

DPL (DuurzaamheidsProfiel van een Locatie) – Tool Summary

Authors

Name	Organisation	Origin
Jaap Kortman	IVAM research and consultancy on sustainability	Industry
Laura van der Noort	IVAM	Industry
Lieke Dreijerink	IVAM	Industry
Adrie de Groot (version 1.0)	TNO Bouw & Ondergrond	Industry

Info

Date:

Start May 2000

DPL 1.0 – April 2006

DPL 2.0 – March 2009

Place of origin:

Amsterdam, The Netherlands

Homepage:

<http://www.ivam.uva.nl/index.php?id=51&L=1>

References:

- Jensen, J.O., 2009. Sustainability Profile for Urban Districts in Copenhagen. In Sustainable Cities and Regions: Enabling Vision or Empty Talk? Örebro, Sweden: Örebro University, p. 13
- Kortman, Jaap and Groot, Adrie, (2006), “Meten aan een duurzame wijk met het programma DPL 1.0”
- Kortman, J., van Ewijk, H. & Otto, A., 2006. DPL: a tool for assessing a district on sustainability.

Latest use:

“DPL is now commonly used in the Netherlands by more than 15 different municipalities and project developers. There is also a basic English translation of the program that has been used by the municipality of Copenhagen.”

Almere (?) - <http://www.ivam.uva.nl/index.php?id=almere>

Roomburg (?) - <http://www.ivam.uva.nl/index.php?id=roomburg>

Download:

<http://www.ivam.uva.nl/?id=173>

Description

“Location Sustainability Profile (DPL® in Dutch) is the computer instrument that enables you to measure the sustainability of a district.

For whom?

DPL stands for Duurzaamheids Profiel van een Locatie (sustainability profile of an urban district). It provides a common language on sustainable urban development for municipality employees, environmental consultants, project developers and urban planners. This way sustainability can be the driving force with which an integrated quality improvement is achieved.

Added value

DPL gives sustainability a sound place in urban planning. DPL can be used for:

- Drawing up sustainable ambitions for a development plan
- A SWOT analysis of an urban development or existing area
- Comparing the sustainability of an urban district to a reference district
- Communicating on the integration of environmental policies in spatial planning
- Monitoring of the restructuring of disadvantaged areas.”

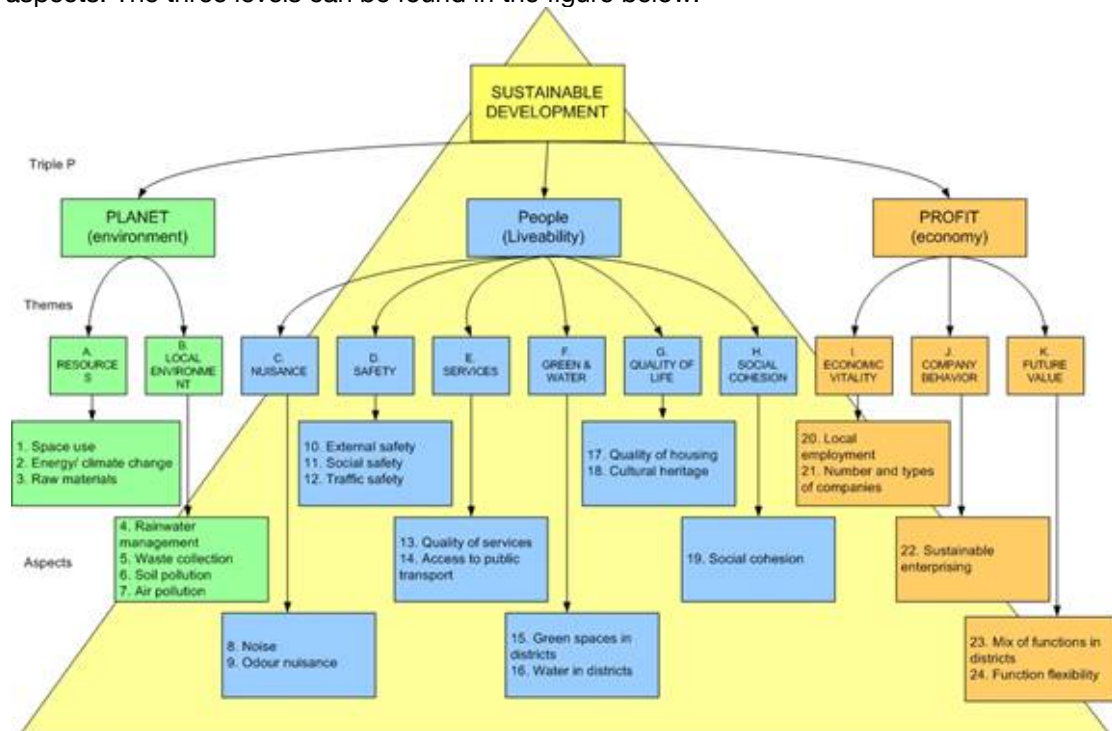
“The concept of DPL is that the tool “.. *assesses in a clear and transparent way the spatial plan for a district on sustainability, based on the information from the urban plan. It so helps urban designers to creatively improve the sustainable performance of a district*” (Kortman et al, 2001). Compared to other tools for assessing urban sustainability, DPL represents a simple and flexible approach. The idea is to use a limited number of indicators based on already collected data. Once the data-collection has been completed, it is easy to repeat it, hence enabling a continuous monitoring of the district. The flexibility of DPL is that it accepts the use of alternative data if the requested data are not available, and also allows new indicators to be included, if they are of special interest of the municipality. This allows a DPL-assessment to be carried out rather smoothly, and thus increase the use amongst municipalities. The DPL-assessment does not provide any 'scientific' correctness, but must be seen as a model open for interpretations and discussions of the local sustainability.” [Jensen 2009]

Key Theoretical Background

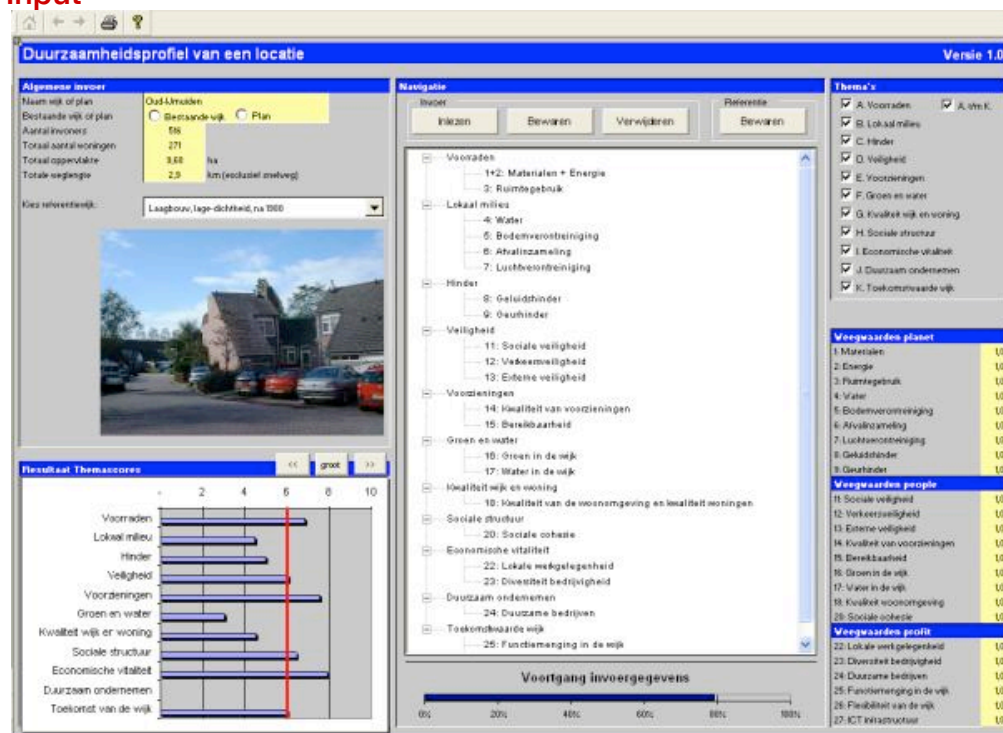
Not present in available documentation. There are references to legislation and local regulations setting the limits for some indicators.

SUD Framework

“DPL is based on the three international elements of sustainability; Planet (environment), People (liveability) en Profit (economy). These three elements are divided in 11 themes en 24 aspects. The three levels can be found in the figure below.”



Input



"In the Excel based computer program DPL, data can be filled in for each aspect. This can be physical data as well as statistical or survey data."

Aspect 1: Ruimtegebruik



Bestaande wijk en nieuwbouw wijk

Berekeningsschema voor Floor Space Index (FSI)

Grondoppervlak	m ²	
A1. Uitgeefbare kavels, bebouwd		
A2. Uitgeefbare kavels, onbebouwd verhard		
A3. Uitgeefbare kavels, onbebouwd, tuin		
A. Subtotaal uitgeefbare kavels (A1+A2+A3)	-	
B. Verhardingen (wegen, trottoirs, etc.)		
C. Groen		
D. Water		
E. Overig		
F. Netto plangebied (A+B+C+E)	0	
G. Bruto plangebied (A t/m E)	0	
Vloeroppervlak (bvo)		
H. Woningen		
I. Woonboten		
J. Winkels		
K. Bedrijven / Kantoren		
L. Voorzieningen (onderwijs, sociaal/cultureel, medisch, sport, voor jongeren, voor kinderen, zwembad, etc.)		
M. Parkeren (mits overdekt en afsluitbaar of op daken)		
N. Overig, waaronder meervoudig ruimtegebruik (bijvoorbeeld water/groen op daken)		
O. Totaal vloeroppervlak (H t/m N)	0	
FSI Kavel(s) (O / A)	-	
FSI Netto plangebied (O / F)	-	
FSI Bruto plangebied (O / G)	-	

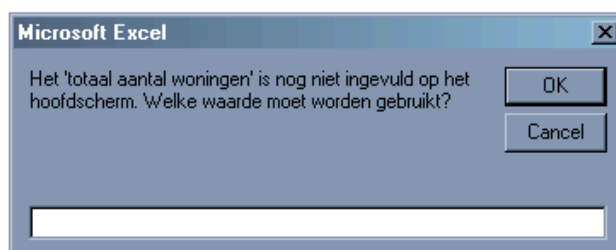
Voer hieronder het totaal m² voor A in, UITSLUITEND indien A1/2/3 onbekend.

Input table for one of the themes.



Progress bar giving feedback on completion of data input.

There are some dependencies between indicator data, where it is required to have already inserted some value, e.g. population, to be able to calculate density.



Some indicators offer the option to choose the data source. To use Input data is grouped in types A, B and C, with A being environment data that is available from design, and B being other quantitative data that can be measured and is computable. C is for qualitative survey data.

Aspect 2: Energie**Bestaande wijk en nieuwbouw wijk**

A. EPL voor de wijk als geheel

EPL-rapportcijfer voor de wijk

-

Nieuwbouw wijk

B. EPC (nieuwbouw)

Nieuwbouw	Gemiddelde EPC	Aantal	Eis 2009
Woningen		stuks	0.8
Bedrijven / Kantoren		m ² bvo	1.1
Winkel		m ² bvo	2.6
Sociaal / cultureel / bijeenkomst (café, etc.)		m ² bvo	2.0
Onderwijs		m ² bvo	1.3
Sport		m ² bvo	1.8

-

Bestaande wijk

C. Energielabel (bestaande bouw) en EPC (nieuwbouw)

Bestaand	Energielabel	A++	A+	A	B	C	D	E	F	G
Woningen (aantal)										
Utiliteit (m ² bvo)										

Zie voor gemiddelde labelscores "Voorbeeldwoningen bestaande bouw 2007"

Nieuwbouw (in bestaande wijk)	Gemiddelde EPC	Aantal	Eis 2009
Woningen		stuks	0.8
Bedrijven / Kantoren		m ² bvo	1.1
Winkels		m ² bvo	2.6
Sociaal / cultureel / bijeenkomst (café, etc.)		m ² bvo	2.0
Onderwijs		m ² bvo	1.3
Sport		m ² bvo	1.8

Totaal gescoord Energielabel / EPC (onder C)	
Totaal aantal woningen (Hoofdscherm):	-
Aspect 1K. Bedrijven / Kantoren (m ²):	-
Aspect 1J. Winkels (m ²):	-
Aspect 1L. Voorzieningen (m ²):	-

-

keuze A

-

Methods

"Dealing with limits in DPL

The application of DPL focuses on the sustainability performance of a district. DPL shall submit a "dome" over the total area. In the DPL sustainability score calculated for the district based on 24 indicators environmental, social and economic fields. For various environmental issues is precisely what part of the district to what extent contaminated / or prevented and not exceed limits. The assessment consists of a combination (sum of the product) of severity of the impact and the surface of the area. If an area within the district a limit is exceeded, this results in DPL usually a lack of sufficiently large (school number 3 and 4). Only the combination of a very small area with an excess with a limit of a large area under the limit, a sufficient cause. That is a sufficient profile in the DPL does not guarantee that throughout the neighborhood on the limits are met.

This may be read in the introduction screens, which exceeded the limit explicitly identified. Exceeding limits is not permitted without Special procedures are completed (such as City and Environment, Air Quality Programs)." Automatic translation from the Dutch.

"DPL recalculates the input to easy to interpret grades, where 0 is the least sustainable and 10 is the most sustainable. Then the program compares the performance to a reference district included in the program. The reference district reflects an average (no existing) district in which no sustainable measures have been taken and that meets the legislative demands. The score for this district is a 6; it just passes. The DPL program consists of different **reference districts** based on the **most common building types and periods**." The weights of each of the 24 indicator categories can be easily customised, the default being 1 for all of them.

Each aspect can have up to three indicator sets, but the program will only calculate the selected one.

Some factors relating to health risks have been matched with the GES scores, translating DPL calculated factors into more standard values.

GES-score	Milieu-gezondheid kwaliteit	DPL-factor
0	Zeer goed	0
1	Goed	0,564
2	Redelijk	1
3	Vrij matig	1,5
4	Matig	3
5	Zeer matig	7,5
6	Onvoldoende	75
7	Ruim onvoldoende	750
8	Zeer onvoldoende	7500

These values are limit thresholds that cannot be crossed by any indicator and will throw a warning if they do. (below)

Aspect 5: Bodemverontreiniging

Bestaande wijk en nieuwbouw wijk

A. Oppervlak van verontreiniging en verontreinigingsklasse

Type GES verontreiniging	weegfactor (bvw GES)	aantal hectares	aantal ha x weegfactor
Geen overschrijding streefw aarden en gezondheidsrisico	0	72,9	0
Wiel bodemverontreiniging, gezondheidsrisico onw aarschijnlijk	1,5	13,76	20,64
Overschrijding MTR, gezondheidsrisico mogelijk	75	10,14	760,5
Totaal oppervlakte		10	0,01

Onvoldoende milieu-gezondheid kwaliteit volgens GES 2004

Output

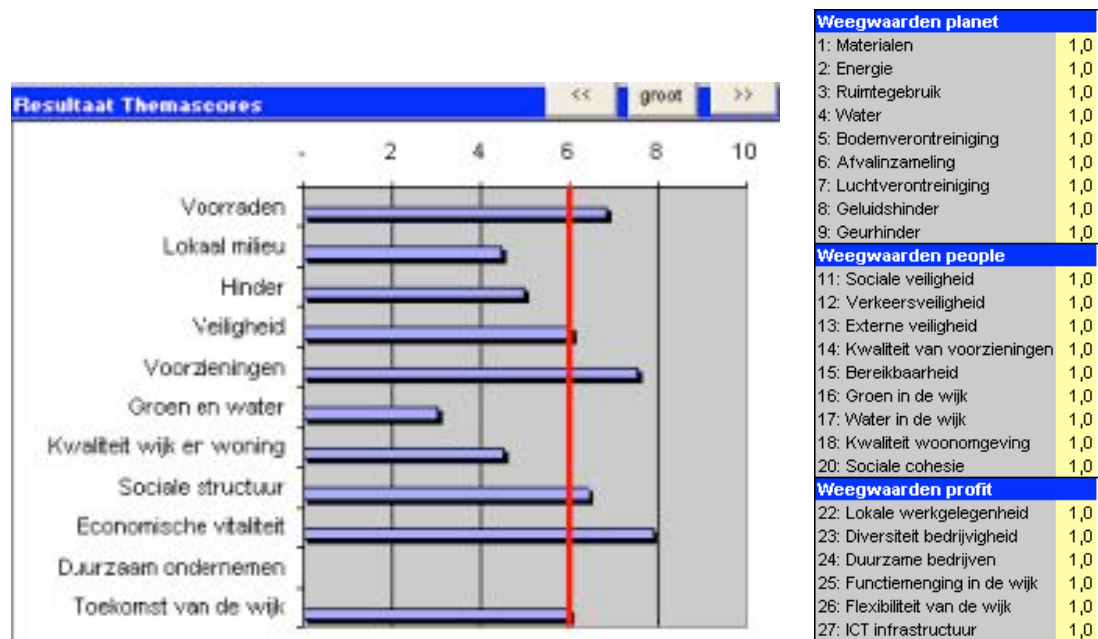
Each of the 24 aspects gets a single score from a series of calculations based on the input data.

Bestaande wijk en nieuwbouw wijk

A. Soorten huishoudelijk afval, gescheiden ingezameld (www.afvalscheidingswijzer.nl)

Soort afval	Halen/brengen in de wijk ja / nee	Verwerking in de gemeente ja / nee	Score
Oud papier en karton			0
Glas			0
Textiel			0
Groente-, fruit- en tuinafval			0
Grof tuinafval			0
KCA			0
Elektrische apparatuur			0
Metaal (blikverpakking)			0
Plastic flessen en flesjes			0
Groot restafval			0
			-

It takes the aspect scores and produces a series of scores for the eleven themes and charts them against the reference case.



Sustainable measures are expressed in a high DPL score. An example of a urban districts that does well in DPL is Roomburg in the municipality of Leiden (the Netherlands). Sustainable measures that have been met are (from left to right from top to bottom):

- Separated waste
- Sun oriented building
- Green roofs
- Special rows of trees
- Solar panels on roofs (EPC=0,75)
- Sustainable dwellings
- Underground parking
- Green façades

Summary report on the website for one of the case studies.

DPL (DuurzaamheidsProfiel van een Locatie) – Tool Review

General

Background

The tool takes a comprehensive and holistic approach, addressing all three dimensions of sustainability. However its references are not stated anywhere in the documentation, so it's not clear what principles it is following, and what evidence and research supports it. The tool is vetoed by the planning authorities, as such it must have some credibility.

Application (Scale and Design Phase)

Can be used in both existing sites and new designs, and different indicators can be used in each circumstance, based on data availability.

There is a limit to the size and type of development depending on the available reference cases.

Sustainability Principles

Standard approach, starting from the three acknowledged sustainability dimensions, and building a pyramid structure from there with increasing detail.

Assessment Criteria

The assessment criteria cover a good range of themes, and by default gives an equal importance to each, but there is a very limited amount related to urban form, accessibility and nothing related to the site context, either local or regional.

This weighting can be changed to accommodate local or project related priorities. Further customisation can be achieved by selecting which indicator categories to consider, excluding ones that are not relevant to the project or for which no data is available at the current project phase.

But does the tool still hold? It probably doesn't consider any dependencies between indicator categories.

Indicators and Calculation Methods

It starts with an interesting warning about limits, which clearly highlight the philosophy in terms of neighbourhood boundary (the "dome" as an enclosure that isolates from the exterior and treats the interior as a single entity), statistical aggregation (everything is summed and factored to the neighbourhood unit), and dealing with sub-areas (some environmental factors relate to distinct areas and their overall impact is aggregate). But no individual area should exceed legal environmental limits! This highlights the problems of doing this area assessment, recognising that parts of the neighbourhood might fail and that it is not acceptable despite DPL giving a good score. The area cannot be just a sum of its parts.

It's positive that it only requires quantitative data that is available at design stage.

Being based in Excel it's a tool external to design, doesn't help to collect the data and becomes a chore to prepare the data and enter in the endless fields. Some of it could be very easily extracted directly from designs, even into Excel.

Excel is however a tool that most users know and it also supports data input from text file, which can considerably speed up the process.

Excel is the only calculation engine, as such it is not capable of spatial analysis, relational calculations, and in a way determines what type of indicators can be used. In general they are extremely one-dimensional based on counts and areas within the boundary of the project.

Each assessment criteria has several indicators of different types, depending on the data available/type of project. It only calculates one indicator per criteria.

The indicators are grouped in categories and it's not clear through the tool how each data item will be used and how it will contribute to the indicators.

No indication of weights or possible synergies between indicators. There are some dependencies between data of different indicators.

Output

The method is comparative against a sample of reference cases, which are assumed to be neutral. This can be revised over time as it can change, the user is can add to the list of reference cases.

The tool becomes context sensitive by selecting different reference cases in difference locations.

The reference districts should not be based on building type but on urban form and structure: mobility environments.

The output is just an aggregate profile and a series of numbers. It doesn't help a designer where to intervene and what to change. Doesn't provide any map output, as such seems to stop the claimed dynamic of the design process. Doesn't reinforce the design loop of experimentation, trial and error. Like the input, it sits outside the loop, outside the process.