Twenty Rankings in the Environmental Equilibrium Domain and the Three Dimensions

First place Denmark and second-place Sweden obviously had the ranking advantage due to their high scores among the indicators in the Environmental Governance and Natural Rules dimensions. Third-ranking Romania also benefited from high scores among the Natural Rules dimension indicators, although it ranked 26th in the Environmental Governance dimension and 17th in the Material Consumption dimension. Nevertheless, its overall score was still high. Among the top 25 ranking countries, Northern, Western and Central European countries ranked in the top 10 in the Environmental Governance dimension. Other Eastern European countries, as well as Japan and Colombia, mostly ranked high in the Material Consumption and Natural Rules dimension but middling in the Environmental Governance dimension, resulting in quite respectable overall performance.

Most of the bottom-ranking 20 countries were located in Africa, the Middle East, Central Asia, or Central and South America. They included Malawi, Iran, South Africa, Madagascar, Niger, Pakistan, Zimbabwe, Kazakhstan, Kuwait, and Sudan. This regional distribution fits the characteristics of being afflicted by a geopolitical, resource or ethnic conflict "curse."

The best-ranking among emerging countries, Romania (3rd), made the top three based with outstanding performance. The lowest-ranking among the developed countries was the United States, which ranked 77th based on its scores in the three dimensions of Material Consumption, Environmental Governance and NaturalRules of 97, 29, 92, respectively.

Although the United States scored well in the Environmental Governance dimension based on its sound rule of law regulatory framework and mature civil society, its performance in the Material Consumption and Natural Rules dimension was near the bottom, showing that the United States has neglected environmental issues. Mainland China's overall ranking in the domain was 66th, based on its scores in each of the three dimensions of 24, 75, and 31, respectively. Taiwan ranked 70th overall, with scores in the three dimensions of 85, 47, and 64, respectively. Both ended up ranking in the bottom environmental tier; however, mainland China is obviously constrained by regulations that have yet to be perfected, while Taiwan is more like the United States in terms of material consumption. Hong Kong, which was newly included in the rankings, was ranked 73, based on scores in the three dimensions of 76, 44, and 92, respectively. This reflects the fact that Hong Kong is a narrow and crowded territory that lacks natural resources, yet has a relatively mature regulatory framework based on the rule of law.

Kuznets Curve

According to the IMF's classification of countries or economic entities, among the 97 economies evaluated by the Wang Dao Sustainability Index, 33 are Developed Economies (A) and 64 are Emerging Market and Developing Economies (E). If the 97 economies are divided into three equal groups, the top 32 include 24 Developed Economies and 8 Emerging Market and Developing Economies, or (A, E) = (24, 8). The 32 countries in the

middle group, i.e., those ranked 33 to 64, include 6 Developed Economies and 26 Emerging Market and Developing Economies, or (A, E) = (6, 26). The bottom 33 country group, ranked 65th to 97, include 3 Developed Economies and 30 Emerging Market and Developing Economies, or (A, E) = (3, 30). Such an obvious ratio disparity reflects the Kuznets Curve in economics, which hypothesizes that once the degree of economic development reaches a certain level, as economic development improves, so does environmental performance. In fact, the reason for a greater extent of economic development in a particular economy mostly pertains to its higher maturity of national institutions and governance, that also yields better environmental governance results. The performance of a particular country in the Material Consumption and Natural Rules dimensions, on the other hand, is influenced to a high degree by such factors as the size of its economy, abundance of natural resources, or consumption habits of its citizens.

Data quality and scores

On the whole, based on the 74 states investigated in the 2018 edition of the WDSI, the average score in the Environmental Equilibrium domain for 2020 improved slightly to 6.855 compared to 6.780 (+0.075) for 2018, with the boost coming primarily from the lower half of countries (+0.111), compared to that from the upper half of only +0.041.The data for the Environmental Equilibrium domain of 2020 was gathered from roughly the same sources as in 2018, we updated the figured based on the latest

data from the International Public Database in 2019. What requires explanation is the source of data for the Green Growth indicator in the Environmental Governance dimension. Out of consideration for the integrity of the data, we changed the original Global Green Economy Index (GGEI) to the Global Green Growth Index (GGGI). The GGEI evaluated 80 countries around the world, while the GGGI covers 113 countries. To accord with the suitability of the topic, this Index only uses the Green Economic Opportunities one-dimensional measurement results of the indicator. Furthermore, we replaced the original Persistent Organic Pollutants indicator in the Natural Rules dimension with a Plastics indicator in response to the pollution and marine catastrophes confronting the environment today. According to the 2018 World Economic Forum (WEF) estimates, one-third of global plastic products enter the biosphere, and only 9% enter the recycling system. The oceans now contain more than 150 million tons of plastic refuse; and the persistent organic pollutants adsorbed by plastics, which permanently affect the growth of organisms, hormones and the environment, have completely entered the global overall ecosystem cycle. In 2019, the 187 member states of the United Nations signed the Basel Convention, agreeing to control strictly the trans-boundary movement of hazardous waste around the world, and head toward a milestone in the grand cause of plastic reduction. However, developing countries, especially in Asia, have yet to find an effective alternative to their reliance on plastic materials and enormous annual plastic refuse dilemma. Marine debris has become a contemporary global crisis second only to climate change.

Frame Concept
& Methodology

Frame Concept and Methodology

The WDSI is a measure of sustainable development in countries/economies. It is a sustainable development index based on wang dao precept from Chinese Confucianism culture. Starting from the five prime elements abstracted from the Wang Dao precept, and with sustainable development as the objective, we construct three principal domains. These three domains contain 11 sustainable development-related dimensions that array in groups of 4, 4, and 3, respectively. Then, from these 11 dimensions are derived the 64 indices of the WDSI.

The statistic has been established based on cross-disciplinary expertise. Various major global databases were the original sources of information for building the WDSI. At the initial stage during 2018, 74 countries and economies with representative status (in terms of region, development level, etc.), relatively complete data, and a population of one million or more have been selected to establish indices for individual countries or economies. The investigation was furtherly extended to 97 countries/economies in 2020.

The original score for each indicator has been normalized by converting it to a range from 1 to 11 points in 10 equidistant increments. After the original value X of each country is normalized, the Z-score (abbreviated as Z) is obtained, the average value of the original data is μ, and the standard deviation is σ, so Z may be positive or egative. A high ranking score indicates that the performance of theindicator is more consistent with

sustainability. The resultant score is the domain score or total score of each country, and w_i is the weighted value of each indicator. Except for missing data, the weights of all WDSI indicators are equal, i.e., $w_i=1$.

$$Z = \frac{(X - \mu)}{\sigma}$$

$$Score = \sum_{i=1}^{m} w_i \times Z_i$$

Regarding missing data, we searched for government statistical bulletins to fill in missing data in accordance with the definition of indicators to minimize missing values. The overall rate of missing data was 3.33%. The principle for dealing with missing data was to provide an algebraic estimation, substitute the median (6 points), and set the weight to 0.5 ($w_i = 0.5$), which is 3 points. We chose to use algebra instead of estimating vectors, in order to maintain the variance of the matrix. Substituting indicator averages will reduce the variance; substituting averages of economic development level grouping would risk the appearance of preset bias.

Some indicators are sourced from major international indicators, such as the Global Peace Index (GPI), Social Progress Index (SPI), or the Environmental Performance Index (EPI). Because the indicator scores were the measurement results after linear ranking, the team directly processed the Z-score based on the raw data of the observed country, and produced scores of 11 points, which were calculated in equivalent units.

Table 13 | Data Tables

【Global Ethics】

Dimension	Indicator	Description	Source	Reference Year	Scope of Value
External Peace					
Interstate War Participation		Participation in interstate war.	Militarized Interstate Disputes	2000-2019	5≤x≤11
Interstate War Casualties		Causalities of the participated interstate war.	Militarized Interstate Disputes	2000-2019	1≤x≤11
Contributions to International Peacekeeping Operations		Share of financial and personnel contributions international peacekeeping operations.	Providing for Peacekeeping	2018	1≤x≤11
Military Buildup					
Military Expenditure		Military expenditure as share of Gross Domestic Product (GDP).	SIPRI Military Expenditure Database	2018	4≤x≤9
Armed Forces Personnel		The number armed forces personnel of total labor force.	World Bank	2017	4≤x≤9
Nuclear Warheads		Total number of nuclear warheads.	Nuclear Weapon of Our Word in Data	2019	1≤x≤11
Exports of Conventional Weapons		Total number of destination countries for exports of conventional weapons.	SIPRI Military Expenditure Database	2017-2018	4≤x≤9
International Exchange					
Attractiveness of International Migration		The number of arrivals for international tourism.	World Bank	2018	1≤x≤11
Participation in International Trading Regime		The frequency of using WTO Dispute Settlement Mechanism to resolve international trade conflicts between members.	World Trade Organization	1995-2019	6≤x≤11
Total Trade per capita		Total amount of trade over population for a country.	World Trade Organization	2018	1≤x≤11
Freedom of International Migration		The number of foreign countries granting domestic citizens visa exempt entry.	Henley and Partners Visa Restriction Index	2020	1≤x≤11

Dimension ⏐ Indicator	Description	Source	Reference Year	Scope of Value
International Aid				
International Developmental Aid	Official developmental aid as share of gross national income.	OECD (Organization for Economic Cooperation and Development)	2018	3≤x≤11
International Humanitarian Aid	The magnitude of international humanitarian aid.	United Nations/ Chinese Govt for China	2018	3≤x≤11
International Refugee Admissions	The number of international refugees admitted.	United Nations	2018	6≤x≤11
International Charity Giving	A composite index of how charitable a country based on data from the Gallup World Poll.	World Giving Index	2018	1≤x≤11

【Inclusive Development】

Dimension｜Indicator	Description	Source	Reference Year	Scope of Value
Humanistic Needs				
Infant Mortality rate	The rate of infants dying before reaching one year of age.	World Bank	2018	1≤x≤11
Life Expectancy	The number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.	World Bank	2018	1≤x≤11
Health Care Resources	Density of health and social workforce including medical doctors, nursing, midwifery personnel, and density of hospital bed (per 1,000 people).	World Bank, World Health Organization	2010-2018	1≤x≤11
Literacy Rate, adult total	The percentage of people (ages 15+) who can both read and write with understanding a short simple statement about their daily life.	World Bank, CIA Factbook	2010-2016	1≤x≤11
Employment	Employment to Population Ratio, 15+, total (%).	World Bank	2019	1≤x≤11
	Unemployment, Total (% of total labor force).	World Bank	2019	1≤x≤11
Ratio of House Price to Income	Price per square meter to buy apartment in City Centre (USD).	Numbeo	2020	1≤x≤11
Getting Electricity	The procedures, time and cost for a small to medium-size business to get a new electricity connection for a standardized warehouse with standardized electricity needs.	doing business yearbook	2020	1≤x≤11
Personal Freedom	Specific personal freedoms: Movement; Religion; Association, Assembly, and Civil Society; Expression and Information; and Identity and Relationships.	Human Freedom Index	2019	1≤x≤11
Social Equity				
Inequality-adjusted Life Expectancy	Inequality in distribution of expected length of life based on data from life tables estimated using the Atkinson inequality index.	Human Development Reports, United Nations	2019	1≤x≤11
Labor Force, female	Female labor force as a percentage of the total labor force comprises people ages 15+.	World Bank	2019	1≤x≤11
Inequality-adjusted Rducation	Inequality in distribution of years of schooling based on data from household surveys.	Human Development Reports, United Nations	2019	1≤x≤11

Dimension / Indicator	Description	Source	Reference Year	Scope of Value
Equal Opportunity	Equal opportunity legislation in your economy encourages economic development.	IMD World Competitiveness Center	2019	1≤x≤11
Poverty Headcount Ratio	The percentage of the population living below the national poverty line (% of total population).	World Bank	2010-2018	1≤x≤11
Gini Index	It is the most commonly used measure of inequality, representing the income or wealth distribution of a nation's residents.	World Bank, CIA factbook	2010-2018	1≤x≤11
Reduced Number of Undernourished People for the Last 10 Years	The moving average of the rate of undernourished population reduction the poverty alleviation rate of the global population over the last decade.	World Bank &OECD Income Distribution Database	2008-2017	6≤x≤11
Social Harmony				
Suicide Mortality Rate	The number of suicide deaths in a year per 100,000 population.	World Bank	2016	1≤x≤11
Violence Impact and Small Arms Threat	Direct and indirect economic cost of violence.	Global Peace Index	2020	1≤x≤11
	Price of the arm in current US dollars. The arm includes revolvers and self-loading pistols, rifles and carbines, assault rifles, sub-machine guns and light machine guns.	Small Arms Survey	2017	1≤x≤11
Safety & Security	This indicator is to measure the performance each country in three areas: national security, personal precariousness, and personal safety.	Global Peace Index	2020	1≤x≤11
Social Tolerance	Tolerance toward ethnic minorities, immigrants, LGBT (lesbian, gay, bisexual, and transgender) groups, and decrease in social Religious restrictions.	Social Progress Index	2019	1≤x≤11
Corruption Perception	People's subjective assessments about corruption in their countries.	Transparency International, Corruption Perception Index	2019	1≤x≤11

Dimension / Indicator	Description	Source	Reference Year	Scope of Value
Socio-economic Empowerment				
GDP per Capita, PPP	GDP per capita based on purchasing power parity (PPP). PPP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.	World Bank	2019	1≤x≤11
GDP per Capita growth	Annual growth rate of GDP per capita based on constant local currency. Aggregates are based on constant 2010 U.S. dollars.	World Bank	2019	1≤x≤11
Government Expenditure on Education, Total	Expenditure on education (current, capital, and transfers) is expressed as a percentage of GDP. General government usually refers to local, regional and central governments.	World Bank	2010-2018	1≤x≤11
Health Expenditure, Total	Estimates of health expenditures include healthcare goods and services consumed during each year, expressed as a percentage of GDP.	World Bank, WHO	2017	1≤x≤11
Social Expenditure, Aggregated Data, Total	It includes compensation of employees (such as wages and salaries), interest and subsidies, grants, social benefits, and other expenses such as rent and dividends, expressed as a percentage of GDP.	World Bank, OECD	2010-2018	1≤x≤11
School Enrollment, Secondary	The ratio (% net) of children of official school age who are enrolled in school to the population of the corresponding official school age. Secondary education completes the provision of basic education that aims at laying the foundations for lifelong learning and human development.	World Bank	2010-2018	1≤x≤11
Account Ownership	Account denotes the percentage of respondents who report having an account at a bank or another type of financial institution or report personally using a mobile money service in the past 12 months (% age 15+).	World Bank	2017	1≤x≤11
General Government Gross Debt	Gross debt consists of all liabilities that require payment or payments of interest and/or principal to the creditor on a particular date. The debt is the accumulation of all prior deficits.	International Monetary Fund	2019	1≤x≤11

Dimension｜Indicator	Description	Source	Reference Year	Scope of Value
Price Stability	Inflation, GDP Deflator (annual %) It shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency.	World Bank	2019	1≤x≤11
	Consumer Price Index (CPI) It reflects changes in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. Data are period averages. (2010 = 100)	World Bank	2019	1≤x≤11
Individuals Using the Internet	Internet users are individuals who have used the Internet (from any location) in the last 3 months. The Internet can be used via a computer, mobile phone, personal digital assistant, games machine, digital TV etc.	World Bank	2018	1≤x≤11
Growth in Internet Users	Growth rate of the number of Internet users over the last decade.	World Bank	2008-2017	1≤x≤11
Research and Innovation	Patent Application, Resident A patent application is a legal and administrative request to proceed the issuance of a patent for an invention.	OECD, WIPO (World Intellectual Property Organization)	2012-2018	1≤x≤11
	Research and Development Expenditure They include both capital and current expenditures (% of GDP): Business enterprise, Government, Higher education and Private non-profit. R&D covers basic research, applied research, and experimental development.	World Bank, UNESCO (United Nations Educational, Scientific and Cultural Organization)	2010-2019	
	Researchers (in full-time equivalent, FTE) Total number of researchers per million inhabitants.		2010-2018	

【Environmental Equilibrium】

Dimension Indicator	Description	Source	Reference Year	Scope of Value
Material Consumption				
Energy Consumption per Capita	Per capita energy consumption is used to evaluate the average energy consumption of a country. The unit is KWh/capita.	International Energy Agency	2020	1≤x≤11
Per Capita GHG emission	The total GHG emissions of a country divided by the number of the population. The GHGs (Greenhouse gases) mean the six gases defined by the Kyoto Protocol, including carbon dioxide (CO2), methance (CH4), Nitroux Oxide (N2O), perfluorocarbons (PFCs), Hydrofluorocarbons (HFCs), sulfur hexafluoride (SF6).	International Energy Agency	2020	1≤x≤11
Water Consumption per Capita	The total freshwater consumption divided by the number of the population of a country. The total freshwater consumption includes water uses for agricultural, industrial, domestic, and desalination in cubic meters. Evaporation losses of reservoirs are not included.	Our World in Data	2010-2016	1≤x≤11
Food Sustainability	The Food Sustainability Index (FSI) was calculated based on raw data in three categories, wasted food, agricultural sustainability, and nutrition challenges, covering 34 countries. The WDSI used only "wasted food" index to measure the rising problem of food loss and waste, and to reduce World Hunger.	Food Loss and Waste, Nutritional Challenges, Barilla Center for food & Nutrition	2018	6≤x≤11
Overfishing	Overfishing is defined as the status that the catch amount during the peak period in a year reached 10-50% and the survival amount in next year was lower than 10% of the peak amount of the previous year. The data was built by a research team "Sea Around Us" in Canada, monitoring the inventories of fish species in different times.	Fish Stock Status, Environmental Performance Index	2020	1≤x≤11
Forest Management	Forest Cover Area Land area under natural or planted stands of trees of at least 5 meters in situ, whether productive or not, and excludes tree stands in agricultural production systems and trees in urban parks and gardens.	World Bank	2016	1≤x≤11
	Tree Cover Loss Data for forest cover loss is defined as a standing-replacement disturbance, or a change from a forest to non-forest state, during the period from 2010 to 2016.	World Bank	2010-2016	1≤x≤11

Dimension / Indicator	Description	Source	Reference Year	Scope of Value
Environmental Governance				
Biodiversity	This indicator covers four aspers, including important protected area in habitats, land protected area (biological species amounts in a country and globe), and marine protected area.	Environmental Performance Index	2020	1≤x≤11
Energy Intensity	Energy intensity is the amount of energy needed to produce a unit of GDP. Lower energy intensities mean less energy was needed for unit production, meaning higher efficiencies.	World Bank	2019	1≤x≤11
Green Growth	The dimension Green Economic Opportunities of Green Growth Index is adapted to measure an environmental-friendly model of economic growth with 4 indicator categories: green investment, green trade, green employment, and green innovation.	Green Economic Opportunities, GGGI, Green Growth Index	2019	1≤x≤11
Air Pollution	The number is derived from weighted summation of the annual average PM 2.5 exposure of each person in a country. The unit is μg/m³.	Our World in Data	2016	1≤x≤11
Waste Manage-ment	Municipal Solid Waste It covers generation, collection, composition, and disposal of MSWs with the unit as kg/capita/day.	World Bank	2010-2016	1≤x≤11
	Recycling rate This is defined as the ratio of recycled materials in the total amount of collected garbage. Plus: Most of developing countries do not have public recycling systems. Recycling has been carried out through private collection systems. No confirmed data are available.	European Environmental Bureau & Eunomia	2010-2018	1≤x≤11
Waste Water Treatment	This is derived based on weighted summation of connection ratios of domestic and industrial wastewater, used for measuring the governance of wastewater of a country.	Environmental Performance Index	2020	1≤x≤11
Improved Water Source	The percentage of population who can reach the drinking water treated and purified. Improved water sources include piped water, boreholes or tubewells, protected dug wells, protected springs, and packaged or delivered water.	United Nations Children's Fund, UNCF	2017	1≤x≤11
Improved Sanitation Facilities	The percentage of people using improved sanitation facilities that are not shared with other households and where excreta are safely disposed of in situ or transported and treated offsite. Improved sanitation facilities include flush/pour flush to piped sewer systems, septic tanks or pit latrines.	United Nations Children's Fund, UNCF	2017	1≤x≤11

| Dimension | Indicator	Description	Source	Reference Year	Scope of Value
Natural Rules				
Nitrogen Control	Data for nitrogen balance were used to indicate the performance of nitrogen control Note: Fertilizer uses will result in extra nitrogen releases to the soils, which will be further degraded to ammonia and contaminate water sources, leading to death of fish. They may eventually cause human inspiration diseases or even heart diseases.	Environmental Performance Index	2020	1≤x≤11
Plastics	the per capita rate of plastic waste generation, measured in kilograms per person per day.	Our World in Data	2010	1≤x≤11
Radioactive Waste	IAEA classified the Consolidated Radioactive Waste Inventory(m³) of countries into four categories, i.e., HLW = High Level Waste, ILW = Intermediate Level Waste, LLW = Low Level Waste, VLLW = Very Low Level Waste, corresponding to weightings as 1, 0.5, 0.25, and 0.1, respectively. This indicator refers to the weighted summation of these four categories of radioactive wastes.	International Atomic Energy Agency	2019	1≤x≤11

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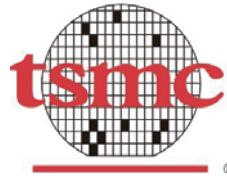
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