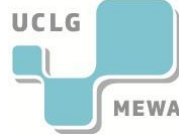# ingev
İNSANİ GELİŞME VAKFI

ASSESSMENT OF HUMAN DEVELOPMENT INDEX-DISTRICTS MODEL BASED ON UN SUSTAINABLE DEVELOPMENT GOALS

UCLG
MEWA

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INTRODUCTION:
SUSTAINABLE DEVELOPMENT OBJECTIVES AND THE HDI-D MODEL

I. Structure of HDI-D

INGEV Human Development Index- Districts (HDI-D) study was inspired by the Human Development studies and reports by the United Nations Development Program. We have specifically structured the HDI-D by paying attention to:

i. Development of a set of indicators and measurement system based on the concept of human development

The UN Development Program (UNDP) Human Development Index progresses along three main lines of income, education and health. These three pillars are used to derive indices using indicators available at the country level. It is difficult to find country-level statistics to rely on. The report therefore has to work with a limited number of variables. So much so that in the 2019 Human Development Report, a note regarding issues with quality of data from 88 countries was added; however, our district level study's functionality depends on its ability to create a wider set of indicators. Forming a set of indicators that can reflect the human development components at the district level during the establishment phase has been our focus.

ii. Ensuring that the measurement system is actionable for local administrations

Data is only meaningful to the extent that it can be backed up with action. Another key starting point was the ability to relate the HDI-D indicators with the action areas of local governments. As a result of the administrative structure of our Turkey, some human development variables are largely under the authority of the central government. Municipal influence is limited in areas such as health and education. On the other hand, some human development components depend mostly on the initiatives of local governments. Local governments can play a more active role in areas that involve social inclusion, social life, and governance. While covering the first group, we took care to choose the relevant indicators, especially from areas where local government may have an impact. We primarily aimed to ensure that components with high local influence are well represented in our indicators.

iii. The creation of the indicator set from objective, standardizable data and the study of "mystery citizens"

We created the set of indicators used in the HDI-D based on the data published by Turkstat (TUIK), annual activity reports that local municipalities are bound by law to publish and statistical data published by various departments of the central government. It was however necessary to add the assessment of the citizens, who are the ultimate beneficiaries. We did not use the satisfaction surveys of the municipalities due to concerns about their objectivity and research standards. As a result, we added the "mystery citizen" study (adapted from mystery client studies) into the HDI-D measurement system. We made citizen applications to local governments in accordance with 18 different scenarios. We measured response speed and quality, and utilized this data in our indices.

iv.   Measuring Sustainable Development Goals (SDGs) at the local level

Through Sustainable Development Goals, the United Nations started an intensive study in order to link the goals to specific quantitative targets as well as to measure these targets using indicators. With these studies, 17 Goals, 169 Targets and 232 (non-repeating) Indicators were developed. Although discussions on some of the indicators continue, various organizations also started working on measuring SDGs using these indicators. One of the priorities we adopted in the HDI-D process was that our measurement system should reference the Sustainable Development Targets. In fact, this is a feature that is also found in the UNDP Human Development Reports. As a matter of fact, the relevant statistical data used in the 2019 Report exhibit the connection with Sustainable Development Goals.

However, it is also necessary to consider the validity of the Targets and Indicators at the national and local levels. For example, the validity of 80 of the Indicators is often a matter of debate. Ministry of Development, in the context of Turkey's Situation Analysis Report, stated that 14 of the Targets (sub-targets) don't apply to Turkey. Also, periodic updates to the indicators are also important. For example, the Ministry's report rightly stated that $ 1.25 extreme poverty line is already exceeded in Turkey's case. Such minimum standards, which are generally created for underdeveloped countries, need periodic updates until 2030.

A more important issue is the national statistical data structures taken as basis in the preparation of Indicator sets. Many data available at the national level are not available at the district level. Just as in the field of human development, there is a need for adaptation and enrichment of indicators at the district level for Sustainable Development Targets.

II. Local Measurement and Eligibility of SDGs

i.   Local Measurement and Eligibility of SDGs

Working assumptions of Sustainable Development Goals and Targets are inevitably based on cities. There is a trend towards localization of power and authority. The world population is increasingly concentrated in urban areas. It is estimated that the city population will reach 60 percent in 2030 and 68 percent in 2050. Due to somewhat contentious changes in the way administrative territories are defined, proportion of the population living in urban areas is currently at 75 per cent in Turkey. All these macro trends show the importance of Sustainable Development Targets to be traceable at the city level.

Here, the definition of the city is generally suitable to be understood as a megacity or metropolitan; but both in Turkey and within the administrative structure of other countries (equivalent to district level governments in Turkey) local governments make up the hot spots in terms of relationship of the citizens with the government. These "hot-handed" units as well as metropolitan cities or megacities should be taken into account in the formation of both targets and indicator sets. The main problem with this is that data on the basis of districts is quite limited in national statistics programs.

A document titled "Sustainable Development Targets, What Should Be Known by Local Governments" prepared by UCLG (United Cities and Local Governments) and translated into Turkish by UCLG-MEWA (Middle East and West Asia Section) can be counted as the most guiding work on the validity of Sustainable Development Targets at the city level. The study evaluates that 92 of 169 targets concern local governments. In the study conducted by UN Habitat, it is concluded that 23 percent of the indicators are valid at the city level. It is important to enrich and adapt the indicators with new studies by constantly evaluating them on the basis of megacities, metropolitan cities and districts.

Cooperation between local and central governments is imperative to achieve Sustainable Development Targets. The European Commission Sub-Working Group has assessed that 65 percent of targets cannot be achieved without such coordination (Subgroup on "Delivering SDGs at Local and Regional Level" Recommendations, 2018). The importance of developing data sources not only at the central level but also at the urban level is repeated.

ii.   **Examples from Studies**

Measurement studies have been carried out in connection with SDG and Targets at the local level, even if there are not many. While some of these studies focus on the measurement of SDG 11, also called "Urban SDG", some of them focused on the local measurability of 17 goals and related targets.

The local definition here defines cities, as we remind from time to time, smaller administrative units often fall out of scope. Although some of the studies do not aim to measure SDGs directly, they can also be evaluated in this way.

UN Habitat was conducted "City Prosperity Index (CPI)" study, which focuses especially on the purpose of SDG 11 and the measurement of some selected SDGs, draws attention. "Subnational Human Development Index" under the management of UNDP Brazil and "Atlas of Human Development", which runs in parallel, is another important study that has the potential to be evaluated within the Sustainable Development Goals while measuring human development just like HDI-D. In the study, 54 municipalities are indexed through 67 indicators with a human development perspective.

In a recent study (Measuring Sustainable Development Goals at a Local Level) in Romania, it established a data relationship with 38 Indicators for 17 Goals. "Community Sustainability Index", which evaluates 27 municipalities in Canada with 33 Indicators and evaluating the municipalities in a selected geographical region in Portugal through 20 Indicators aims to establish the relationship between national and local development indicators. Bertelsmann Stiftung's "SDG Index and Dashboard Report for European Cities" report includes an index study for 45 important cities in EU member countries.

iii.   Developments in 2020; HDI-D and Coverage of Municipalities

The development of the HDI-D Report was a field we always reviewed. In 2020, we initiated the process by envisioning the inclusion of metropolitan cities and publishing the Human Development Index - Metropolitan (HDI-B) report separately. The workshop, which we organized to discuss both study coverage and to associate this scope with SDG, made a serious contribution. The Workshop, which took place on November 19, 2019 in the Marmara Municipalities Union, brought together representatives from relevant public institutions, metropolitan and district municipalities, academics, NGOs and specialist from UN agencies. We continue to evaluate the workshop report; however, especially in terms of sub-indices, these common points become clear.

- Adding the gender sub-index

- Separation of environment and transportation sub-indices

The development of Human Development Index is closely related to the development of data sources. When evaluated from this point of view, the workshop showed many useful ways. Among them, we can immediately note:

- Closer cooperation with TURKSTAT and accessing local data in designated areas

- Using new sources such as big data

- Explore closer cooperation opportunities for accessing district and provincial data in central institutions such as Ministry of Environment and Urbanization, Ministry of Health, Ministry of Interior, Ministry of Education.

- Cooperation with research companies and companies producing data (such as real estate, human resources)

There is a serious difference between the districts and metropolitan cities in terms of data richness. In terms of data sources, metropolitan cities have richer accessible resources than districts. Therefore, we will be able to work with a larger database in HDI-B. This expansion will also enable Human Development Indices to be evaluated in line with the ability to measure SDGs at the local level.

iv.   Capacity of current and enriched Human Development Indices to quantify SDGs

The indicators in the published HDI-D reports are related to all of the SDGs. The high level of compatibility is completed as expected.

In this report, Sustainable Development Indicators, HDI indicators and additional potential indicators found in the Workshop are analyzed together.

With the potential indicators that can be covered in 2020, it is possible to reflect 67 (73 percent) of 92 local targets at the metropolitan level. Similarly, 33 (36 percent) of these 92 local targets can be reflected in districts.

When data potential is evaluated on the basis of indicators, it is concluded that 91 (64 percent) of 142 local indicators can be achieved on metropolitan basis. Likewise, 46 of these 142 indicators (32 percent) can be represented on the basis of districts.

There is a general truth that we often repeat. The data you can find are useless for daily life, and the data that can be useful cannot be found. Keeping the data in large "silos" is also a statistical tradition that needs to change.

On the other hand, many targets and many indicators carry the risk of remaining as theoretical exercises that do not touch local government needs. As a result, local governments often do not have the opportunity to organize according to complex data sets and transfer them to everyday life.

Employees at local level on the measurability of Sustainable Development Targets insist on the need for "simplification" (For a general framework on approach to measurement; ICLEI, Briefing Sheet, Measuring, Monitoring and Evaluating SDGs, 2015)

Developing more simplified, more localized and more accessible indicators for metropolitan cities and especially districts is among the continuous targets for the interested parties.

v. The Next Stage; Special Section on Sustainable Development Goals and Targets in 2020 reports

As a result of our analysis, it is concluded that the indicators that can be used in the HDI-D and HDI-B reports can reflect the Sustainable Development Goals and Targets significantly.

Undoubtedly, data quality and data continuity are always a risk factor to be considered. In addition, we anticipate that there will be no major fluctuations in our empirical studies, which will intensify in the upcoming preparation process.

Localization and simplification in indicators, statistical analyzes (especially correlations) will continue to be on our agenda.

Within this framework, we foresee to be included that Special Section of the Sustainable Development Goals and Targets in the 2020 Human Development Reports. Data preparations, which started in the 2020 Report, will intensify especially in the second quarter of the year. According to the draft planning, it will be launched in September.

Vural Çakır
INGEV Chairman

1. SUSTAINABLE DEVELOPMENT GOALS

The concept of sustainable development was first defined in the Brundtland Report prepared by the World Environment and Development Commission in 1987 as "development that meets today's needs without giving up the ability to meet the needs of future generations" (UN, 1987).

At the Rio Earth Summit in 1992, the aim of sustainable development was determined as the main target of humanity in the 21st century and Agenda 21, which includes the principle and action plan introduced in this context, was accepted by the member countries of the United Nations at the same summit. Agenda 21, considered the beginning of a new global partnership for sustainable development; It is structured into four parts and 40 sub-sections, namely social and economic dimensions, conservation and management of resources for development, development of the roles of the main groups and implementation tools of basic groups (UN, 1992).

In the United Nations Millennium Development Targets adopted in 2000, the harmonization of sustainable development targets with national and international policies is underlined. Millennium Development Goals have been determined as 8 themes (UN, 2000):
- to eradicate extreme poverty and hunger;
- to achieve universal primary education;
- to promote gender equality and empower women;
- to reduce child mortality;
- to improve maternal health;
- to combat HIV/AIDS, malaria, and other diseases;
- to ensure environmental sustainability; and
- to develop a global partnership for development.

With the adoption of the Sustainable Development and Implementation Plan at the World Sustainable Development Summit held in Johannesburg in 2002, multilateral partnerships regarding the millennium goals have been realized. The final declaration, "The Future We Want", adopted at the UN Sustainable Development Conference (Rio + 20) at Rio de Janeiro in 2012, was adopted as a roadmap for sustainable development (UN, 2012).

Following the Millennium Development Goals, "Agenda 2030: UN Sustainable Development Goals (SDG)" was determined at the meeting held in New York in 2015. Thus, more than 150 countries have been agreed on 17 Goals and 169 Targets for sustainable development.

These objectives are listed as follows (UN, 2015):

SDG1   End poverty in all its forms everywhere

SDG2   End hunger, achieve food security and improved nutrition and promote sustainable agriculture

SDG3   Ensure healthy lives and promote well-being for all at all ages

SDG4   Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

SDG5   Achieve gender equality and empower all women and girls

SDG6   Ensure availability and sustainable management of water and sanitation for all

SDG7   Ensure access to affordable, reliable, sustainable and modern energy for all

SDG8   Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

SDG9   Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

SDG10   Reduce inequality within and among countries

SDG11   Make cities and human settlements inclusive, safe, resilient and sustainable

SDG12   Ensuring sustainable consumption and production patterns

SDG13   Take urgent action to combat climate change and its impacts

SDG14   Conserve and sustainably use the oceans, seas and marine resources for sustainable development

SDG15   Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

SDG16   Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

SDG17   Strengthen the means of implementation and revitalize the global partnership for sustainable development

2. HUMAN DEVELOPMENT INDEX – DISTRICTS (HDI-D) MODEL

The Human Development Index has been published by the United Nations Development Program (UNDP) since 1990. This assessment is not made only in terms of economic growth. Human Development Index approaches economic development in a more holistic framework by evaluating variables such as income, health and education together.

There is a need to develop a district-level index to monitor human development on the scale of local dynamics and for local actors to take action in this context. The Human Development Index-Districts Report conducted by INGEV aims to measure and monitor human development at the local level. Today, where localization is increasing, local policy instruments that affect human development are also diversified. The effective use of these tools on a micro scale by local governments and their support by other stakeholders, especially the central administration, increase the quality of life. UNDP was conducting Human Development Index since 1990 which compares countries. INGEV took an initiative and has developed Human Development Index – Districts in Turkey.

2.1 Contents of Index

Human Development Index - Districts calls as HDI- D includes 150 highest populated cities in Turkey. HDI-D has been conducted in 2016 and the first phase was launched in January 2017 in Turkey. Since some of the indicators used in the research included the service area of local governments, the scope of the study was limited to the provinces where there is a metropolitan administration.

The scope of the HDI-D was expanded, the number of districts covered was increased to 186, and 161 districts were finally included in the index.

2.2 Research Methodology

Human Development Index- Districts model utilizes the weighted average method, which quantifies the multi-dimensional and abstract concept of human development.

Figure 1. Index Calculation Method in the HDI-D Model
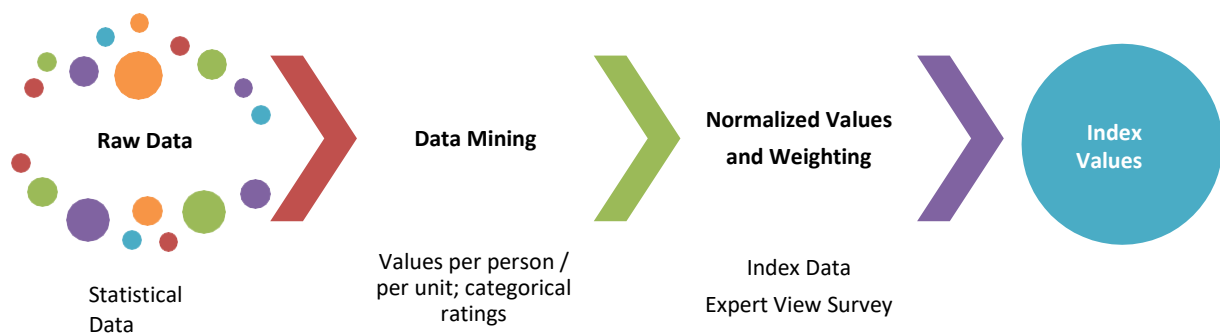
After compiling the data specified in the indicator set, data is mined and values per person and / or per unit are converted into categorical scoring. Then, the whole data set was normalized and brought to the index data level with weights based on expert opinion. Thus, main and sub-indices were created at the district level.

2.3 Indicator Set

HDI, which consists of components for social, economic and environmental factors at the district level; Governance, Social Coverage, Economic Status, Education, Health, Social Life, Environment and Transportation indices were handled with 56 indicators, and the sources to be accessed for each indicator were determined.

Figure 2: HDI-D Indices

In the governance and transparency index; There are 5 indicators named municipal information sharing and transparency index, municipal access index, municipal social media usage index, secret citizen index, participation rate in elections.

There are 16 indicators in the social coverage index; variety of family-oriented services, quality score of family-oriented services, variety of services for children, quality score of services for children, variety of services for youth, quality score of services for youth, variety of services for women, quality score of services for refugees, variety of services for refugees, There are 16 indicators named quality score of services for the disabled, variety of services for the disabled, quality score of the services for the disabled, variety of services for the sick and the elderly, quality score of the services for the sick and the elderly, variety of the municipal services, quality score of the municipal services.

There are 8 indicators in the economic situation index such as shopping network, bank diversity, number of bank branches per ten thousand people, rental housing market price, housing market price, annual change in housing market price for sale, presence of hypermarket, age dependency ratio.

There are 7 indicators in the training index; literacy rate, literacy rate of women, ratio of women who have never been educated, university graduate rate, ratio of university graduate women, average education duration, average education duration in women.

There are 10 indicators in the health index; mortality rate, the number of ambulances per ten thousand people, the number of pharmacies per ten thousand people, the variety of services for patients and the elderly, the quality score of the services for the patients and the elderly, the variety of the services for the disabled, the quality score of the services for the disabled, the presence of public hospitals, private hospital presence, there are 10 indicators named university hospital existence.

In the social life index, there are 5 indicators such as special museum presence, number of cinemas, number of theaters, variety of social and cultural services, quality score of social and cultural services.

In the municipal environmental performance and transportation index; There are 5 indicators named diversity of services for street animals, quality score of services for street animals, variety of services for the environment, quality score of services for the environment, presence of metro, light metro, tram line.

2.4. The Process of Harmonizing the HDI-D Model with Sustainable Development Goals

Within the framework of the Human Development Index-Districts model, the main target is to plan to develop the model in 2020 in order to monitor the human development more effectively and comprehensively. The development process is both on increasing the diversity of the current model at the indicator level and expanding its scope at the scale level. On the other hand, as a result of this report, harmonizing the HDI-D model with the Sustainable Development Goals is another important goal.

The number of indicators will be increased and components will be developed as a result of the analyzes and ongoing workshops of the HDI-D, which aims human development at the district level. Thus, the constructed component and indicator level of the scope of the index model will be extended. An important development in 2020 is that HDI-D model is structured in Human Development Index – Municipalities (HDI-B). The new index model will differ from the HDI-D both in terms of indicators and components and at the scale level. However, the main goal of the measurement of human development will not change.

This study was covered 30 metropolitan cities in order to balance metropolitan city boundaries scales and compare scale.

In the upcoming period, both HDI-D and HDI-B models, which will be newly constructed, will be tried to be harmonized with Sustainable Development Goals at the level of components and indicators. As will be seen in the next section of this report, the HDI-D model, which is currently being calculated, shows goal-level overlaps with Sustainable Development Goals. However, HDI-D and HDI-B models with the improvements of indicator level, adding new indicators and components will be harmonized with the Sustainable Development Goals at the level of indicators and targets.

3. COMPARISON OF HDI-D MODEL WITH SUSTAINABLE DEVELOPMENT PURPOSES

Before comparing the Sustainable Development Goals with the Human Development Index-Districts model, it is important to clarify the structure of the two structures and explain the comparison methodology. While SDG consists of 17 Goals, 169 Targets and 240 Indicators, HDI-D was designed as 7 Components and 56 Indicators.

Figure 3. Comparison of SDGs and HDI-D Model-1
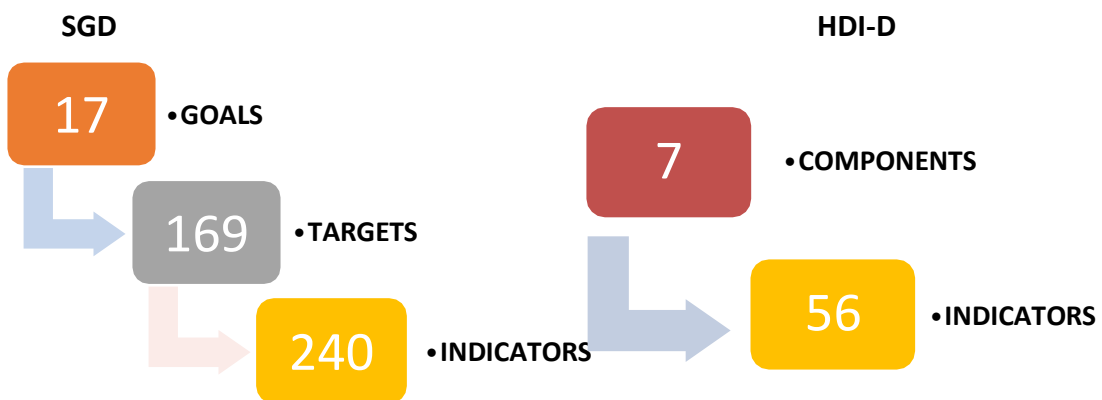
In this section, there are 3 different comparisons that include and support each other. The first of these is the comparison of 7 Indexes in HDI-D and 17 Goals in SDG. The matrix showing which Sustainable Development Objectives of HDI-D components match is mentioned in the next section.

The second comparison is at the indicator level and covers 240 Indicators linked to Sustainable Development Goals. In this section, the expand of the data set in the HDI-D was expanded and examined the conformity of SDG model. The HDI-D model was planned as two different models at the metropolitan and district levels, and a comprehensive literature review was made regarding which of the indicators in the SDG can be compiled at the provincial and district level.

The third comparison includes the analyzes made on the targets linked to the Sustainable Development Goals. It was revealed which HDI models will be developed based on the

3.1. Relationship between Sustainable Development Goals and HDI-D Model

Within the scope of this project, the HDI-D model was discussed in terms of SDG in the workshop, which was held in Marmara Municipalities Union on November 19, 2019, and 7 Indexes in HDI-D were associated with 17 targets in SDG.

In the matrix created, it has been observed that 5 of the components in HDI-D are matched with Education, Health, Social Life and Governance and Transparency, 6 components in HDI-D are matched with Economic Condition, 7 components in HDI-D are matched with Social Inclusion with Environmental Performance and Transportation.

The aim of the End of Hunger was excluded from the scope of twinning in the workshop. All other objectives overlap with HDI-D. However, in order to achieve this overlap at the indicator level, the HDI-D model should be developed and provided with additional data.

Table 1. SDG and HDI-D Correspondence Matrix

	Governance & Transparency	Social Inclusion	Economic Status	Education	Healthcare	Social Life	Environment and Transportation
SDG 1		■	■				
SDG 2							
SDG 3		■			■	■	■
SDG 4		■		■			
SDG 5		■		■	■	■	
SDG 6					■		■
SDG 7							■
SDG 8		■	■	■			
SDG 9	■		■				■
SDG 10	■	■	■	■		■	
SDG 11	■	■	■		■	■	
SDG 12					■	■	
SDG 13							■
SDG 14							■
SDG 15							■
SDG 16	■		■	■			
SDG 17	■						

3.2. Relationship between HDI Model and Sustainable Development Indicators

Sustainable Development Goals were determined as 17 Goals, 169 Targets and 232 Indicators. However, since 8 of the indicators were repeated under different purposes, the comparison process was carried out on 240 Indicators. In the light of the analyzes presented in this report, 92 of 169 Targets linked to 17 Goals and 142 of 240 Indicators in total are related to local governments. In determining which indicators are related to local governments, a study was carried out with UCLG-MEWA experts, and a set of monitored indicators was revealed without limiting it to the local government service area.

Figure 4. Relation between SDG and HDI-D
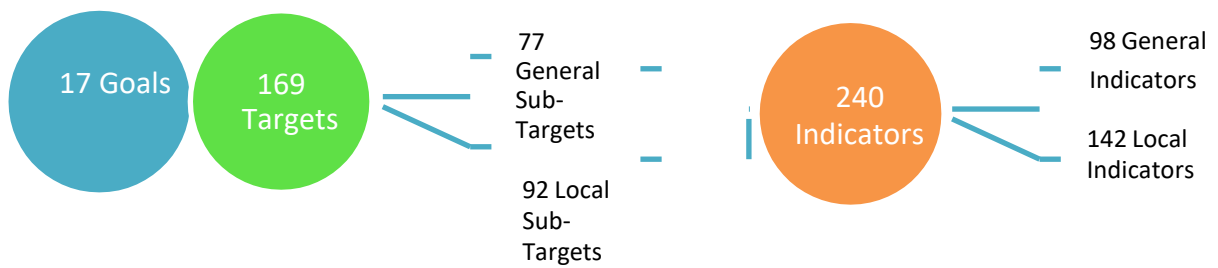
The relationship between HDI-D and Sustainable Development Goals is based on indicators related to local governments.

Table 2. Sustainable Development Target and Indicator Distribution

	Target Number	Local Target Number	Total Indicator Number	Total Local Indicator Number
No Poverty	7	4	12	7
Zero Hunger	8	5	14	9
Good Health and Well-being	13	6	26	15
Qualify Education	10	7	11	8
Gender Equality	9	7	14	11
Clean Water and Sanitation	8	7	10	9
Affordable and Clean Energy	5	3	6	4
Decent Work and Economic Growth	12	6	17	9
Industry, Innovation and Infrastructure	8	2	12	4
Reducing Inequalities	10	5	11	5
Sustainable Cities and Communities	10	10	15	15
Responsible Consumption and Production	11	7	13	9
Climate Action	5	3	7	5
Life Below Water	10	4	10	4
Life on Land	12	5	14	6
Peace, Justice and Strong Institutions	12	5	23	12
Partnerships for the Goals	19	6	25	10
Total	**169**	**92**	**240**	**142**

* In the table, the 92 targets determined by UCLG-MEWA in the "What Should Be Known by Local Governments" report regarding the local governments were addressed as "Number of Local Goals" and 142 indicators related to 92 targets according to the SDG dashboard were considered as "Indicators Related to Local Governments".

When the HDI-D model is evaluated together with the reconstructed and added data set at the metropolitan level, it was revealed that 91 of the 142 Indicators related to local governments can be represented within the scope of Sustainable Development Goals. Thus, the HDI-Metropolitan model, which will be developed at the metropolitan level, will ensure 64% compliance of the Sustainable Development Goals on the basis of indicators related to the local government. If the HDI-D, which is constructed at the district level, is considered with additional data set, a compliance of 32% will be achieved. In other words, the HDI model at the metropolitan level can turn into a model compatible with SDG at the rate of 64% and 32% at the district level.

Figure 5. Correspondence Rates between SDGs and HDI Model
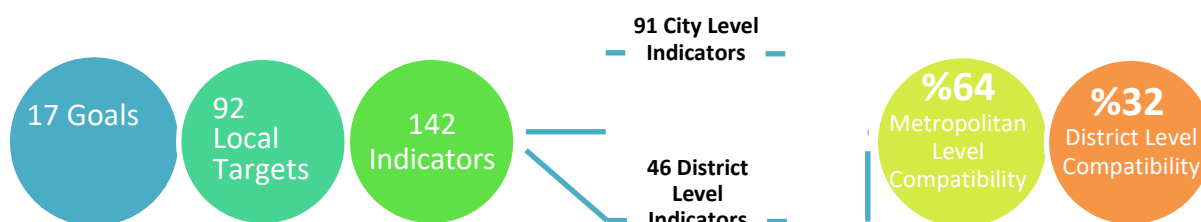
Table 3. Inclusion Rates of Sustainable Development

Goals within the HDI Model

	Number of SDG Local Government Level Indicators	Number of SDG Metropolitan Level Indicators	Metropolitan Level Inclusion Rate	Number of Indicators on District Level	District-Level Inclusion Rate
No Poverty	7	7	100%	3	43%
Zero Hunger	9	5	56%	2	22%
Good Health and Well-being	15	6	40%	4	27%
Qualify Education	8	5	63%	5	63%
Gender equality	11	7	64%	3	27%
Clean Water and Sanitation	9	6	67%	1	11%
Affordable and Clean Energy	4	4	100%	2	50%
Decent Work and Economic Growth	9	7	78%	1	11%
Industry, Innovation and Infrastructure	4	4	100%	3	75%
Reducing Inequalities	5	2	40%	0	40%
Sustainable Cities and Communities	15	12	80%	9	60%
Responsible Consumption and Production	9	6	67%	2	22%
Climate Action	5	3	60%	2	40%

Life Below Water	4	3	75%	1	25%
Life on Land	6	5	83%	1	17%
Peace, Justice and Strong Institutions	12	6	50%	5	42%
Partnerships for the Goals	10	3	30%	2	20%
Total	**142**	**91**	**64%**	**46**	**32%**

3.3. Relationship between HDI Model and Sustainable Development Targets

When the comparative analysis made at the level of indicator is taken to the level of targets, it is observed that the coverage rate increased with the additional data set to the Human Development Index Model. Matching any of the indicators included in a target with the developed HDI Model was calculated as the compliance rate based on the assumption that interest in the target was established. For example, 2 of the 3 Targets determined at the local level for the purpose of "Climate Action" are related to the metropolitan scale indicators. Not all target-dependent indicators need to be met for match capability. Therefore, matching of only one of the three indicators connected to a target was evaluated from the perspective that the target was also matched. However, in general, it is observed that the coverage ratio of the indicators within the target is high and it should be known that the frequency percentage of the situation is low.

**Figure 6. Correspondence Rate of SDG Targets with the HDI Model**

While 67 of the 92 of the Sustainable Development Goals are associated with metropolitan municipalities, this number is down to 33 at the district level. Therefore, the Human Development Index - Metropolitan Model, which will be developed at the metropolitan level, will correspond to the local targets of sustainable development at a rate of 73%, and the Human Development Index - District Model, which will be developed at the district level, 36%.

Table 4. Inclusion Rates of Sustainable Development Goals within the HDI Model

	Number of SDG Local Government Level Indicators	Number of SDG Metropolitan Level Indicators	Metropolitan Level Inclusion Rate	Number of Indicators on District Level	District-Level Inclusion Rate
No Poverty	4	4	100%	1	25%
Zero Hunger	5	4	80%	2	40%
Good Health and Well-Being	6	4	67%	2	33%
Qualify Education	7	4	57%	4	57%
Gender equality	7	5	71%	2	29%
Clean Water and Sanitation	7	5	71%	1	14%
Affordable and Clean Energy	3	3	100%	1	33%
Decent Work and Economic Growth	6	6	100%	1	17%
Industry, Innovation and Infrastructure	2	2	100%	2	100%
Reducing Inequalities	5	2	40%	0	0%
Sustainable Cities and Communities	10	9	90%	7	70%
Responsible Consumption and Production	7	5	71%	2	29%
Climate Action	3	2	67%	1	33%
Life Below Water	4	3	75%	1	25%
Life on Land	5	4	80%	1	20%
Peace, Justice and Strong Institutions	5	3	60%	3	60%
Partnerships for the Goals	6	2	33%	2	33%
Total	**92**	**67**	**73%**	**33**	**36%**

Figure 7. HDI – SDG Overlap

Metropolitan Level		District Level	
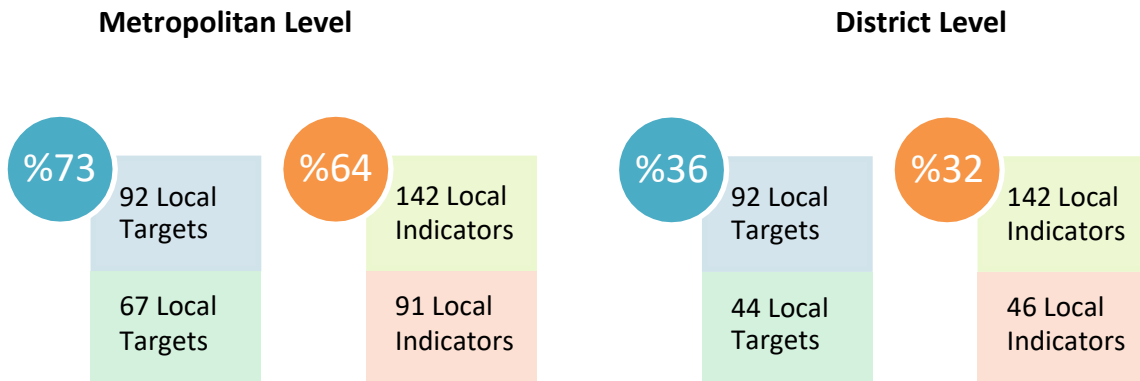
The Human Development Index-Districts Model can be associated with 73% of the local sustainable development targets and 64% of the local indicators when the additional data, field and desk researches are compiled from the institutions by the metropolitan level.

When the current index at the district level is developed with additional data, it will be able to comply with 36% of the local targets of sustainable development and 32% of the local indicators.

However, the establishment of transparent, accessible and sustainable databases is an important requirement for effective monitoring of the indicators for sustainable development targets on a local scale in order to achieve compliance in the mentioned ratios.