

## PLANET DIMENSION

### Description of the GAPFRAME issues

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The **Biodiversity issue (1)** envisions a world where terrestrial and aquatic ecosystems are balanced, healthy, and thriving – ensuring natural sustainability for all life forms on the planet. The climatic conditions are stable and favourable for sustaining a wide variety of species living in their natural habitats. The Biodiversity issue relates to the **Sustainable Development Goals 13, 14 and 15**.

The GAPFRAME currently uses two indicators that serve as proxies for the preservation of biodiversity. These indicators are: *extinction rate of animal species* which estimates the number of animal extinctions per million species-years, and *protected terrestrial habitat areas* (EPI, 2014) that reflects biodiversity conservation efforts on a national scale. Since there is no publicly available indicator that measures the extinction rate of species per country, the GAPFRAME uses the national *IUCN Red List of Threatened Species data* to estimate the extinction rate of animals at a national level.

The **Carbon Quotient issue (2)** describes a situation where nations and communities live within the ecological limits of the planet, respecting the Earth's regenerative capacity. The Carbon Quotient issue is strongly aligned with the **Sustainable Development Goals 12 and 13**.

The GAPFRAME uses the *carbon quotient* indicator derived from the "*National Footprint Accounts (2016) data for ecological footprint and biocapacity*". The indicator measures a country's carbon footprint as a percentage of the net remaining global biocapacity. The remaining global capacity is calculated by subtracting the ecological footprint (consisting of the footprints from agriculture, grazing, forestry, fishing, and built land) from the total available biocapacity globally. The indicator provides a comparable basis of the CO2 expenditures of countries.

The **Ocean issue (3)** envisions a situation where oceans are alive at a stable temperature, with thriving species of all kinds including a strong diversity of fish as a sustainable source of nutrition; clean of chemical, plastic and other pollution. The Ocean issue is strongly aligned with the **Sustainable Development Goals 13 and 14**.

The GAPFRAME currently uses two indicators that serve as proxies for preservation of aquatic ecosystems. These indicators are: *fish stocks* (EPI, 2014) representing the fraction of overexploited and extinct fish stocks, and *phosphate consumption* (UNEP, 2010) representing total consumption of nutrients leading to ocean acidification. There are currently no proxies for other aspects related to *ocean acidification* and *plastic waste* resulting in ocean pollution with microfibers or other plastic wastes. These will be included in the GAPFRAME as soon as the related data is available on a global level.

The **Land & Forests issue (4)** draws a picture of balanced and thriving terrestrial ecosystems such as forests, land and mountains that provide vital habitats for all kind of species. The responsibly managed land is fertile and free of hazardous chemicals, able to sustain high-quality agricultural plant growth in order to meet society's demand for food. The Land & Forests issue relates to the **Sustainable Development Goals 12 and 15**.

As proxies to measure the state of this issue, the GAPFRAME includes the following three publicly available indicators: *soil quality* (EPI, 2014) that refers to the use of persistent organic pollutants, *organic farming* (SSI, 2014) measured as a fraction of total agricultural area, and *land degradation* (UNEP, 2010) that estimates areas with potential hazard of land desertification as a fraction of the total area.

The **Clean Air issue (5)** seeks a situation where ambient air is of high quality – free of hazardous pollutants, smoke or dust. The air in cities and rural areas is clean & safe all year long, permitting for outdoor activities without a risk for health. The Clean Air issue is underrepresented in the Agenda 2030 and enriched here.

As a proxy for this issue, the GAPFRAME currently uses a publicly available indicator, *exposure to air pollution* (EPI, 2014), measuring average exposure of the population to tiny particles in ambient air. In the next revision round of the framework, the Clean Air issue will be completed with other indicators, to cover the air pollution problem more broadly.

The **Water issue (6)** describes a situation where nations and communities achieve universal and secure access to high-quality drinking water. The water resources required to produce food are used responsibly and efficiently, maintaining the natural environment in a sustainable manner. The Water issue is strongly aligned with the **Sustainable Development Goals 6 and 13**.

As proxies to measure the state of this issue, the GAPFRAME includes the following two publicly available indicators: *renewable water resources* (SSI, 2014) representing annual water withdrawals as a percentage of total available renewable water resources, and *water quality* (OECD, 2015), a measure of ongoing satisfaction of citizens with the quality of local drinking water.

The **Clean Energy issue** (6) envisions a situation where nations and communities gain universal access to affordable and reliable clean energy coming from renewable sources like wind, solar or geothermal power. The renewable energy generates electricity with little or no pollution, reducing the global warming effect. The Clean Energy issue is strongly aligned with the **Sustainable Development Goals 7 and 13**.

As proxies to measure the state of this issue, the GAPFRAME includes the following two publicly available indicators: *renewable energy* (SSI, 2014) that evaluates consumption of renewable energy compared to the total energy consumption, and the *domestic use of solid fuels* (UNEP, 2010) measuring the percentage of people using solid fuels in their households.

The **Waste Treatment issue** (8) envisions a situation where nations and communities treat and eliminate the generation of harmful and persistent wastes by redesigning products & processes as well as by changing societal patterns. The society develops and shares best practices for minimalization of all kinds of waste, their recycling, reuse and their correct disposal, in order to protect environment while preserving natural resources. The Waste Treatment issue relates to several aspects of the **Sustainable Development Goals 6, 11, 12, 14 and 15**.

The GAPFRAME currently uses two indicators that serve as proxies for treatment of waste. These indicators are: *recovered & recycled solid municipal waste* (World Bank, 2012) which monitors amount of compost and recycled municipal solid waste as a percentage of the total amount of waste, and *treatment of waste water* (EPI, 2014) which is measured as a percentage of treated wastewater (coming from industrial or household sources) that is released back to the ecosystem.

## SOCIETY DIMENSION

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The **Health issue** (9) draws a picture of a universal and financially sustainable system that provides secure and affordable access to quality health care for all. The system helps people to stay healthy throughout their lives by promoting healthy lifestyles, incentivizing healthy and balanced nutrition, and developing an environment and infrastructure that facilitate population health. The Health issue is strongly aligned with the **Sustainable Development Goals 2 and 3**.

As proxies to measure the state of this issue, the GAPFRAME includes five publicly available indicators: *child survival* (EPI, 2014) representing probability of a child surviving its 5<sup>th</sup> birthday, *sufficient food* (SSI; 2014) representing the amount of undernourished people as a percentage of total population, *obesity rate* (SPI, 2015) measuring the number of people with a Body Mass Index (BMI) of 30 or higher, and *alcohol abuse* (WHO, 2010) indicating the number of adults consuming over 60 grams of pure alcohol at least once in 30 days.

The **Equal Opportunity issue** (10) frames a situation where nations empower and promote the social, economic, and political inclusion of all, irrespective of gender, age or socioeconomic status. All people have equal access to opportunities, gaining education and skills that allow them to realize their potential and live a fulfilled life. The Equal Opportunity issue relates to aspects of the **Sustainable Development Goals 5 and 10**.

The GAPFRAME currently uses four publicly available indicators that serve as proxies for this issue. These indicators are: *gender wage gap* (OECD, 2010-2013) that reflects the difference between women and men salary levels, *representation in parliament* (OECD, 2010-2013) that measures proportion of seats held by women in national parliaments, *women presence on boards* (OECD, 2010-2013) representing share of women on boards of directors, and *income distribution* (World Bank, 2010-2015) reflecting the income distribution of a country's residents.

The **Education issue** (11) describes a situation where nations invest in "human capital" by providing access to high-quality education to all citizens, irrespective of their gender or socioeconomic status. The educational institutions (with well-equipped infrastructure and competent teachers) encourage life-long learning and allow to acquire relevant knowledge and skills that are vital for sustainable development and general well-being of societies. The Education issue is strongly aligned with the **Sustainable Development Goals 4 and 5**.

As proxies to measure the state of this issue, the GAPFRAME includes four publicly available indicators: *primary education enrolment rate* (WEF GCI, 2005-2014) representing school enrolment rate of children, *quality of educational system* (WEF GCI, 2005-2014) that assesses how well the educational system meets the needs of competitive economy, *youth in educational training* (OECD, 2013) that measures school enrollment rate of 15-19 years old teenagers, and *adult literacy rate* (World Bank, 2010-2015) that represents population (age > 15) who can read and write a short, simple statement on their everyday life. These four proxies will in future be complemented with indicators for *life-long learning* and measuring the *relevance of education*, for which there are no global indicators available yet.

The **Living Conditions issue** (12) draws a picture of nations that are committed to provide their residents with decent living conditions; the foundation for safety and well-being for all and at all ages. An adequate standard of living implies making the human settlements inclusive, safe, resilient and sustainable. Among other factors, citizens are provided with secure access to drinking water, hygiene & sanitation, clean energy, appropriate housing and safe transportation – all designed with respect for the environment. The Living Conditions issue relates to the **Sustainable Development Goals 3, 6, 7 and 11**.

To measure the state of this issue, four publicly available indicators serve as proxies: *access to electricity* (EPI, 2014) representing the percentage of population with secure access to electricity sources and services, *access to improved drinking water* (EPI, 2014) that reflects the percentage of the population using an improved drinking water source, *safe sanitation* (SSI, 2014) measuring the number of people with sustainable access to improved sanitation, and *road safety* (SPI, 2015) that estimates the number of the road traffic fatal injuries.

The **Social Integration issue** (13) describes a situation where nations and communities attain foundation for a respectful, diverse and cross-cultural environment. It imagines societies that are tolerant, open and just, enhancing non-violent community interactions and collaborations across various social groups, including minorities. This issue is underrepresented in the Agenda 2030 and enriched here.

The GAPFRAME currently uses two publicly available indicators that serve as proxies for tolerance of social diversity. These indicators are: *minority discrimination* (SPI, 2015) representing discrimination and violence against minorities and *tolerance for homosexuals* (SPI, 2015) reflecting societal attitudes toward homosexuality.

The **Quality of Life issue** (14) frames a situation where nations provide the basis for sustainable human and economic development, lowering poverty and helping people afford a better quality of life. By ensuring the physical and emotional well-being, societies become resilient and supportive, able to cope with the demands and challenges of daily living. The Quality of Life issue is strongly aligned with the **Sustainable Development Goals 2 and 10**.

The GAPFRAME currently uses four publicly available indicators that serve as proxies for Quality of Life issue. These indicators are: *life satisfaction* (OECD, 2015) that evaluates how people see their life (general satisfaction), *quality of support network* (OECD, 2015) that represents population with friends/relatives to rely on if needed, *work-life balance* (OECD, 2015) measuring the percentage of employees who work 50 hours per week or more, and *poverty among population* (World Bank, 2010 – 2015) which refers to poverty headcount ratio at the national poverty lines. These four proxies will in future be complemented with *child well-being*, for which there are no global indicators available yet.

## ECONOMY DIMENSION

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The **Employment issue** (15) describes a world where nations attain sustained and robust employment situation that boost shared prosperity and social cohesion by providing decent and inclusive work for women and men across all working-age groups. Persons of any age, race or origin – including those from most vulnerable groups – are effectively protected from forced labour, human trafficking, or other slavery-like practices. The Employment issue is strongly aligned with the **Sustainable Development Goals 8 and 10**.

As proxies to measure the state of the Employment issue, the GAPFRAME includes the following publicly available indicators: *job security* (OECD, 2015) representing the percentage of employees under risk of losing job, *youth unemployment* (World Bank, 2010-2015), *unemployment rate* (SSI, 2014), and *slave labor* (The Global Slavery Index, 2016) which represents proportion of the population in modern slavery.

The **Resource Use issue** (16) delineates a situation where business and the economy consume resources (e.g., energy, water, land, materials) in a responsible, sustainable and efficient manner in order to keep pace with the needs of a continuously growing global population. The Resource Use issue is underrepresented in the Agenda 2030 and enriched here, perceiving the secure access to resources as one of the key elements in sustainable development.

The GAPFRAME uses two publicly available indicators that serve as current proxies for sustainable management of existing resources. These indicators are: *energy intensity* (World Bank, 2010-2015) representing cost of primary energy consumption as a percentage of GDP and *natural resources depletion* (World Bank, 2010-2015) which represents a sum of net forest, energy, and mineral depletion.

The **Sustainable Consumption issue (17)** seeks to describe a situation where people and communities consume materials, products and services in a way that have minimal impact on the environment – respecting the planetary boundaries. Conscious consumption results from sustainable lifestyle adopted by societies that purchase, consume, and reuse goods and commodities with respect to the environment. The Sustainable Consumption issue relates to several aspects of the **Sustainable Development Goals 11 and 12**.

As proxies to measure the state of the Sustainable Consumption issue, the GAPFRAME includes the following two publicly available indicators: *carbon consumption* (Peters, 2011) that represents national carbon production and transfers, and *energy savings* (SSI, 2014) that monitors progress in the energy use reduction plans and activities. These proxies will in future be complemented with adjacent aspects, such as the *individual meat consumption*, for which there is no global index available yet.

The **Sustainable Production issue (18)** frames a situation where products and services are created with attention to potential environmental, social and economic costs and benefits. Produced goods and delivered services are safe for workers and healthful for consumers and communities. Economic players are sound, solid and responsible. Waste and ecologically incompatible by-products that present hazards to human health or environment are avoided across the entire supply chain. The Sustainable Production issue is strongly aligned with the **Sustainable Development Goal 12**.

The GAPFRAME uses three publicly available indicators that best serve as currently available proxies for the sustainable production issue: *irrigated agricultural land* (World Bank, 2010-2015) that refers to impactful need of agricultural areas purposely provided with water; *companies with a sustainability report* (KPMG, 2015) that represents number of companies that complete a GRI report as a percentage of all stock-quoted companies; and the assessment of *soundness of banks* (WEF GCI, 2005-2014). There are currently missing proxies that would allow measuring *fossil fuel subsidies* and *true cost considerations*, which will be included in the GAPFRAME as soon as such global indicators become available.

The **Innovation issue (19)** illustrates a situation where the national economy promotes technological progress, investing in innovation and infrastructure to support sustainable development and human well-being. Societies have equal access to information and knowledge which rises the entrepreneurship as well as the technological and social innovation across the globe. The Innovation issue relates to aspects of the **Sustainable Development Goals 9 and 11**.

As proxies to measure the state of the Innovation issue, the GAPFRAME includes the following indicators: *ease of access to loans* (WEF GCI, 2005-2014) representing assessment of how easy is to obtain a bank loan when having a good business plan and no collaterals, *availability of latest technologies* (WEF GCI, 2005-2014) that measures the extent to which the latest technologies are available, and the number of *internet users* (SPI, 2015) among the population.

## GOVERNANCE DIMENSION

### Description of the GAPFRAME issues

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The **Public Finance issue (20)** frames a situation where nations provide the foundation for a sustainable economic and social development. This issue is underrepresented in the Agenda 2030 and enriched here. A healthy financial state of local governments implies that government budgets are balanced (no deficit) and the public resources are used wisely to cover public expenditure programs enhancing healthy development of the society in line with priority issues identified.

As proxies to measure the state of the Public Finance issue, the GAPFRAME includes the following two publicly available indicators: *government debt* (SSI, 2014) which represents general government debt as a percentage of GDP, and *budget balance* (WEF GCI, 2005-2014) that reflects a general government budget balance as a percentage of GDP.

The **Structural Resilience issue (21)** describes a situation whereby a nation is able to respond to rapid change and disasters of all kind, from natural, cyber to financial, and remain a place of safety and security for its inhabitants. It includes framework conditions for a robust economy with regulated financial markets, fair trading structures, and corruption and bribery in check. The Structural Resilience issue relates to several aspects of the **Sustainable Development Goal 16**.

To measure the Structural Resilience issue, three publicly available indicators serve as proxies. These indicators include: *quality of overall infrastructure* (WEF GCI, 2005-2014) assessing the general infrastructure such as transport, telephony or energy; *tolerance for immigrants* (SPI, 2015) which evaluates people's attitudes towards immigrants; and *public sector corruption* (SPI, 2015) that assesses the perceived level of public corruption. There are two more proxy indicators to be considered in the area of *speculation* and *cyber-attacks* aspects. Hopefully, relevant data will become globally available for a future revision.

The **Peace & Cooperation issue (22)** describes a situation where nations and communities attain a sustained level of peace, security, and prosperity, including also interregional solidarity and cooperation. Each nation and every citizen has a voice and is heard. The Peace & Cooperation issue relates to aspects of the **Sustainable Development Goals 10, 16 and 17**.

The GAPFRAME uses four indicators that best serve as currently available proxies for this issue: *share of voice – freedom of assembly* (SPI, 2015) representing the extent to which freedoms of assembly and association are subject to actual governmental limitations or restrictions; *freedom of movement* (SPI, 2015) is calculated as a sum of two variables: citizen's freedom to leave and return to their country and citizen's freedom to travel within their own country; *strength of legal rights* (World Bank, 2010-2015) measuring the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending; and *terrorism* (GTI, 2015) monitoring the total number of terrorist incidents and their impact (i.e., caused injuries or fatalities). There are currently missing proxies that would allow measuring *interstate conflicts* and *migration*, which will be included in the GAPFRAME as soon as such global indicators become available.

The **Business Integrity issue (23)** seeks to describe a situation where business is encouraged, enforced, enabled and incentivized to be a truly positive force for society and the world, both through voluntary actions and legislative measures. This requires an interplay of how a business acts itself in terms of embracing responsibility and sustainability, and how the government is enabling such positive practices and preventing unethical or disruptive negative practices. The *Business Integrity* issue is underrepresented in the 2030 Agenda, however, incentivizing positive business contributions is considered a key element in sustainable development.

The GAPFRAME currently uses 4 publicly available indicators that serve as proxies for responsible business conduct and business support. These indicators are: *ethical behavior of firms* (WEF GCI, 2005-2014) representing the ethical behavior of companies in interactions with public officials, politicians and other firms; *effectiveness of anti-monopoly policy* (WEF GCI, 2005-2014) providing assessment of the extent to which anti-monopoly policy promotes competition; and *healthy business support* (WEF GCI, 2005-2014) that looks at how complicated it is to start a business. These proxies will in future be complemented with *government incentives for sustainable and just business practices*, for which there are no global indicators available yet.

The **Transparency issue (24)** draws a picture of a nation that is coherent, stable and fair in its actions and decisions. It is a way to get to a good governance for a country and all of its citizens, ensuring that an effective framework for controversial discussions to be resulting in proper legislation involving all citizens, secured and enforced by a reliable government that works in a transparent manner. This includes respecting minority interests and issues of national and international relevance. The Transparency aspect is underrepresented in the 2030 Agenda.

The GAPFRAME uses five indicators that serve as current proxies for transparency of governmental practices. These indicators include: *good governance* (SSI, 2014) which is a composite indicator calculated based on the World Bank governance data; *policy knowledge* (SGI, 2016) that reflects the extent to which citizens are informed about government policymaking; *legal certainty* (SGI, 2016) reflecting degree to which government and administration act on basis of and in accordance with legal provisions to provide legal certainty; *freedom of expression* (SPI, 2015) reflecting the degree of freedom of journalists, citizens and organizations to express an opinion; and *judicial independence* (WEF GCI, 2005-2014) that assesses a degree of judicial independence from members of government, citizens or firms.