

## Beyond GDP: Measuring Human and Ecological Wellbeing (HEW) in Colorado

An Introduction to the Colorado “Doughnut” – a Discussion Paper  
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OCTOBER 10, 2020 – s e c o n d d r a f t

Introduction. The animating vision of the *Beyond GDP Project* is “to join other states—and projects at the national and international level—to promote greater awareness and impact of human and ecological wellbeing measures in personal and public consciousness and decision-making.” This paper proposes the development of a visually compelling conceptual framework of *human and ecological wellbeing* (HEW) for Colorado, along the lines of the “Doughnut of social and planetary boundaries” developed by ecological economist Kate Raworth. This paper is intended to foster discussion among interested parties toward developing a *preliminary consensus framework of socio-economic and ecological domains and illustrative state-level indicators of wellbeing for Colorado by December 31<sup>st</sup>, 2020.*

Our starting point is the set of guiding principles articulated in the 2-page Overview of the *Beyond GDP Project* (copy attached) listed below. The *Beyond GDP Project* is one of several pilot projects underway and supported by the University of Denver’s Grand Challenges Initiative.

- Treat **health** as a fundamental proxy for the wellbeing of people, communities, and the planet.
- Illuminate **inequity**—unequal access to resources and opportunities with regard to gender, race/ethnicity, and economic status.
- Measure **upstream** socio-economic/environmental drivers of **downstream** wellbeing outcomes.
- A **compelling, memorable** visual portrayal of the HEW domain framework is vital.
- The wellbeing of persons and the physical and social environment are **inseparable**.
- Focus on developing measurable indicators of human and ecological wellbeing based upon assessments of human and environmental **needs** rather than human **wants**.

Basic approach of this paper. An *HEW framework* is a set or collection of domains, or categories, each with related indicators that “point to” [*indicare*, Latin] human and ecological wellbeing, in some sense. The Raworth Doughnut is an HEW framework, and so is the set of 17 Sustainable Development Goals (SDGs) adopted unanimously by United Nations’ member states in 2015. This paper begins with a brief overview of the Raworth Doughnut in both its current and early forms, followed by an examination of its conceptual structure in dialogue with six additional HEW frameworks with strong visual representations, including four Colorado frameworks. Through such dialogue, a Colorado “Doughnut” is proposed, together with three “mini-Doughnuts” for preschool, elementary, and middle school students. Guiding questions:

- *What animated the development of the Raworth Doughnut model?*
- *What modifications of the Raworth Doughnut would make it more accessible to young students and the general public?*
- *What can we learn from other state-level HEW frameworks?*
- *What would a Doughnut model for five-year old children look like?*

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## I. The Raworth Doughnuts

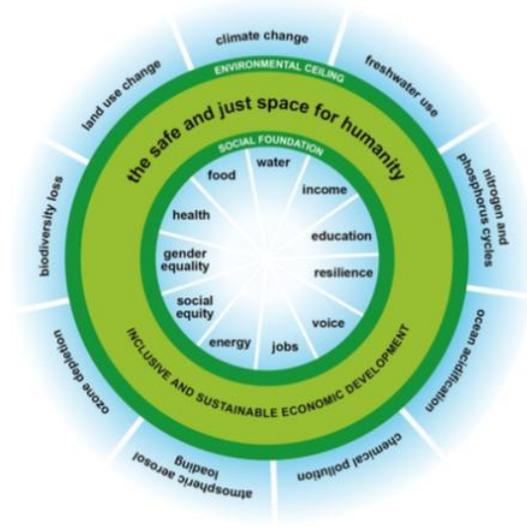
In *Doughnut Economics: 7 Ways to Think Like a 21<sup>st</sup> Century Economist*<sup>2</sup> (hereinafter, *DE*), Kate Raworth describes the current Doughnut and its purpose:

“The Doughnut of social and planetary boundaries is a simple visualisation of the dual conditions—social and ecological—that underpin collective human well-being. The social foundation demarks that Doughnut’s inner boundary and sets out the basics of life on which no one should be left falling short. The ecological ceiling demarks the Doughnut’s outer boundary, beyond which humanity’s pressure on Earth’s life-giving systems is in dangerous overshoot. Between the two sets of boundaries lies the ecologically safe and socially just space in which humanity can thrive.” (*DE*, 254)

“Put simply, it’s a radically new compass for guiding humanity this century. And it points toward a future that can provide for every person’s needs while safeguarding the living world on which we all depend.” (39)



Raworth (2017)  
 (a.k.a. Raworth Doughnut)



Raworth (2012)  
 (a.k.a. Oxfam Doughnut)

*Social foundation domains and boundary indicators.* The 12 dimensions of social foundation (above left) are an expansion and revision of Raworth’s original list of 11 dimensions (above right) and published in her February 2012 Oxfam Discussion Paper, “A Safe and Just Space for Humanity: can we live within the doughnut?”<sup>3</sup> These 11 dimensions received the most mentions from a survey of social priorities returned by representatives from 80 national governments in preparation for the June 2012 U.N. Conference on Sustainable Development (a.k.a. Rio+20). Most domains in 2012 carry over to the 2017 Doughnut: “resilience” has been dropped; “income” and “jobs” are now combined; and “peace and justice,” “housing,” and “networking” have been added.

<sup>2</sup> White River Junction, VT: Chelsea Green, 2017.

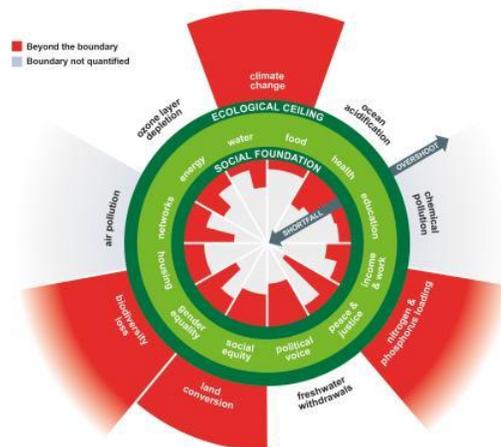
<sup>3</sup> Oxfam Discussion Paper. Oxfam: Oxfam International. 2012, p4. Hereinafter, Oxfam 2012. Available at <https://policy-practice.oxfam.org.uk/publications/a-safe-and-just-space-for-humanity-can-we-live-within-the-doughnut-210490>

Raworth (2012) provided 12 illustrative indicators of the extent of global deprivation for eight of the 11 dimensions of social foundation; indicators for “voice,” “jobs,” and “resilience” were left “to be determined” (Oxfam 2012, 10). Raworth (2017) provides 20 “illustrative” indicators for its 12 dimensions of social foundation (*DE*, 255); Nine of the 12 original indicators were carried over to the 2017 list.

*Planetary ecological processes, boundaries, and indicators.* The nine earth-system processes featured in both Raworth Doughnuts were identified as essential for maintaining global ecological stability by a group of Earth-system scientists brought together in 2009 by the Stockholm Resilience Centre, led by Johan Rockström. Quantitative boundary levels were proposed in 2009 for seven of the nine global ecological processes; levels for air and chemical pollution were listed as “to be determined.” Of these nine processes, three were judged to have been breached: climate change, biodiversity loss, and nitrogen loading. Findings were published later that year by Rockström et al. in a detailed, 33-page paper<sup>4</sup> and a four-page summary.<sup>5</sup>

With one exception, the 11 indicators of ecological overshoot identified in 2009 have been carried over to the 2017 list.<sup>6</sup> Planetary boundaries for air and chemical pollution are still listed as “to be determined.” The major change since 2009 is the breaching of a fourth ecological ceiling—the planetary boundary for land use. The control variable is the “area of forested land as a proportion of forest-covered land prior to human alteration”; the planetary boundary is “at least 75%” but the current (2017) value and trend are “62% and falling (i.e., worsening)” (*DE*, 258).

These ecological overshoots and social foundation shortfalls are vividly displayed as “transgressing both sides of the Doughnut’s boundaries” (*DE*, 44).



<sup>4</sup> J. Rockström et al (2009a) ‘Planetary boundaries: exploring the safe operating space for humanity’, *Ecology and Society* 14(2): 32. Available at: <http://www.ecologyandsociety.org/vol14/iss2/art32/> (last accessed July 9, 2020).

<sup>5</sup> J. Rockström et al (2009b) ‘A safe operating space for humanity’, *Nature* 461, 23 September 2009. Available at: <http://www.nature.com/nature/journal/v461/n7263/full/461472a.html> (last accessed July 9, 2020).

<sup>6</sup> Change in radiative forcing (watts per meter squared) was dropped as a climate change indicator.

The case for the Raworth doughnut as a starting point for a Colorado HEW framework.

1. The Doughnut is a compact, compelling, memorable visual portrayal of a) the inherent interdependence of human and ecological well-being at all geographical scales, and b) the fundamental principle of ecological economics—namely, that the economy is a subset of society, and society is a subset of the global ecosphere. The basic image can be drawn on a napkin.<sup>7</sup>
2. The Doughnut functions like a “compass”—vividly pointing the way forward to the twin tasks of overcoming shortfalls in social justice and human rights and reining in ecological overshoot in order to secure “a safe and just space for [all] humanity.” The image itself invites reflection for individuals, organizations, and institutions to consider opportunities for constructive engagement. It urgently beckons moving from description to action.
3. The Doughnut’s social foundation and ecological ceiling domains—each with illustrative indicators—have robust sources. The former are derived from the social priorities specified in the UN’s 2015 SDGs; illustrative indicators are sourced from several UN organizations and other knowledgeable international organizations. The Doughnut’s ecological domains and illustrative thresholds have been identified through an extensive peer-reviewed process involving dozens of earth-systems scientists.

As we go forward toward developing an initial Colorado HEW framework, these three characteristics can serve as criteria for evaluating the adequacy of any proposed HEW framework for Colorado.

Lessons from the Scottish Doughnut.

At this point, *why not simply accept the 12 social foundation domains and the 9 ecological ceiling domains of the (current) Raworth Doughnut as the domain structure for the Colorado HEW framework, and proceed with developing appropriate state-level illustrative indicators for these domains?*

Several reasons: First, the Raworth Doughnut entails the use of *global* domains and indicators, whereas we seek to develop a HEW framework with *state-level* metrics. Second, the goal of developing a nested sequence of visual models beginning with young children necessitates re-thinking basic domain categories while maintaining conceptual consistency across different audiences. And third, the history of the development of the Raworth Doughnut described above illustrates a dynamic process in the selection of social foundation domains. This dynamic process is further illustrated by the application of the early Oxfam Doughnut to the development of Doughnut models for Scotland in 2014 and the UK and Wales in 2015.<sup>8</sup>

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<sup>7</sup> Does the criterion of a compelling, memorable visual portrayal of an HEW framework really matter? Raworth emphatically thinks so. “Everybody’s saying it: we need a new economic story, a narrative of our shared economic future that is fit for the twenty-first century. I agree. But let’s not forget one thing: the most powerful stories throughout history have been the ones told with pictures. If we want to rewrite economics, we need to redraw its pictures too because we stand little chance of telling a new story if we stick to the old illustrations.” (DE, 10-11)

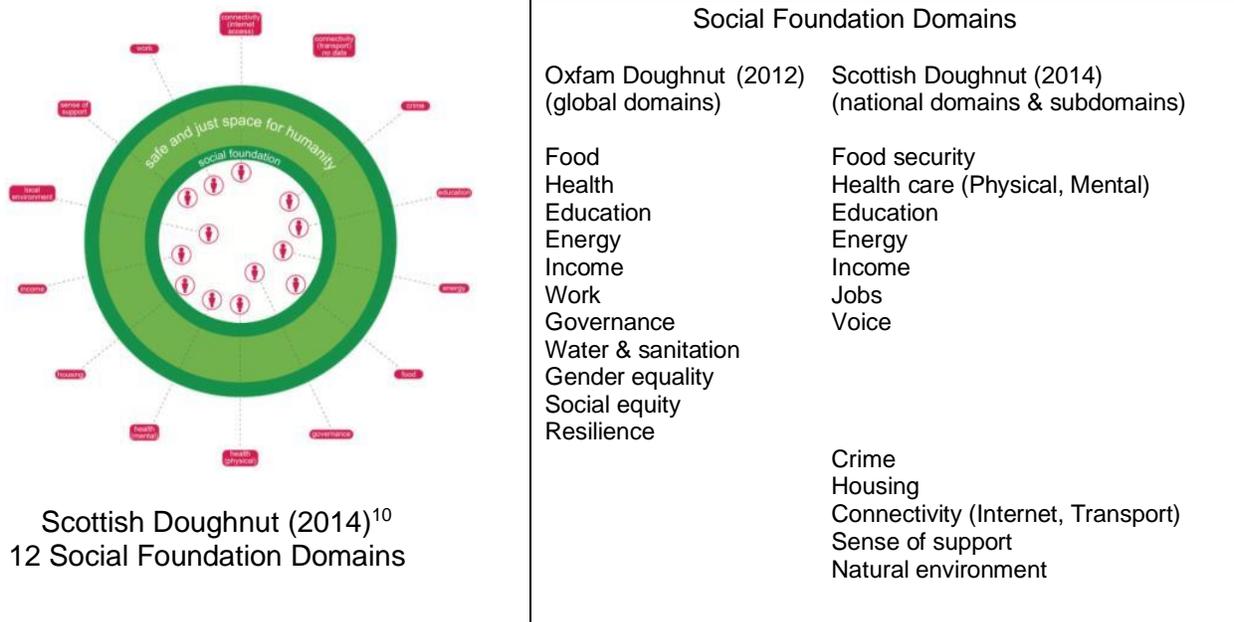
<sup>8</sup> Available at [https://policy-practice.oxfam.org.uk/publications/search?q=scottish%20doughnut;sort=publication\\_date](https://policy-practice.oxfam.org.uk/publications/search?q=scottish%20doughnut;sort=publication_date) (Scotland) and [https://policy-practice.oxfam.org.uk/publications/search?q=UK%20doughnut;sort=publication\\_date](https://policy-practice.oxfam.org.uk/publications/search?q=UK%20doughnut;sort=publication_date) (UK and Wales).

In November 2012, Oxfam hosted a workshop for representatives from non-governmental organizations and academic institutions from several countries to address a similar question: How best to apply the concept of the Oxfam Doughnut (which entails *global* domains) to the *national* level? The group posed several questions that are relevant to our examination of a possible state-level application of the Raworth Doughnut:

- What are the most relevant domains for each country and how do we agree what is relevant?
- How should the indicators and thresholds be selected?
- How many domains would be useful and practicable?
- Are there sufficient datasets for the selected metrics?

The November 2012 workshop group concluded that human rights were not sufficiently addressed by the Oxfam Doughnut, nor were other key issues such as housing and personal security. Furthermore, “a core set of around 12 social domains was needed for comparison . . .”

This history is briefly described in a 2014 Oxfam Research Report in preparation for developing a Doughnut model for Scotland, patterned after the Oxfam Doughnut of 2012.<sup>9</sup> Mindful of the first question above from the November 2012 workshop, the 12 social foundation domains of the Scottish Doughnut overlap only partially with the 11 domains of the Oxfam Doughnut.



This divergence in social foundation domains is not surprising—indeed, it is deliberate: “The Scottish Doughnut report is built upon the premise that domains, thresholds and indicators for the national social foundations should reflect as much as possible the reality of life in that country, and should be derived from public dialogue, discussion and participation. . . . However, rather than undertaking a dedicated consultation of the sort that informed Oxfam Scotland’s

<sup>9</sup> “The Scottish Doughnut: A safe and just operating space for Scotland.” Oxfam Research Report, July 2014. Access cited above.

<sup>10</sup> The figure above displays subdomains for Health (physical and mental) and Connectivity (Transport and Internet access).

Humankind Index<sup>11</sup>, which is precluded by resource constraints, this report analyses existing research and literature, much of which is based upon participatory methods, and distils the findings into proposed domains for Scotland and for the forthcoming UK Doughnut.”

With one exception, the ecological ceiling domains for the Scottish Doughnut were identical with the 10 domains in the Oxfam Doughnut. Ocean acidification was replaced by ocean health “because the main driver of ocean acidification is the rising level of carbon dioxide which is dealt with in the domain of climate change.” (p47). Another creative adaptation: although the Oxfam Doughnut does not include a planetary boundary for air pollution, the Scottish Doughnut includes a national threshold based upon “Particulate concentration (PM10).” For the remaining seven ecological domains, the Scottish boundaries were based upon population and per capita estimates of ecological impact.

Takeaways from the Scottish Doughnut. First, we need not assume that the domains for a Colorado HEW framework should necessarily be identical with the domains in the Raworth Doughnut. Second, although “national social foundations . . . should be derived from public dialogue, discussion, and participation,” the Oxfam authors drew upon “existing research and literature” in view of resource constraints. *Likewise, it seems reasonable to draw upon several existing HEW frameworks as a first step toward preparing a preliminary consensus HEW Framework for Colorado by December 31, 2020. Then we can turn to “public dialogue, discussion and participation.”* And third, while the planetary indicators of the Oxfam and Raworth Doughnuts can serve as a strong guide for national (and state-level) indicators, creative adaptation to serve national (and state) needs may be necessary.

Two more takeaways from the Oxfam Scotland’s Humankind Index (HKI) referenced above and cited below. *First, the Index was developed “from the grassroots.”* “This was a multi-stage process that engaged almost 3,000 people across Scotland to arrive at a set of agreed priorities on what the people need to live well in their communities. We made a particular effort to reach out to seldom heard communities, those groups whose interests are so often marginalised in the formal policy making process and whose voices are absent from decisions that affect them.”

*Second, the 18 subdomains were named by using what might be called “the people’s language,” or “ordinary language,” to express “what people need to live well in their communities.”*<sup>12</sup> Furthermore, survey results and focus groups determined the ranking of the subdomains, expressed as numerical weights. Only then was the search for valid indicators and quantitative metrics turned over to academic experts. To arrive at a single numerical value for Scotland’s HKI, the percentage of people satisfied with their personal situation with respect to each subdomain indicator was multiplied by the weight for that subdomain and the results summed for the 18 subdomains. In some cases, satisfaction measures “were not available or appropriate [and] a relevant percentage had been calculated . . .”<sup>13</sup>

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<sup>11</sup> “The Oxfam Humankind Index: The New Prosperity, Second Results,” June 2013. Available at <https://oxfamlibrary.openrepository.com/bitstream/handle/10546/293743/rr-humankind-index-second-results-100613-en.pdf%3Bjsessionid%3D008841E387F878CD9C3AAFE170CA28B4%3Fsequence%3D1>

<sup>12</sup> Another example of “ordinary language” as a way toward developing domains of human and ecological wellbeing is the “Signs of a Healthy Neighborhood” list in the Denver Department of Public Health and Environment’s 2014 Report, “Food System Policies and Population Health: Moving Toward Collective Impact in Denver.” Available at [https://www.denvergov.org/content/dam/denvergov/Portals/746/documents/Food%20System%20Policy%20Scan%20Report\\_FINAL\\_12.15.2014.pdf](https://www.denvergov.org/content/dam/denvergov/Portals/746/documents/Food%20System%20Policy%20Scan%20Report_FINAL_12.15.2014.pdf)

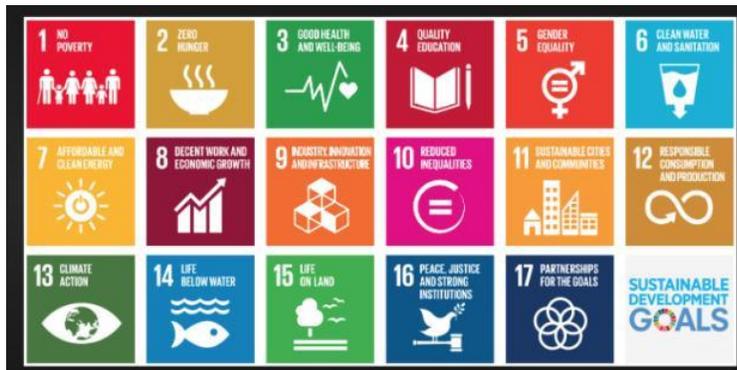
<sup>13</sup> “Oxfam Humankind Index: The new measure of Scotland’s prosperity, First Report,” April 2012, 10. A Google search is recommended, as the url is specific to the user searching.

## II. Five additional HEW frameworks with strong visual displays

We turn now to reports featuring four existing state-level HEW frameworks with Colorado profiles (two with U. S. indicators as well) and a national-level HEW framework with no state-level counterpart in dialogue with the Raworth Doughnut. Each of these frameworks has important “takeaways” for developing the Colorado Doughnut.

- a. the UN’s Sustainable Development Goals (SDGs), as operationalized by the Sustainable Development Solutions Network (state-level and nation-level reports)
- b. the Social Progress Index developed by the Social Progress Imperative (state-level and nation-level reports)
- c. the 2018 and 2013 “Public Health and Environment Assessment” Reports by the Colorado Department of Public Health and Environment (CDPHE)
- d. the “2020 Colorado County Health Ratings Report” by the Robert Wood Johnson Foundation
- e. the “2020 How’s Life in the United States?” report by the Organization for Economic Cooperation and Development (OECD)

a. The United Nations’ Sustainable Development Goals (SDGs). In 2015, all U.N. member countries adopted 17 SDGs to address pressing economic, social, and environmental needs across the globe, such as poverty, hunger, education, and climate change. In 2016, 169 targets and 232 indicators were developed to track progress toward reaching these goals by 2030. However, many of the UN’s 232 indicators do not include quantitative metrics, or else official data series are not available for measuring and tracking progress.



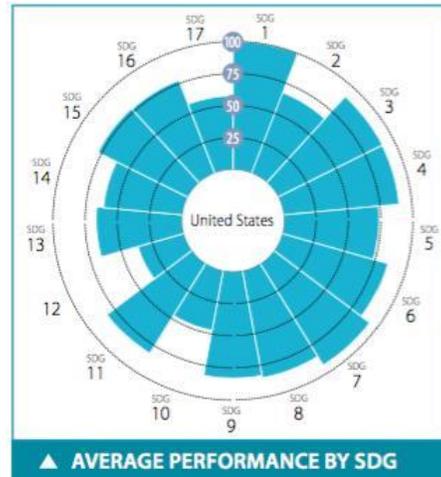
Three years before the SDGs were adopted, the [Sustainable Development Solutions Network](#) (SDSN) was established “under the auspices of the UN Secretary-General” to mobilize “global scientific and technological expertise to promote practical solutions for sustainable development, including the implementation of the SDGs and the Paris Climate Agreement.”

In cooperation with the [Bertelsmann Stiftung](#), an independent foundation based in Germany, SDSN has produced annual progress reports since 2016 for each country for which sufficient, reliable data are available. The [Sustainable Development Report 2019](#) features 2-page sustainable development profiles for 162 countries. The country profiles feature a common set of 114 quantitative indicators across the 17 SDGs.

Each indicator has a current value listed, plus a rating according to a four-color schema for indicating progress toward its SDG and the trend regarding such progress. Current values for all indicators for a specific SDG are converted to values on a 0-100 scale; those normalized values are averaged to yield a “performance score” for that SDG. For example, here are the indicators for SDG3 and the average performance scores of all SDGs for the United States in 2019.

**SDG3 – Good Health and Well-Being**

Maternal mortality rate (per 100,000 live births)	14	●	↑
Neonatal mortality rate (per 1,000 live births)	3.6	●	↑
Mortality rate, under-5 (per 1,000 live births)	6.6	●	↑
Incidence of tuberculosis (per 100,000 population)	3.1	●	↑
New HIV infections (per 1,000)	0.1	●	↑
Age-standardised death rate due to cardiovascular disease, cancer, diabetes, and chronic respiratory disease in populations age 30-70 years (per 100,000 population)	14.6	●	↑
Age-standardised death rate attributable to household air pollution and ambient air pollution (per 100,000 population)	13	●	**
Traffic deaths rate (per 100,000 population)	10.8	●	↔
Life Expectancy at birth (years)	78.5	●	↓
Adolescent fertility rate (births per 1,000 women ages 15-19)	20.6	●	↑
Births attended by skilled health personnel (%)	99.1	●	↑
Surviving infants who received 2 WHO-recommended vaccines (%)	92	●	↑
Universal Health Coverage Tracer Index (0-100)	87.8	●	↑
Subjective Wellbeing (average ladder score, 0-10)	6.9	●	↑
Gap in life expectancy at birth among regions (years)	6.3	●	**
Gap in self-reported health by income (0-100)	22.1	●	↔
Daily smokers (% population age 15+)	11.8	●	↑



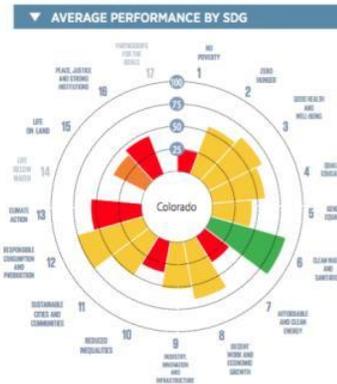
In addition, each profile contains an overall country Index Score and Global Rank. The United States ranked 35<sup>th</sup> out of 162 countries with an Index Score of 74.5—that is, on average, the U.S. is 74.5% of the way toward reaching the best possible outcomes across the 17 SDGs. (Denmark ranked 1<sup>st</sup> with 85.2; the Central African Republic ranked last at 39.1.)

*Colorado Sustainable Development Profile.* In 2018, the SDSN produced a report to measure state-by-state progress toward the SDGs.<sup>14</sup> This Report features 2-page sustainable development profiles for all 50 U.S. states, plus a dashboard of results, and a detailed section on methodology. The state profiles feature a common set of 103 state-level quantitative indicators across the 17 SDGs. In a manner similar to that described above for countries, each indicator has a current value listed, plus a rating according to a four-color schema for indicating progress toward its SDG. In addition, Colorado’s performance for each indicator is ranked among the 50 states. As above, indicator values are also normalized and averaged to produce an SDG average performance score for each SDG. Unlike the national profiles, these state profile also rank state performance for each indicator; see the examples below from the Colorado profile.

<sup>14</sup> “Sustainable Development Report of the United States 2018.” Available at <https://resources.unsdsn.org/sustainable-development-report-of-the-united-states-2018> Accessed July 25, 2020. No updates of this report have been published.

**SDG3 – Good Health and Well-Being**

Adolescent pregnancy rate (births per girl/woman aged 15–19)	17.8	20
HIV prevalence (per 100,000)	253.6	28
Primary health care practitioners (% of need met)	38.4	41
Infant mortality rate (per 1,000 live births)	5.6	16
Life expectancy at birth (years)	80.2	7
Maternal mortality (per 100,000 live births)	0.20	7
Non-communicable diseases (per 100,000 people aged 35–75)	301.4	2
Drug overdose deaths (per 100,000 people)	15.4	20
Smoking rate (% of adults who are current smokers)	15.6	17
Suicide rate (per 100,000 people)	19.0	44
Incidence of tuberculosis (per 100,000 people)	1.5	17
Deaths due to road collisions (per 100,000 people)	9.0	19
Child vaccine coverage (% of population 19–35 months)	83.5	22
Subjective Wellbeing index (worst 0–100 best)	62.9	6



Each profile also lists an overall state score and state rank, and the state’s 5 best and 5 worst indicators. Colorado ranked 15<sup>th</sup> with a state index score of 52.2—that is, on average, Colorado is 52.2% of the way toward reaching the best possible outcomes across the 17 SDGs. (Massachusetts ranked 1<sup>st</sup> with an index score of 61.0; Louisiana ranked last at 31.2.) Colorado’s 5 best indicators: Climate alliance membership, LGBT inclusion in hate crime laws, Non-communicable diseases, Climate action plan, and Career and technical education. The 5 worst indicators: Effective carbon rate, Recycling index, Non-carbon ecological footprint, Family leave policy, and Sick leave policy. The 2018 Report also includes an SDG “dashboard”—a 50x17 matrix that displays the qualitative degree of progress toward each SDG for each state.

Takeaways: The UN/SDSN Sustainable Developments reports for individual countries and U.S. states include indicators for 10 of the 12 social foundation domains in the Raworth Doughnut, and 5 of the 9 ecological ceiling domains.

There are fundamental differences (and tradeoffs) in the approaches taken to domains and indicators in the Raworth Doughnut and the 2018 Colorado SDSN profile. For the Raworth Doughnut, the gaps between current indicator values and boundary or threshold values are measured in *physical units* and thus are easily comprehended. For domains with few indicators (3 or less, say), shortfalls and overshoots can be displayed separately with high visual impact in the Doughnut. On the other hand, if the number of indicators per domain is greater than 3 (which is the case for the Colorado SDSN profile with 4-18 indicators per SDG), then, as shown above, the normalization process can facilitate and visually display a meaningful numerical measure of the gap between actual conditions and the 2030 goal for each SDG.

b. Social Progress Index. Since 2014, the [Social Progress Imperative](#) has produced an annual *Social Progress Index* (SPI) for more than 130 countries, including the United States. “Social progress” is defined as “the capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential.”<sup>15</sup>

<sup>15</sup> “Social Progress Report 2014,” 7. Available at

<https://www.socialprogress.org/assets/downloads/resources/2014/2014-Social-Progress-Index.pdf>.

Social Progress Index component-level framework



Calculating a country’s SPI is based upon a common framework of 50+ quantitative social and environmental indicators, distributed across 12 domains (“components”) that are clustered under three overarching dimensions: Basic Human Needs, Foundations of Wellbeing, and Opportunity. Economic indicators are intentionally excluded: “. . . our aim is to measure social progress directly, rather than through economic proxies.” Numerical scores, using a 100-point scale, are calculated for each domain, component, and the entire country. National rankings are given for each indicator, domain, component, and the country as a whole. In addition, over- and under-performance is evaluated relative to 15 countries of similar GDP per capita. Results are displayed compactly on a single page.<sup>16</sup> In 2019, the U.S. ranked 26<sup>th</sup> out of 149 countries.

*Colorado SPI Profile.* In 2018, the Social Progress Imperative also published a one-page Social Progress Index for each of the 50 U.S. states, available at <https://socialprogressdotblog.files.wordpress.com/2018/07/all-50.pdf>. Different indicators were used, but the 12-domain, 3-dimension framework and indexing and ranking calculations were retained. Colorado ranked 11<sup>th</sup> among all states. Similar to the U.S. SPI, the Colorado SPI also evaluates over- and under-performance relative to 15 states of similar median income.

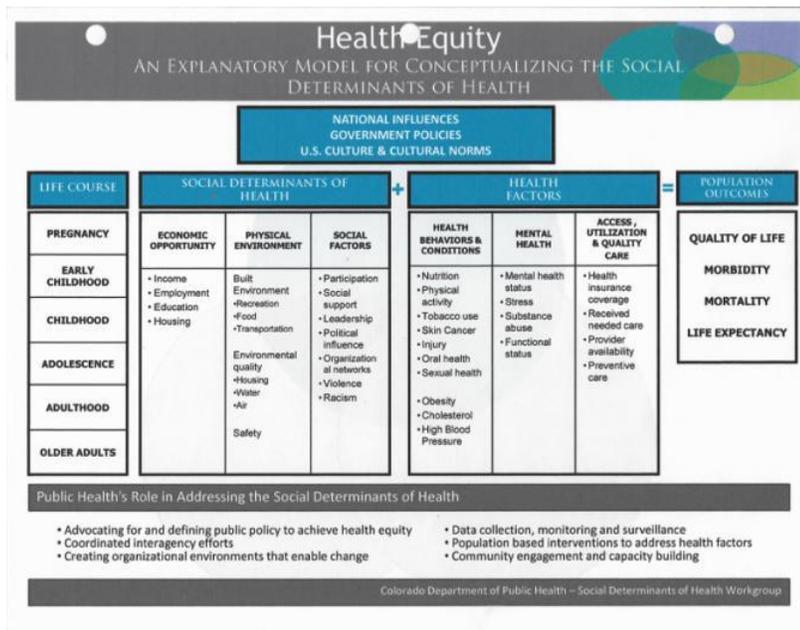
Takeaways: The Social Progress Index includes indicators for 8 of the 12 social foundation domains in the Raworth Doughnut, and 3 of the 9 ecological ceiling domains. Like the UN/SDSN approach—but unlike the Raworth Doughnut—the SPI normalizes the current values of all indicators within a given domain on a 0-100 point scale and averages these values to yield a dimensionless score for each domain.

c. The 2018 Colorado Public Health and Environmental Assessment Reports. The Colorado Department of Public Health and Environment (CDPHE) is required by law to develop a state assessment report every five years. Guided by a multi-sectoral Assessment and Planning Advisory Committee, the [2018 Assessment Report](#) is structured around seven primary themes (shown below), plus an Assessment Data Dashboard of 50 key indicators across these themes.

<sup>16</sup> The U. S. “Scorecard” is available at <https://www.socialprogress.org/resources?filter=2019>.

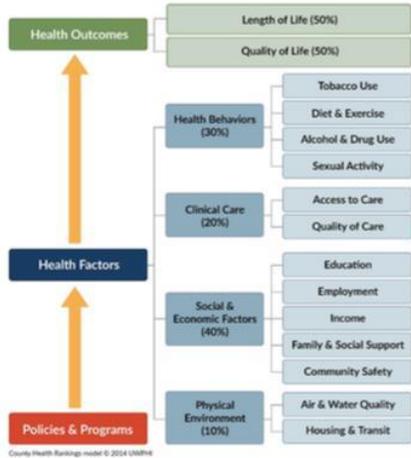


In contrast, CDPHE’s [2013 Assessment Report](#) is structured around CDPHE’s framework of “Health Equity: An Explanatory Model for Conceptualizing the Social Determinants of Health” (p.2, but with different formatting), shown below. Note the basic “equation”: Social Determinants of Health + Health Factors = Population Outcomes.



**Takeaways:** The 2018 Assessment Report Data Dashboard includes indicators for 5 of the 12 social foundation domains in the Raworth Doughnut, and 4 of the 9 ecological ceiling domains; the 2013 Report includes 9 social foundation domains and one ecological ceiling domain. Unlike the Raworth Doughnut or the UN/SDSN SDG reports, these assessment reports do not explicitly include thresholds, boundaries, or goals. Such information is available in the [5-year plans required by state law](#). The current plan is “Healthy Colorado: 2015-2019”s; finalizing the 2020-2024 plan is currently on hold, due to the department’s response to COVID-19. In addition, CDPHE has an extensive array of health-related statistics through its [Center for Health and Environmental Data](#) and [Colorado Health Indicators](#).

d. Colorado County Health Rankings reports. The [Robert Wood Johnson Foundation](#) has prepared annual “County Health Rankings” reports for each state since 2010, using a conceptual framework that gives equal weight to Health Outcomes and Health Factors.



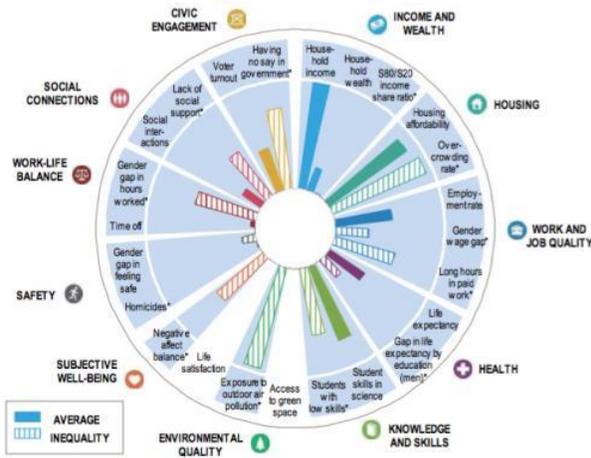
Five indicators (“measures”) track *Health Outcomes* and, since 2015, 30 measures track *Health Factors* across four categories: Health Behaviors, Clinical Care, Social and Economic Factors, and Physical Environment. Based upon these measures, each report has ranked all Colorado counties for which reliable information exists according to Health Outcomes and Health Factors separately. Since 2015, Colorado counties have been ranked 1-60 for both sequences. (In 2010, 56 counties were ranked.)

The [2020 Colorado County Rankings Report](#) also contains 30 other measures related to county health that are also collected but not used for rankings. The 2020 Report also highlights “a pattern of unfair differences [that exist] for people with lower incomes and communities of color” in relation to several Health Factors. Special attention is given to patterns of children living in poverty for different racial/ethnic groups in Colorado.

**Takeaways:** The 2020 Report includes indicators for 8 of the 12 social foundation domains and one ecological ceiling domain in the Raworth Doughnut. Unlike the Raworth Doughnut, there are no domains in the conceptual frame explicitly for gender equality or social equity. Instead, health disparities by gender, race/ethnicity, age, and income for many of the 35 indicators used for county rankings can be identified from the extensive databases available at [www.countyhealthrankings.org](http://www.countyhealthrankings.org). A few of these inequities are highlighted in each annual report.

e. Organization for Economic Cooperation and Development (OECD) “How’s Life?” national reports. Since 2011, OECD has produced a biennial report for each of its 41 member and partner nations. Its multi-dimensional framework is based upon 11 domains of *current* wellbeing and, since 2017, four types of resources for *future* well-being (natural, economic, human, and social capital). The ["2020 How's Life in the United States" Report](#) features 24 key indicators across the 11 domains of current well-being and 12 indicators across the four types of capital to measure future well-being. U.S. current and future well-being measures are compared, relative to other OECD countries. The 2020 U.S. Report also displays inequalities across the 11 current wellbeing domains with respect to gender, age, and educational attainment, as well as trends for these 11 domains since 2010.

The United States' current well-being, 2018 or latest available year



Note: This chart shows the United States' relative strengths and weaknesses in well-being compared to other OECD countries. Longer bars always indicate better outcomes (i.e. higher well-being), whereas shorter bars always indicate worse outcomes (lower well-being) – including for negative indicators, marked with an \*, which have been reverse-scored. Inequalities (gaps between top and bottom, differences between groups, people falling under a deprivation threshold) are shaded with stripes, and missing data in white.

The United States' resources for future well-being, 2018 or latest available year

Natural Capital	Economic Capital	Human Capital	Social Capital
Greenhouse gas emissions per capita	Produced fixed assets	Educational attainment of young adults	Trust in others
Material footprint	Financial net worth of government	Premature mortality	Trust in government
Red List Index of threatened species	Household debt	Labour underutilisation rate	Gender parity in politics

Note: ● top-performing OECD tier, ○ middle-performing OECD tier, ○ bottom-performing OECD tier. ↗ indicates consistent improvement, ↔ indicates no clear or consistent trend, ↘ indicates consistent deterioration, and “...” indicates insufficient time series to determine trends since 2010. For methodological details, see the Reader's Guide of How's Life? 2020.

**Takeaways:** The How's Life current well-being “wheel” of social foundation categories and capital categories for future well-being include indicators for 8 of the 12 social foundation domains of the Raworth doughnut and 5 of the 9 ecological ceiling domains. Visually, the OECD wheel is similar to the 12 social foundation domains of the Raworth doughnut, but the wedges or bars emanating from the center represent better or worst outcomes for the U.S. compared to other OECD members—rather than shortfalls from minimum thresholds of human well-being. “Food” is not included as a domain, but the wheel features separate domains for “Income and Wealth” and “Work and Job Quality” rather than combining them as “Income and Work” in the Raworth Doughnut. Also noteworthy are indicators for “Access to green space” and “Life Satisfaction.”

Unlike the Raworth Doughnut, gender equality and social equity are not included as specific domains; rather, such inequalities and inequities are examined across all domains. Finally, the OECD approach—unlike all the others surveyed here--helpfully distinguishes between current and future well-being, and identifies the latter with “sustainability.”

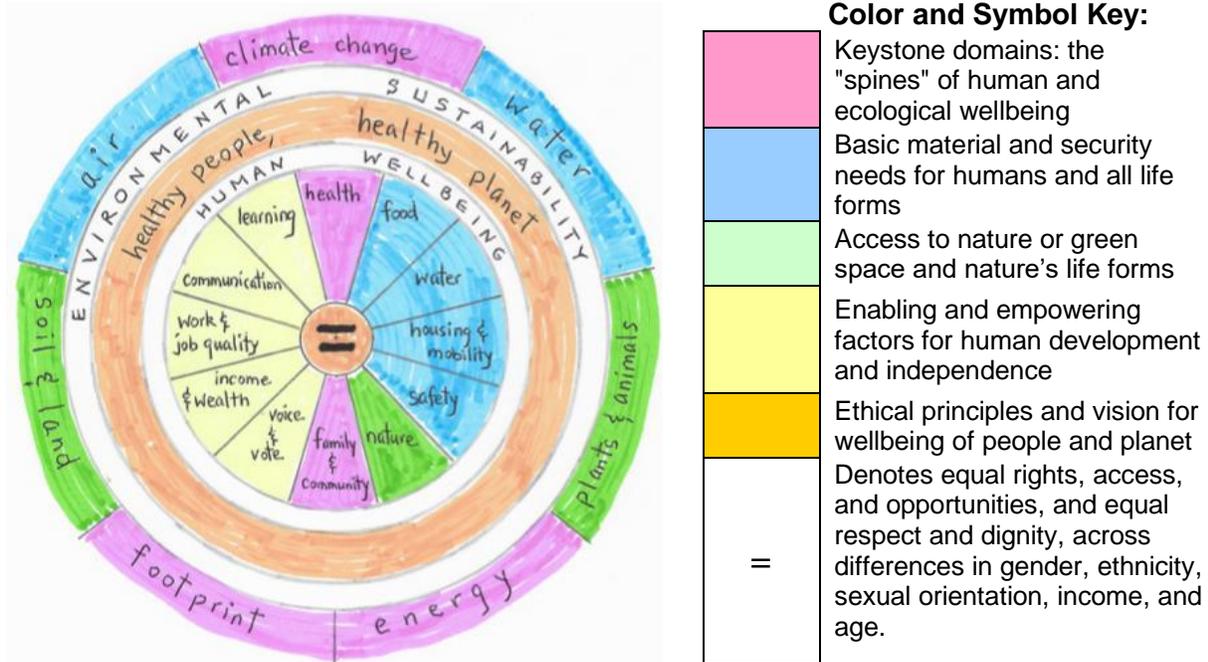
In sum, examining a variety of other HEW frameworks in relation to the Raworth Doughnut has highlighted important similarities and differences that have informed the development of the Colorado Doughnut.

**The domains and subdomains of the five HEW frameworks described in this section are compared with the domains of the Raworth Doughnut and the Colorado Doughnut (described in the following section) [here](#). The 18 subdomains of the Humankind Index for Scotland described in section I above and the 10 “Signs of a Healthy Neighborhood” from the 2014 Food Systems report cited in note 12 above are also included in this sheet as examples of “ordinary language” in naming HEW domains.**

**NOTE:** Other noteworthy HEW frameworks for Colorado include: two reports on Colorado's Genuine Progress Indicator (1960-2011 and 1960-2012), published by the [Colorado Fiscal Institute](#); the [Colorado Health Foundation](#)'s annual “Health Report Card” series that ended in 2016; and the “Kids Count in Colorado! 2019” report, published by the [Colorado Children's Campaign](#) with the support of the Annie E. Casey Foundation. The [Colorado Health Institute](#) and the [Colorado Trust](#) are also sources for extensive data and conceptual framing of wellbeing from a public health perspective.

### III. The Colorado Doughnut and Three “Mini-Doughnuts”

In this section, the Colorado Doughnut is presented, along with three simpler versions for preschoolers, elementary, and middle school students. The Colorado Doughnut shares many core features of the Raworth Doughnut, but also differs from it in important ways. Design features of the Colorado doughnut draw upon many of the other HEW frameworks reviewed above.



Like the Raworth Doughnut, the Colorado Doughnut features an inner ring of 12 social foundation (i.e., human wellbeing) domains and an outer ring of ecological domains (7 rather than 9), with a region of mutual wellbeing between them. Here, the desired doughnut-shaped region is called “healthy people, healthy planet” – another way of saying, “the safe and just space for humanity” and “human and ecological wellbeing.” Four key differences are briefly described below.

First, in keeping with a core design element of the search for a Colorado HEW framework, “health” is prioritized as a proxy for human wellbeing and portrayed visually as one of two “keystones” of the Colorado Doughnut’s social foundation. “Family and community” is also prioritized, based upon an anthropology that humans are *persons-in-community*. That is, our identities are decisively shaped—and sustained—by social relations.<sup>17</sup> Human wellbeing – at its depth – flows from this fundamental polarity. The Family and community domain includes “networks of social support” – a subdomain of the Raworth Doughnut – with special attention to

<sup>17</sup> In their critique of the hyper-individualism of *Homo economicus*, Herman E. Daly and John B. Cobb, Jr. write: “People are constituted by their relationships. We come into being in and through relationships and have no identity apart from them. Our dependence on others is not simply for goods and services. How we think and feel, what we want and dislike, our aspirations and fears--in short, who we are--all come into being socially.” (For the Common Good: Redirecting the Economy toward Community, the Environment, and a Sustainable Future, 2nd. ed. Boston, Beacon Press, 1994, p. 161.)

those networks that are deep sources of meaning and belonging. These two keystone domains—health and family and community—form the “spine” of human well-being. In a similar way, *climate change* is designated as a keystone domain of ecological sustainability; without question, successfully mitigating and adapting to climate change is the central challenge facing humankind in this century. I posit two other keystone ecological domains that go hand in glove with addressing climate change: “energy” (resources and use), and “material (or ecological) footprint.” *Can humankind make the transition to a fossil-free future and simultaneously reduce unsustainable and inequitable patterns of resource consumption and waste generation in time to avoid the dire predictions of climate science and other dystopian futures?*<sup>18</sup> I regard these three domains as the “spine” of ecological sustainability. More details about all seven ecological sustainability domains below.

Second, unlike the Raworth Doughnut, the Colorado Doughnut clusters social foundation and ecological sustainability domains to highlight important connections, described in the key above. As mentioned earlier, Kate Raworth clustered the domains in her early Doughnut, but chose not to display the connections visually.<sup>19</sup> Clustering is also a key design element for the Social Progress Index, as noted above.

Third, the Colorado Doughnut doesn’t include “social Inequity” and “gender equality” as explicit social foundation domains; instead, *all* domains (including ecological domains) will be “interrogated” regarding inequities of *all* applicable kinds—vertical, horizontal, and deprivations. (See box below.<sup>20</sup>) The “=” sign in the center of the doughnut symbolizes this interrogation in terms of equal rights, access, opportunities, respect, and dignity across differences in gender, ethnicity, sexual orientation, income, and age.

***What is inequality and how is it measured?*** Measuring inequality means trying to describe how unevenly distributed outcomes are in society. How’s Life? 2017 adopts several different approaches:

- Measures of “**vertical**” inequalities address how unequally outcomes are spread across all people in society – for example, by looking at the size of the gap between people at the bottom of the distribution and people at the top
- Measures of “**horizontal**” inequalities focus on the gap between population groups defined by specific characteristics (such as men and women, young and old, people with higher and lower levels of education).
- Measures of “**deprivation**” report the share of people who live below a certain level of well-being (such as those who face income poverty or live in an overcrowded household).

--from 2017 OECD Report, “How’s Life in the United States?”

And fourth, while the Raworth Doughnut includes only 1-2 illustrative indicators for each of its 12 social foundation domains and 9 ecological boundary domains (*DE*, 255, 258), each domain of the Colorado Doughnut will have its own “dashboard” of 4-6 indicators to complement two “keystone” indicators for displays of the Doughnut (as shown, for example, by the diagram in the previous section from the OECD’s 2020 “How’s Life in the United States?” Report.<sup>21</sup>) This will make possible a more comprehensive, yet compact, set of key indicators for wide public access. In addition to quantitative measures, dashboards will provide links to illustrative examples of HEW challenges and constructive action responses.

<sup>18</sup> For a current and sobering assessment, see *Our Final Warning: Six Degrees of Climate Emergency*, Mark Lynas (London: 4<sup>th</sup> Estate, 2020). Reviewed by Bill McKibben, “130 Degrees,” *New York Review of Books*, August 20, 2020.

<sup>19</sup> Wellness, productivity, and empowerment. Oxfam (2012), 9.

<sup>20</sup> “How’s Life in the United States?” Report, OECD, 2017. Copy attached. ***I was unable to locate a copy online.***

<sup>21</sup> The “2018 Colorado Public Health and Environmental Assessment Report” effectively uses dashboards.

Other domain differences or noteworthy features follow--first, for social foundation (i.e., human wellbeing) domains. Proceeding clockwise:

Health – includes self-reported levels of physical and mental health and overall life satisfaction (e.g., OECD report). The social (and economic and environmental) determinants of health, directly or indirectly, are the other 11 domains of human wellbeing and the 7 domains of ecological wellbeing (or sustainability).<sup>22</sup>

Food – includes food insecurity and access to affordable, nutritious food.

Water – dependable access to clean water for drinking, cooking, laundry and sanitation facilities (including showers). Food deserts are frequently identified in urban areas. Why not water and sanitation deserts?

Housing and Mobility – encompasses access to affordable, uncrowded, decent housing as well as availability of transportation (in all its modes) as well as mobility in the personal sense of access to public buildings and spaces for persons in wheelchairs, for example.

Safety – includes not only measures of homicides and other violent crimes but also *perceived* safety (i.e., self-reported safety), such as “% of adults who don’t feel safe at night” (OECD “How’s Life” reports).

Nature – access to, and availability of, nature and green space, especially for urban populations.<sup>23</sup>

Family and community -- includes the *social* networks component of the “networks” domain of the Raworth Doughnut; encompasses the notion of “social cohesion” and the availability of assistance from family and friends in time of need (e.g., 2020 OECD report), but also structures/institutions/sources that provide a sense of belonging and non-utilitarian meaning (e.g., religious groups).

Voice and vote -- unpacks the key elements of the Raworth Doughnut domain, “public voice.”

Income and wealth, and Work and job quality -- these two domains (found in the 2020 OECD report) add two equally important, and often overlooked, elements—wealth and job quality--to the single Raworth Doughnut domain, “income and work.”

Communication -- includes the subdomain, “information networks,” in the Raworth Doughnut; also includes access to trustworthy sources of news and opinions about current events and broader trends—locally, state, nationally, and globally; also trustworthy surveys about people’s opinions and attitudes about contemporary issues.

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<sup>22</sup> Similarly, the 11 social foundation domains other than learning can be interpreted as the social (and economic and ecological) determinants of learning. See, for example, this brief Young Education Professionals article, “The Social Determinants of Education.” Available at <https://www.youngedprofessionals.org/yep-dc-recess-blog/the-social-determinants-of-education>.

<sup>23</sup> The “Green Cities: Good Health” initiative at the University of Washington provides scientific evidence for the positive impacts of urban forestry and green spaces upon stress and wellness, mental health and function, safe streets, and work and learning, Available at [http://depts.washington.edu/hhwb/Thm\\_ActiveLiving.html](http://depts.washington.edu/hhwb/Thm_ActiveLiving.html).

Learning – encompasses informal as well as formal learning (i.e., education in accredited institutions, such as schools, colleges, etc.). For adults, informal learning includes “lifelong” learning through noncredit courses, workshops, etc.; for children, supervised and non-supervised recreation and play<sup>24</sup>; and for everyone, access to libraries, museums, concerts, other cultural events, and hobbies.

Equals sign – The “=” sign is intended to convey equal rights, access, and opportunities, as well as equal respect and dignity for all persons – not equal outcomes. The equals sign and the “safety” domain unpack the Raworth Doughnut’s “peace and justice” domain. This sign is intended to serve as a concrete “gateway” to the abstract concept of “equity.” (Note that the language of “inequalities” is used instead of “inequities” in the text box above from the 2017 OECD Report.

Next, comments on differences and noteworthy features of ecological sustainability domains:

First, it’s important to note that *ecological sustainability* is the umbrella for these seven domains with state-level indicators—rather than *ecological ceilings* with planetary indicators of overshoot. Two key reasons: As the development of the Scottish Doughnut (described above) shows, the “down-sizing” of global ecological thresholds to state-level thresholds for the same domains is highly problematic. In addition, and arguably more important, the series of Colorado doughnuts is intended to serve as a “gateway” for students and the general public to awaken and sustain commitment to human and ecological wellbeing. “Sustainability” is a “gateway” to learning about earth-system pressures and supporting actions to avoid ecological overshoot. To the extent feasible, ecological sustainability domains will include boundary metrics for ecological ceilings. As noted earlier, these domains will have additional metrics to provide a more rounded and comprehensive picture of ecological sustainability.

Climate Change – includes state-level energy-related CO<sub>2</sub> emissions (UN/SDSN) and measures of nature-based climate solutions<sup>25</sup> as well as technological solutions.

Water – encompasses the “freshwater withdrawals” domain from the Raworth Doughnut, water demand from renewable and nonrenewable (i.e., groundwater) sources, and overall quality and sustainability of raw water sources<sup>26</sup>

Plant & Animal Life – encompasses state-level “biodiversity loss” from the Raworth Doughnut, plus threatened and endangered species and other measures of ecosystem “health” to be identified

Energy – includes renewable energy fraction of total energy use by sector and total energy produced

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<sup>24</sup> See, for example, *How to Raise a Wild Child: The Art and Science of Falling in Love with Nature*, Scott Sampson (New York: Houghton Mifflin Harcourt, 2015).

<sup>25</sup> See, for example, The Nature Conservancy’s report, “Nature’s Make or Break Potential for Climate Change,” available at <https://global.nature.org/initiatives/natural-climate-solutions/natures-make-or-break-potentialfor-climate-change>.

<sup>26</sup> See, for example, Colorado Conservation’s 2018 report, “Colorado Rivers: A Report Card: An Assessment of the Conditions of Eight Rivers in Colorado.” Available at [http://conservationco.org/wp-content/uploads/2019/06/Rivers\\_English2018.pdf](http://conservationco.org/wp-content/uploads/2019/06/Rivers_English2018.pdf)

Footprint -- includes those portions of “chemical pollution” not accounted for elsewhere, plus state-level measures of ecological footprint<sup>27</sup>, waste generation (e.g., plastics), and recycling and reuse quantities and rates.

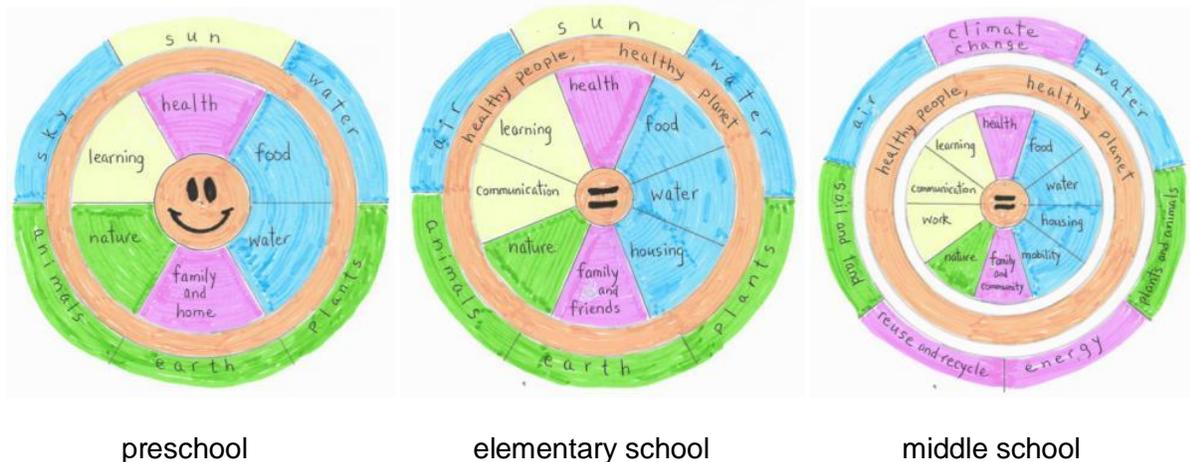
Soil and Land – encompasses “land conversion” and “nitrogen and phosphorus loading” (primarily due to artificial fertilizer application to agricultural lands) domains from the Raworth Doughnut, plus indicators of soil “health, “drought, and desertification.

Air – encompasses “air quality” and “ozone layer depletion” domains from the Raworth Doughnut.

**Comparisons between the Raworth Doughnut and the Colorado Doughnut are compactly and colorfully displayed [here](#).**

### Three Colorado “Mini-Doughnuts”

Images of the three doughnuts appear below for preschool/kindergarten, elementary school, and middle school students, respectively. The Colorado Doughnut (shown above) is designed for high school students and the general public. The process of developing the Colorado Doughnut and these three “mini-Doughnuts began by asking two questions: *How can a 5-year old begin to grasp the essence of the Raworth Doughnut? And, What would a “progression” from a “mini-doughnut” for 5-year olds to the Raworth Doughnut look like? The sequence below is one such solution. (The teacher’s version of the preschool Doughnut is shown; for students, the words would be replaced with images.)*



Here is the progression of interpreting the meaning of the equals sign:

Preschool: the happy face says it all

Elementary school: “=” means equal respect and fairness for all people.

Middle school: “=” means equal rights and opportunities and equal respect for all persons.

High school and general public: “=” denotes equal rights, access, opportunity, and equal respect and dignity across differences in gender, ethnicity, sexual orientation, income, and age.

<sup>27</sup> See, for example, the [Global Footprint Network](#), founded by Mathis Wackernagel.

***The progression of domains for these “mini-doughnuts” to the Colorado Doughnut are compactly and colorfully displayed [here](#).***

#### **IV. Conclusion and Next Steps**

The differences between the Raworth and Colorado Doughnuts are not meant in any way as criticisms of the Raworth Doughnut. The impact of the Raworth Doughnut has been enormous in awakening public consciousness across the globe to the imperative of simultaneously pursuing social and environmental justice.

Instead, the Colorado Doughnut and mini-Doughnuts are intended to expand public consciousness and commitment to establishing “a safe and just space for all humanity” by engaging young students and the general public with these concepts and issues as early and widely as possible. Indeed, we hope that the Colorado Doughnut can serve as a “gateway” to the Raworth Doughnut, to the other HEW frameworks examined in this paper, and to the urgent human and ecological issues before us all.

Next steps include:

- Circulating this first draft among Beyond GDP colleagues and friends for comments.
- Designing and implementing a consensus process for identifying and ranking potential indicators for each social foundation and ecological sustainability domain.
- Developing approaches for “interrogating” each domain, where appropriate and feasible—that is, highlighting major inequalities of “rights, access, opportunity, respect, and dignity across differences in gender, ethnicity, sexual orientation, income, and age.”

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