

Sustainable Development Goals as a source of inspiration for Kadaster

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SUMMARY

The Netherlands' Cadastre, Land Registry and Mapping Agency – in short Kadaster – collects and registers administrative and spatial data on property and the rights involved. As an organisation, we relate our work to the Sustainable Development Goals (SDG's). This contribution aims to give an overview on how Kadaster is inspired by the SDG's and how we implement them with concrete activities. A working land registration, an accessible geo-information infrastructure and a reliable public service are necessary conditions for achieving many of the SDGs. In the Netherlands we are committed to maintaining and improving the quality of these facilities. In countries where these conditions are not met, prosperity and well-being lag behind. We help countries with setting up or improving land registration and geo-information. In other countries we work with similar organizations on social issues that go beyond national borders. We also play an active role in tackling social issues with a spatial character, from initiative to realization. This contribution will provide concrete examples on how we fill in these activities (i.e. providing a working land registration and geo-information in the Netherlands, helping other countries setting up or improving these facilities, and tackling social issues with a spatial character).

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1. INTRODUCTION

The Netherlands' Cadastre, Land Registry and Mapping Agency – in short Kadaster – collects and registers administrative and spatial data on property and the rights involved. This also goes for ships, aircraft and telecom networks. Doing so, Kadaster protects legal certainty. We are also responsible for national mapping and maintenance of the national reference coordinate system. Furthermore, we are an advisory body for land-use issues and national spatial data infrastructures.

Our information is available predominantly through online web services, including information on energy labels of houses and underground cables and pipelines. Our main customer groups are civil-law notaries, local authorities, businesses, financial institutions and private individuals. Kadaster maintains the Key Registers Cadastre and Topography. Kadaster performs its public tasks in service of society. This is reflected in the way we are organised and the ways in which we publicly account for how we work.

The sustainable development goals are a source of inspiration for our work. This paper aims to give an overview on how Kadaster is inspired by the SDG's and how we implement them with concrete activities.

Section 2 explains the sustainable development goals (SDGs) that are developed in 2015. In section 3 we explain how the SDGs inspire our work and we describe examples of activities both in the Netherlands and abroad. Section 4 ends this paper with a wrap up.

2. SUSTAINABLE DEVELOPMENT GOALS

2.1 Background

In September 2015 countries around the world signed up to the 2030 Agenda for Sustainable Development (United Nations 2030 Agenda) and its 17 Sustainable Development Goals (SDGs). By doing this, they agreed on a concrete to-do list for people and planet. World leaders committed to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. The SDGs, together with the Paris Agreement on Climate Change, are the roadmap to a better world and the global framework for international cooperation on

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sustainable development and its economic, social, environmental and governance dimensions (European Union, 2019).

2.2 Sustainable development goals

Figure 1 describes the 17 Sustainable Development Goals.



Figure 1: Sustainable Development Goals

3. ACTIVITIES TO BETTER PEOPLE'S LIVELIHOOD

3.1 SDG's as a source of inspiration for our work

As a governmental organization Kadaster also relates its activities to the SDG's. The goals are a source of inspiration and starting point for our service to society. A working land registration, an accessible spatial data infrastructure and trustworthy public services are essential conditions to reach some of the SDG's. In the Netherlands, Kadaster is committed to preserve and improve the quality of these services. Furthermore, we are an advisory body for land-use issues and national spatial data infrastructures.

In countries where the above conditions are not self-evident, welfare and well-being lag behind. Kadaster assists countries with establishing or improving land registration and spatial information. In other countries Kadaster collaborates with similar organizations on international challenges.

The SDG's play a central role in Kadaster's policies concerning corporate social responsibility (Maatschappelijk Verantwoord Ondernemen in Dutch). MVO-policies focus on three pillars, namely human, environment and society. Progress on these themes is monitored by applying a standardized instrument (MVO Prestatieladder in Dutch).

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3.2 Examples of activities

3.2.1 Description of our activities

The figure below provides an overview of efforts by Kadaster to achieve the SDG's. Firstly, the registration of rights to land is a prerequisite for welfare and well-being of nations. In this regard, Kadaster contributes in the Netherlands and elsewhere to SDG's 1 and 2: ending poverty and hunger. Furthermore, a reliable public service needs a solid digital infrastructure. By guaranteeing the quality and safety of these systems, a contribution is made to SDG 16: peace, justice and strong institutions. To continue this in the future, and give room for new technologies and innovations concerning land registration, a contribution is also made to SDG 9: industry, innovation and infrastructure. Concrete examples are PDOK and our Data Science Team.

Apart from protecting legal certainty, Kadaster is an advisory body for land-use issues and national spatial data infrastructures. Advisory projects for Dutch, mostly governmental, organizations, provide information about the housing market, energy transition and climate-related subjects. Thereby, Kadaster contributes to SDG 7 (affordable and sustainable energy), SDG 11 (sustainable cities and communities) and SDG 13 (climate action).



Figure 2: Kadaster's efforts to achieve SDGs

These are some examples by which Kadaster helps to achieve the SDG's in the Netherlands and elsewhere. We describe some of these activities more in detail below.

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3.2.2 Land Administration Institutional Development Programme Benin (SDG 1 & 2)

In Benin land governance is organised around the 2013 comprehensive land law (Code Foncier et Domaniale), which has replaced all earlier land legislation. The Agence Nationale du Domaine et Foncier (ANDF), the government agency responsible for land administration, is a relatively new organisation, founded in 2016. To be able to benefit from the experiences in the Netherlands, ANDF formed a partnership with Kadaster International.



Optimising work processes and national coverage of land administration

As colleague and partner, Kadaster International together with two other organisations MDF and VNG assists ANDF with the optimisation of their work processes and the execution of a “fit for purpose” approach for achieving national coverage of the land administration. A huge task because at this moment there are only a few parcels formally registered (60.000 of the estimated 5 million parcels) and there is a lot of political pressure put on ANDF to show results. To speed up the process the Dutch Embassy in Benin supplies funds that enables a consortium of three parties (MDF Training and Consultancy, VNG International and Kadaster International) to execute a four year project for capacity building of ANDF: 'le Projet pour la Modernisation de l'Administration Foncière (PMAF)'.

In 2017 only a few parcels were formally registered (60.000 of the estimated 5 million parcels) and there is a lot of political pressure put on ANDF to show results.

The challenge in Benin is collecting the land data by using data that is already available from other parties and filling the national land register. Key in our cooperation is that collecting the data should be affordable, quick to collect and the quality of the data should be good enough to fit the purpose.

Intended results

Four outcomes of our support have been defined:

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- The national cadastre is available, functional and sustainable in order to contribute effectively to the land security of a growing number of people
- ANDF implements the national land policy, in accordance with the obligations defined in the Land Law (Code Foncier et Domaniale) respecting the conditions of land security and in a financially sustainable manner
- All parties in the mapping, legal and judicial chains are aware of their roles and responsibilities and assume them effectively and correctly in collaboration with other parties in the chain
- Increased opportunities for civil society and other interest groups to advocate for improved legislation, policies and implementation of policies to protect access and land ownership rights for socially and/or economically disadvantaged groups

3.2.2 Implementation of the national GESTERRA programme in Mozambique

The National Land Registry in Mozambique, the 'Direcção Nacional de Terras (DINAT)', is responsible for the implementation of the 'GESTERRA' programme. The purpose of this programme is "improved national capacity for land management and land administration to respond to the needs of all land users". Also is mentioned "Providing secure and clear rights (DUATS) bringing additional benefits in terms of new investment choices and enhanced food security".



Technical assistance in transition phase

The challenge for the national land agency DINAT is to register a total of 5 million parcels between 2020 and 2025. Kadaster is providing technical assistance in the transition phase towards the start of the GESTERRA II programme. The support is focussing on the organisation (planning, budgeting and IT) and developing the fit-for-purpose procedures in land registration and related Capacity building (train the trainers). In 2019 and 2020 the support concentrates on the ICT Organisation and Institutional development.

In 2019 two devastating hurricanes hit Mozambique. This has a huge impact on land administration procedures. Innovative land tools are needed to document and restore already

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existing people-to-land relationships as now effected by the cyclones. The location of the people, their houses and temporary shelters as well as their related supporting livelihood need to be identified. A gender-sensitive and inclusive (women, youth, orphans, elderly and marginalised groups) validation, through the community, will ensure the quality of the collected data. Temporary, qualified, or ‘re-starter’ land certificates will be issued and handed over to ensure the access to reconstruction grants and the reestablishment of livelihood.

Intended results

A sustainable, autonomous National Land Registry, ready to execute the GESTERRA program and being the trusted party for Mozambican land users and land partners.

A sustainable Land Information System with clear procedures in land registration and agreed service level agreements in IT and IT systems.

DINAT staff and service providers are aware of fit for purpose principles and prepared to transfer all related knowledge.

Results so far

In 2018 the fit for purpose procedures were tested in designated pilot areas. The testing focussed on data collection methodologies and related IT (collector) interface applications. Support has been given in developing a strategy in executing the GESTERRA project and engaging the WB support from 2019.

A training needs assessment was done and a first draft of a Training Toolkit was delivered. This Training Toolkit will be perfected and finished in 2020.

Specific attention was given on IT and IT applications. The interface with the data collection application is now operational.

3.2.3 Solar energy on roofs (SDG 7)

The Netherlands has set itself the target of being energy neutral in 2050. On June 28, 2019, the Dutch Government presented the Climate Agreement that describes necessary actions to reach the 2050 goal. All regions are currently working on a regional energy strategy (RES). The provinces play a crucial role in the regional energy strategy. “The objective of the RES is to organise careful spatial integration of renewable energy generation and heat transition in the built environment, in a way that is acceptable to society, whilst focusing on the required infrastructure. The RES are used to structure the collaboration between public authorities and their social partners (citizens, businesses, green parties, network managers), and to promote acceptance of the energy transition throughout society”(see https://ec.europa.eu/energy/sites/ener/files/documents/netherlands_draftnecp_en.pdf.pdf, p. 16).

The province of Flevoland aims to assess the potential for decentral energy production. They asked Kadaster to analyse which roofs are suitable to place solar panels. The analysis consists of several steps:

- 1) *Selection of all buildings from the The Addresses and Buildings key register (BAG)*
We add building characteristics from topographical and cadastral data, such as the owner.
- 2) *Automatic object detention: select solar panels*

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Kadaster uses special techniques to recognize solar panels from areal photographs. We are able to select about 80% of all solar panels.

3) *Determine roof shape, building hight and orientation*

Kadaster uses a hight model that is based on the 3D topographical map to add characteristics on shape (flat or not), hight and orientation

4) *Produce maps and datasets*



Figure 3. Many flat roofs and large surfaces: high potential for solar panels



Figure 4. Many complex roof shapes: little potential for solar panels

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The total amount of suitable roofs is calculated based on the above steps. Figures 3 and 4 show some results; red areas have a lot of potential, blue areas have low potential.

3.2.4 Research into buy-to-let (SDG 11)

Since 2013 the buy-to-let market in the Netherlands is increasing. Due to low interest rates (and thus low financial returns) and housing prices that rise fast, more and more investors buy houses to let. The Ministry of the Interior and Kingdom Relations (BZK) asked Kadaster to Research the development of the buy-to-let market and the possible consequences of a growing rate of private investors on the housing markets. Two research questions were posed:

- Does the first time buyer on the housing market on the housing market pay less/more for a similar house compared to a private investor?
- What is the influence of the number of transactions by private investors on the housing prices on the local level?

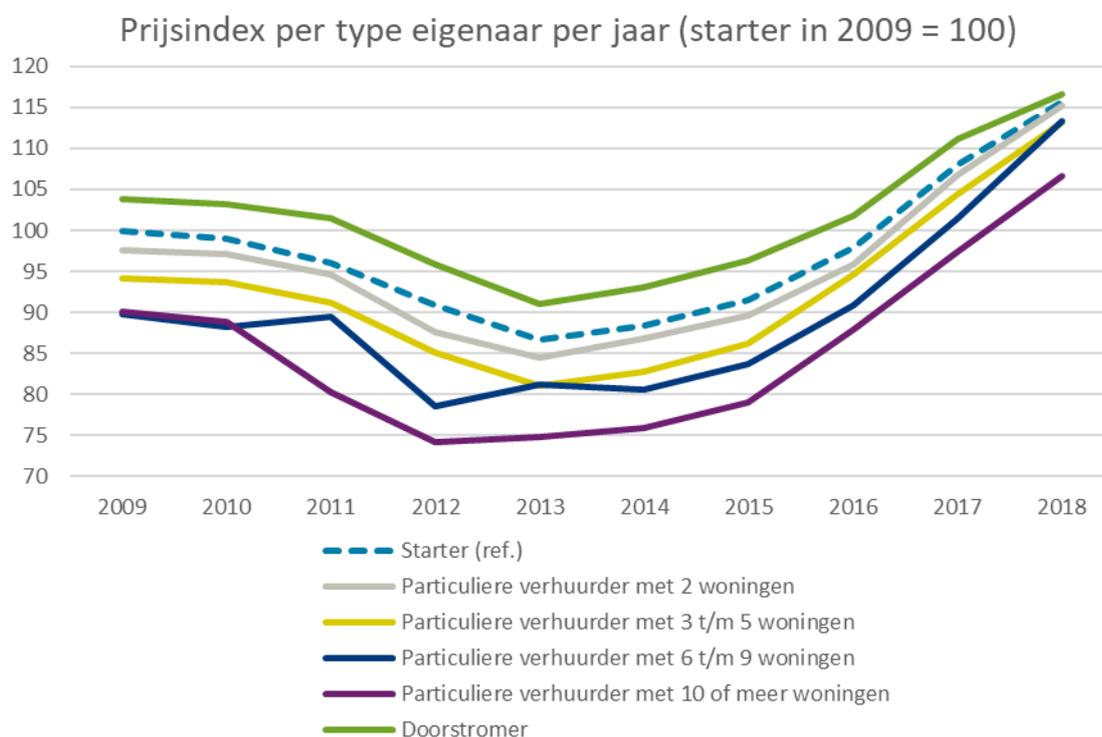


Figure 5. Housing price indices for different owner types

Kadaster registers all land transactions in the Netherlands, thus also all housing transactions. The database for this research consisted of 2,1 million housing transactions. We carried out the research in cooperation with the Vrije Universiteit Amsterdam.

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Figure 5 shows that first time buyers and home movers pay significant more than private investors in the period 2009-2018. However, the difference decreases during this time frame. It is supposed that because of the growing buy-to-let market, the price that private investors pay for houses increase more the last years compared to the price that starters and buyers of successive homes pay.

In 2018 only private investors who buy more than 10 houses pay less for a similar house. For first time buyers it is difficult to buy a home in neighbourhoods where private investors are active. In neighbourhoods where private investors buy more than 5% of all sold houses, the average housing prices are higher than in neighbourhoods where private investors have a lower share. The higher the share of private investors, the higher the price effect. For a housing sale in a neighbourhood where 6 months before the specific sale 25% or more of all sold houses are bought by private investors, the average house price is 10% higher than in areas where private investors are not active. However, the local price effect does not have to be the effect of the higher share of private investors; the popularity of the neighbourhood itself could also result in increasing market demand.

3.2.5 Energy transition of Dutch homes (SDG 11)

In 2015 the Netherlands signed the Paris agreement, which sets out a global framework to avoid dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C. The Netherlands has the ambition to reduce carbon emissions with 80%-95% in 2050 compared tot 1990. The built environment is responsible for 37% of the total energy consumption. In 2050 the entire Dutch housing stock must be climate-neutral. This implies that house owners have to invest in their homes. Are they financially able to do so? NVM, a Dutch branch organization of real estate agents and appraisers, asked Kadaster to carry out a research. Central question was:

- How differs the energy prestation of homes between:
 - types of owners?
 - housing types?
 - Locations?
 - owner-age groups?
 - first time buyers and succeeding buyers?

The analysis is based on the housing stock on January 1, 2019 and sold houses between January 2015-May 2019. We joined them with registered energy labels and applied an extrapolation for homes that do not yet have a registered energy label.

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The research showed among others that houses in urban areas (e.g. innercity) have relatively lower energy labels than in rural areas (see figure 7). A low label indicates a higher energy bill.

Young home owners possess relatively energy inefficient homes. However, elderly people face relatively the largest task for about 1,0 million homes.

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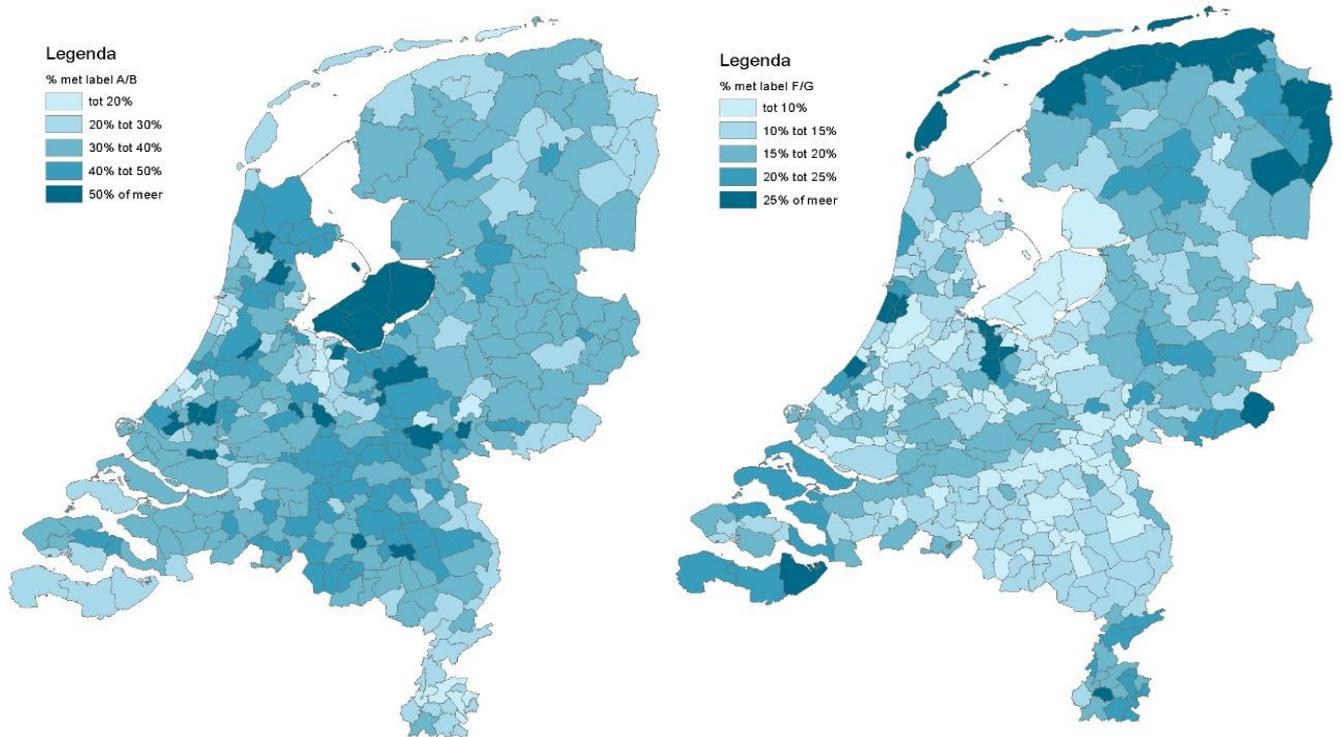


Figure 7. Maps showing the distribution of houses with high energy labels (left) and respectively low (right).

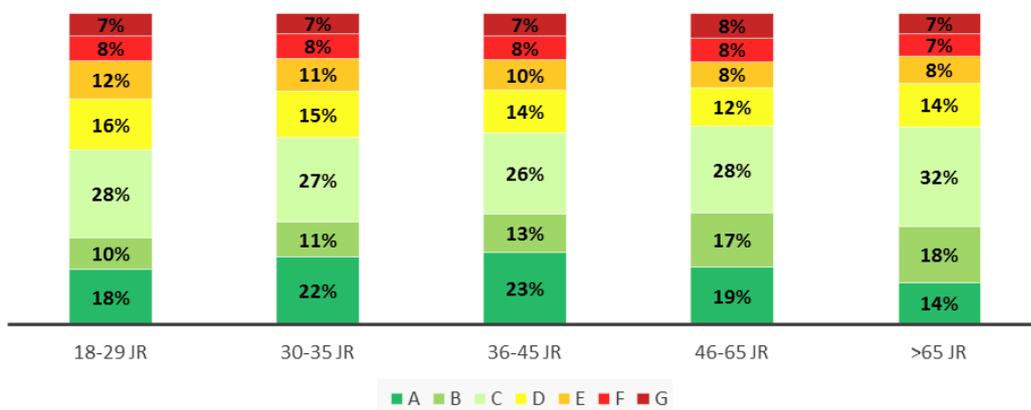


Figure 6. Energy labels for each home owner age category

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4. WRAP UP

In this paper we explained how the Sustainable Development Goals form a source of inspiration for our work. We collect and register administrative and spatial data on property and the rights involved. By doing so, we are able to use this data to answer relevant societal questions on for example the housing market, energy transition and climate-related subjects. However, we are aware that this is only possible in countries with a working land register. Therefore we apply our knowledge of land registrations and geographic information in countries that have need for it.

REFERENCES

European Union (2019). REFLECTION PAPER TOWARDS A SUSTAINABLE EUROPE BY 2030. Online available at https://ec.europa.eu/commission/sites/beta-political/files/rp_sustainable_europe_30-01_en_web.pdf

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