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User manual for the SASTDES CF Tool

SDCFT version 1.10; WP 2.1 & 2.5

SASTDes – Smart Assessment Sustainable Tourist Destinations

DISCOVER YOUR WORLD

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1 Introduction

1.1 Project SASTDes

Project SASTDes aims to resolve key issues in the sustainability assessment process of tourism destinations, with the objective to reduce the costs of assessments both in time and money, and to use the results of assessments for destination branding and marketing. The project's core research question is: '*How can sustainability assessments effectively and efficiently contribute to the sustainable development of tourism destinations and tourism products*?'

The large growth in tourism not only brings economic progress, but also causes negative effects on destinations and beyond, environmentally, socio-culturally, and economically. The tourism industry has responded with a number of sustainable tourism initiatives. A much-used method is to subject tourism products to a sustainability assessment, frequently leading to a label. The goal here is to motivate destinations to perform more sustainably and to stimulate consumers to make more sustainable touristic choices. Until now, participation in sustainability assessments in tourism is limited. Hence the effect on consumer choices is also small.

Most assessments suffer from limited participation and interest from tourism businesses. Conducting assessments is too costly for them, costing too much time, and the added value is unclear to them. Moreover, the assessments hardly lead to behaviour changes among the relatively small group of end users interested in sustainability. Finally there is a problem with the content of the assessments: the impacts from transport to destinations is not accounted for, whereas these are often of great importance when determining the environmental impact of tourism trips. WP2 is dedicated to the issue of integrating transport in destination environmental assessments.

1.2 Objective for this report

The objective of Work Package (WP) 2 is to develop a destination sustainability assessment tool.
Because then impact of tourism on climate change is one of the most urgent and costly environmental problems for tourism, and because many partners in the SASTDES-project indicated to have problems to assess the carbon footprint of their destinations, we decided to concentrate the WP 2 tool on a carbon footprint calculator for destinations.

1.3 What is the SDCFT?

The SASTDES Destination Carbon Footprint Tool (SDCFT) was developed by the centre for Sustainability, Tourism and Transport of Breda University of applied sciences as part of the SASTDES-project (Smart Assessment Sustainable Tourist Destinations). The project is co-funded by the Taskforce for Applied Research (SIA), part of the Netherlands Organisation for Scientific Research (NWO), under the RAAK scheme.

1.4 Purpose

The model's scope is for European Destinations. Current destination countries included are:

- Austria
- Belgium
- Bosnia And Herzegovina
- Bulgaria
- Croatia
- Cyprus

- Czechia
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Iceland
- Italy
- Latvia
- Liechtenstein
- Lithuania
- Luxembourg
- Malta
- Monaco
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- Slovakia
- Slovenia
- Spain
- Sweden
- Switzerland
- United Kingdom

We could not find reliable data for the following countries:

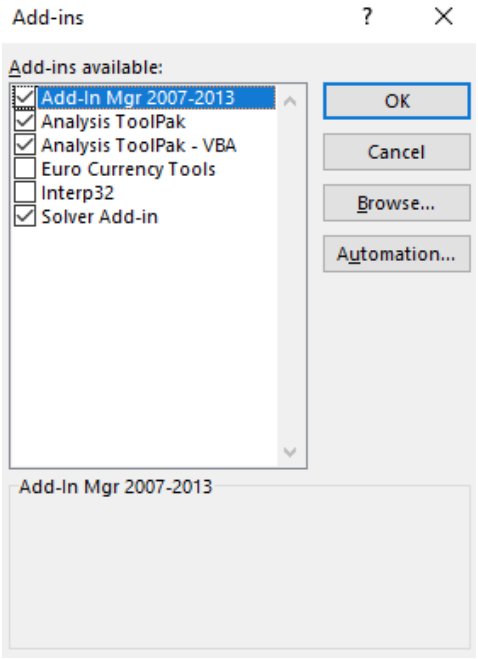
- Albania
- Andorra
- Ireland
- Moldova
- Montenegro
- Serbia

The model calculates the carbon footprint of the visitors to your destination based on the distribution over source markets, the choice of transport modes from the source markets to the destination, the number of nights and shares of a range of accommodation types and a range of tourism activities. Results are provided for the carbon footprints per source market and divided over transport, accommodation, and activities. The sheets 'Report Tourism' and 'Report CF' provide a summary table and graphs, while the sheet 'Report raw data' gives you all results in complete tables, which you can copy-paste to your own files.

1.5 How to open the file?

The SDCFT is an Excel model that makes use of macros, a kind of computer code enabling all sorts of functions. The standard settings of office Excel do not always allow to open such files. This is because potentially, a macro can be a security risk. Normally Excel will warn you that the file contains a macro

and give the choice to open the file and make it a 'trusted file'. The latter is recommended for the SDCFT, because the next time you open it, there will be no questions.
In some cases, excel does not allow you to open the file. In such instances, you need to change some settings in the Trust Center. Please, look on the Microsoft website for further instructions.
In some cases, certainly when you run windows in a non-English language and keyboard, excel mixes up the decimal point with the decimal comma. In such cases, when you type a number in one of the forms, you will see it will add automatically a comma and not a point at the decimal separator (so 1,0% instead of the correct 1.0%). When this happens you will run into several error messages and cannot run the model. To run the model, please set your windows to the US keyboard and to English.
But the problem can also be within the setting of your Excel version. In that case change to decimal point (and comma as thousands separator) in excel as instructed on this website.
In case you still see an error saying that certain modules cannot be found, the problem is most likely that you did not add the 'solver' function or another standard macro library to your version of excel. set macro's on in the right way. To do so go to the developer on the ribbon bar and select 'Excel Add-ins' in the Add-ins area. Make sure the ticks are as follows:



In case you do not see one of these Add-ins in the list, you need to install them:

1. Click the File tab, click Options, and then click the Add-ins category.
2. In the Manage box, click Excel Add-ins, and then click Go.
3. In the Add-ins available box, select the Solver Add-in check box. If you don't see this name in the list, click the Browse... button and navigate to the folder containing Solver.xlam. Then click OK.
4. Now on the Data tab, in the Analysis group, you should see the Solver command.

See also this support.

1.6 Contact

In case of problems, please contact paul.peeters1000@gmail.com.

2 General guidelines on using the model

The excel model needs to be opened allowing for the use of Macro's, otherwise it cannot work. So, make sure your Excel settings allow for a workbook with macros'.
Following some general guidelines:

- Always make first a copy of the SDCFT excel file of the model before working with it; that helps to start again when something goes wrong.
- When you open the excel model file, you should be on the ***'Home'*** sheet; if not, first navigate to that sheet by clicking on it!
- The upper half of the home sheet gives a short description and manual for using the model.
- The current version of the model still shows many sheets you do not need to look in. We will later hide these behind the screens, but for testing it is handy to have them still open.
- Before using the model, first try to gather the information as given in the tables in this word file. Tip: copy the tables to a different file and fill the tables and keep a print at hand when starting the model.
- Never try to calculate the model when you did not provide General, Market, Transport and Accommodation data. This will cause problems with the model and may damage the file. Activity data are not obligatory for calculating the model, but of course, some detail here improves the accuracy of the results.

3 Short manual

After opening, always check if you are on the HOME sheet, which is the third sheet from the left of the model. If you are on another sheet, click on the yellow HOME sheet in the bottom. If you do not see that sheet may have to scroll through them with the arrows in the bottom-left of your screen to make it visible.
The controls of the model are divided over a set with which you can clear part or all of the current inputs, a set that allows you to provide 5 types of data and a set with which you can calculate the model and generate the output and results. You need always to fill in data for General, Market, Transport, Accommodation and Activities before running the model. For the General data you need to provide numbers for all questions. For the others at least some information needs to be given (at least five markets of origin, two transport modes, and one accommodation. You may leave activities empty. However, the more detailed your information (number of markets, transport modes, types of accommodation and activities), the more precise the results of the model.
After you have given input for General, Markets, Transport, Accommodation and Activities, please first press the 'Calculate the model results' button. When the three numbers for Car, Air and Other all show a one and are highlighted green, then the model has successfully calculated. After that, please run the 'Generate the reports button' and use the report buttons to inspect the results. You can always get back to Home.

4 The data you need to collect

4.1 Introduction on data

As mentioned before, it is not necessary to gather all data mentioned here. With say 10 source markets, including at least one for a long-distance (>1500 km), if it exists for your destination, the model can be used. For accommodation, transport mode and tourist activities: the more detail the better but it works

if you put all visitors in one or two categories, generally the model will be able to generate an outcome for you. The more detail, the higher the reliability and quality of the reports. Below we provide an overview of the information needed and what is mandatory of these.
Gathering data is always difficult for a tourism destination. But if you do not exactly know for instance how many people travel by train or bus to your destination, you may try to estimate these numbers based on the number of busses or trains that arrive per year and how many of the seats might be visitor. Collaboration with the transport companies might help here. The model has a default if you do not fill in the data but again the reliability of the outcome will be less.
Best approach is to use the following tables to prepare your data before starting to use the model.

4.2 General information

Country	Country-name from list (only most European countries included)	Mandatory
City/destination	Municipality the destination lies in. if in more then then central municipality	Mandatory
ISO Code	Automatically generated	
Arrivals/year	Total number of domestic plus international arrivals	Mandatory
Overnights/year	Total number of domestic plus international guest-nights	Mandatory
Average length of stay	Automatically generated	
In case of island state: the distance towards the nearest main land or main island in hours by ferry	This number will provide a 'penalty' for travel by ferry as it takes a bit longer.	Mandatory but in case no island the default is 0 hours.
Average car/camper/caravan occupation	The average occupancy of cars/caravans/campers; then default is 2.5 persons per car and can be used in case this number is unknown.	Mandatory but default provided

4.3 Origin market shares

Origin markets are composed of countries in the world and give the number of visitors from that country. This includes the home-country, with thus are 'domestic' tourists. So, for instance for Slovenia, one would account all domestic (Slovenian) visitors in the first line and then the shares per country where people normally live like Austria, Italy, Germany, The Netherlands, The United states, etc.). we need numbers for both visitors and guest-nights. However, in case only visitors, or only guest-nights, are

known, it is OK to fill in both columns with the same numbers. Of course, this reduces the accuracy of the results of the model.

Country of origin	**Arrivals share (%)** *Maximum of two decimals (x.xx%)*	**Share nights (%)** *Maximum of two decimals (x.xx%)*
Domestic country of origin is automatically generated from the general information	Mandatory	Mandatory
Insert origin markets per country; all countries in the world are predefined plus a range of "other … regions" like "Other South-East Asia", "Other Europe", "Other Northern Europe", "Other World"	The more detailed the shares per country the more accurate the model works. In case here only "Other World' is chosen by lack of any data, then then model will use the full distribution of the 2018 UNWTO data. Of course, the shares should be in % of the total number of domestic plus international visitors that stay at least one night (so no day-(visitors).	

It helps to have the above data as detailed as possible, though the model can work with low detail as well, but far less accurate.

4.4 Transport mode choices

Transport mode choice of visitors is generally not measured by tourist destinations in any detail. I am testing a bit and it could be that some sort of rough estimate for the car is necessary to make the model work. If that is the case, I will still try to create a default value that makes the model fun always. Mode

shares are based on the car-ownership rates of source markets and the travel distance. So basically, none of the below is mandatory, but the more the detail the better the model's estimates.

Transport mode	**Share of Domestic arrivals (%)** *Maximum of two decimals (x.xx%)*	**Share of International arrivals (%)** *Maximum of two decimals (x.xx%)*
4WD/Jeep	%	%
Air transport	%	%
Animal-drawn	%	%
Camper	%	%
Car	%	%
Car plus caravan	%	%
Car plus folding trailer/roof box	%	%
Ferry (foot passenger/bus passenger)	%	%
Ferry (passenger with car/van/caravan)	%	%
Mini-bus (9-30 pax)	%	%
Moped	%	%
Motor cycle/Scooter	%	%
Non-motorised (electric/normal bicycle, on foot)	%	%
Public transport (excluding trains/non-public busses	%	%
Train (passenger)/Night-train (seat)	%	%
Night-train (couchette/cabin)/Sleeping car express	%	%
Bus/coach	%	%
Unspecified/Other	**Automatically generated**	**Automatically generated**

4.5 Accommodation types

Again, for accommodation type shares, the model starts with 100% 'other/unspecified'. This type will use the hotel emission factor for guest-night. The more type shares are given as shares per guest-night (domestic and international combined), the more accurate the model will work.

Type of accommodation	**Share of bed-nights (%)** *Maximum of two decimals (x.xx%)*
Hotel/Motel	%
Private home/Family stay/Mountain hut	%
Pension/Bed & Breakfast/Guesthouse/Eco lodge	%
Apartment	%
Normal cottage/chalet/holiday home	%

Luxurious cottage/chalet/holiday home	%
Tent	%
Caravan	%
Camper	%
Sea cruise	%
River cruise	%
Sail cruise	%
Private boat/yacht	%
Hostel/group accommodation	%
Camping hut simple	%
Night train (seat)	%
Night train (couchette/cabin)	%
Night bus/coach	%
Other	**Automatically generated**

4.6 High-carbon emissions tourist activities participation

In many cases, the destination will not have any shares of the below activities because they so not offer them (like balloon flight, heli-skiing etc.). We currently stick to the Carmacal list. For instance, City Trip, refers to going shopping. The carbon footprint is from the things people buy and, in most cases, do not really need for their living. The percentage is to be given as in following example for balloon flights. Assume that 10% of all visitors take a balloon flight during their stay at your destination. Then you fill in 10%. If on average visitors participating in balloon flight take more than one of those, for instance two, then the percentage to full in would be 20%. Another way to arrive at the required percentages is to simply take all balloon flights taken by over-night tourists of a season or year and divide these by the total number of guest-nights for that same period. Rough estimates are fine here as not generally a big factor in then carbon footprint.

Type of activity	**Share participation in tourist-days (%)**
Standard per day CF	**Automatically generated**
Airboat trip	%
Balloon flight	%
City trip	%
Diving trip	%
Event	%
Golf (1 round)	%
Heliski trip	%
Jetboat trip	%
Jetski trip	%
Longtailboat trip	%
Motorised boat trip	%
Quad / Buggy tour	%

Scenic boat trip	%
Scenic flight helicopter	%
Scenic flight plane	%
Skiing / Snowboarding	%
Snowscooter trip	%
Speedboat trip	%
Use of mountain funicular	%
Use of mountain cograil	%
Whale watch trip (motorised)	%

Games

Media

Hotel

Facility

Built Environment

Logistics

Tourism

Leisure & Events

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