green map system

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Gouda's Story

This email interview and underline technical dialogue took place during November-December 1996. The Green Map Team from Gouda, Holland, led by Frits van der Laan (FL) and Michelle Thomasson (MT), completed their beautiful, digital Green Map in less than 4 months -- here's how they did it, as told to Wendy E. Brawer (WEB):

Date: Tue, 20 Aug 96 20:17:45 -0400. *Frits v/d Laan emails the Green Map System just after seeing the wonderful Ecopenhagen Map. About a week later, Michelle Thomasson joined the Gouda Greenmap team.*

MT: I'm helping Frits, as we are in the same city *smile* Thanks for outlining the topics for me and sending a bit of background info. It is a wonderful initiative, it's a positive way (information does empower), of attacking an enormous amount of negative environmental information. Folks often feel overwhelmed by the environmental problems, but this can then help motivate some of us to start constructively attacking those problems - at home in our own back yards.

Tell us about your mapmaking group...

MT: Our group is only made up of 2 persons for the webmap, and for information gathering, a few members of our local FOE (Friends of the Earth) group assisted. Frits began with the info gathering and is generally the "steam" that fuels the project. I began helping a couple of months ago when Frits asked me to help because I had GIS (Geographic Information Systems) knowledge. Our backgrounds: Frits is a producer of certified organically grown garden and city plants. I have a Psychology background, then went into the computer industry specifically CAD and GIS, special interests landscape architecture and environment. [WEB: Michelle was a newcomer to Gouda, having lived there just 3 months when longtime resident Frits contacted her!].

What are your Map's geographical boundaries?

MT: The city of Gouda, which is roughly in the middle of the Netherlands. The city limits - but we added some very relevant sites just outside the city. There are 3 separate maps to streamline the information and have smaller GIFs which are quicker to download [WEB: GIFs are an image format commonly used on the internet]. The 3 maps are: City green map (the whole city area and its environs), a City Centre map and a Green/nature map showing walks and nature sites of the Gouda region.

Is your Green Map to be published as printed or internet Map?

FL: Both, for the city centre map. Downloadable from the web for the other maps, but this is still in the preplanning phase. All the maps were put on the web first, then the address lists and other information were finished and framed a bit later.

Does your Map have funding?

FL: Yes. We asked for a small subsidy from an agency that is a link between the province and environmental groups/individuals. This subsidy just covered expenses. The money was used to gather the information to put on the map, some software and telephone costs. There will be no web costs, for the map will be on my site, http://web.inter.nl.net/users/F.vd.Laan/. The rest of the money will be used for the

printed version -- but it's going to take a lot more finances than we had the first time around.

Do you plan to give away your printed Maps or sell them?

FL: Because of the subsidy I don't own the map anymore (FOE Gouda is the owner). I want to give the city centre map away but if our expenses are high, we could sell it to cover expenses (no profit). We might let shopkeepers mentioned on the map take care of the distribution.

What are the best resources for gathering information around your city?

FL: There are a few green guides in the Netherlands with a lot of green shops and business listings. However, they had to be checked for their "greenness". We had to scrap a lot of addresses from the basic list from this guide. Michelle and I both made our round through the centre. We checked each spot so we could be accurate in placing the icons. For the Green & Nature maps, I took a few bicycle-rides, and I 've made phone calls to some organisations to ask what they were doing if it wasn't really clear.

MT: It's a basic tip, but keep your eyes open when there are new building areas in your city, as it takes a while, even for a well organised local council, to get new organisations onto their maps and lists - most booklets and folders are only printed yearly. Also scan the local newspapers to see what new organisations/outlets are opening up.

Have you set up a strict criteria for including Green Sites?

FL: Not strict. For the partly green shops, the other products played a part in the decision. Also the number of the same type of sites could be a criteria.

Are you including sites that are not public & accessible?

FL: Yes. If they make themselves known in any public way, we will mention them.

What are you doing about sites that fall under more than one category?

FL: Give them 1 icon and mention the related information in the address and description listings. Mostly, the categories have some space for deviation and so do the sites. However, we did have some trouble in making the choice between the icons for some of the organisations/shops.

Where did you get your basemap?

FL: We asked for the initial map at the city office and got sent one for free (a printed map) but because it was a full color map, it was hard to scan (too little contrast). If we had bought the map at the 'mapping agency' we wouldn't have gotten the copyright for it, so we have drawn the maps ourselves [WEB: this copyright situation is different in each city]. Time consuming but cheap. I used a black & white map for the city and Michelle used the low colored version. She had to do a lot of interpreting to get things as they should be. From this basemap, we have drawn new layers for the waterways and roads and recolored them. Because Gouda is a small city, the centre fits well on the screen. The city itself in a scale of 1 : 22000 is just OK.

Is this going to be a "try-out" Map, or a more "finished" Map?

FL: Because the map has been on the web from the first moment, it has been and will be a try-out map for a while. The web version will be kept alive with regular updates. [WEB: some update suggestions will probably come from users of the web version, and newly discovered sites can be added before a more "finished", printed Green Map is published. All maps are snapshots of the moment, and successive editions can clearly show the progress toward sustainability being made over time].

How did you select the colors?

FL: I have noticed that not all colors show up the same on all the internet systems. On my system (VGA and Netscape 2.0) light brown, light yellow, etc., become white. The yellow used on the city centre map, therefore, is 50% yellow and 50% white. Michelle uses Internet Explorer and Netscape 3 (e.g. the Utrecht Green Map looks quite different on her system than on mine).

MT: The question of colour coding brings up a topic which is also difficult for many an experienced cartographer, because they often lack (artistic) training in colour appreciation and its combination/composition. This problem can get worse due to the economics of standardising printing colours, which then restricts the colour choice even more, keeping colours simply denotative. It would be useful to get advice from both a cartographic and artistic point of view. It can help to produce a map that can be much easier to interpret, particularly when it is a specialised map with a theme, then the use of colour can also be applied metaphorically. A simple example - the emotive use of colour: choosing red for the "hot spot" sites or ecological negative sites.

Was it difficult to install the Green Map Icons?

FL: Not once I knew how to handle Windows itself [WEB: actually, Frits discovered a glitch in the first version of the Icon font, then he and Michelle helped fix it. Now Icons 1.1 seem to be working fine for everyone (Mac users have a true-type version of the Green Map Icon font)]. The Icons are placed using Paintshop Pro. Some icons must be bigger than others to make them clearly visible. 10 or 12 points (on-screen) will be a minimum for most icons. Mapmakers will find out for themselves.

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How many icons did you use?

FL: We used about 25 icons on the 3 maps. Too many different icons could be confusing, so it's better not to use too many of them. I think it's better to combine some of the items using 1 icon and explain in the text.

MT: As Frits mentioned, using a smaller range on a web page does keep things clear, due to the restrictions of the PC screen. However, for a printed paper map, this is not such a problem. A good key and a well designed map should be able to use all the icons without confusion.

Who did all the html (internet programming) and were the frames difficult to set up?

MT: We both did the html, though Frits already had the html skeleton set up on his system... About the frames, it took a bit of reading and checking first, once I got version 3 cmds clarified as compatible for both types of browser, I could get on with it for the city centre map, then Frits used that as a 'framework' for the other maps.

What about the narrative text on your Map?

FL: Michelle wrote a nice story with info on Gouda, of which I knew nothing about, although I've lived here for 22 years. I do think the people who live here and cultural tourists will read this. The naturemap has relevant stories with each item. [WEB: I really appreciate the wealth of info conveyed in the text, in English and Dutch]. MT: Include environmental info that makes people realise/ motivates how important it is to be 'eco-wise' as part of the introduction page.

FL: Wendy, I've looked at your Greenmap logo and it really looks great. I would like to use it on the Gouda map and it would be a point of recognition if all the maps would use it.

Good idea! What was the most enjoyable & interesting part of the project?

MT: For myself, trying to link one set of tech ideas/experience to another medium e.g. for the web. This was an enjoyable challenge because it had a 'green' purpose.

Did you discover a favorite green site?

MT: Surprisingly Gouda in general, by realising that this small city has a lot to offer (ecologically speaking).

Technical Dialogue

During the 15 weeks the Gouda Greenmap was in production, there were many emailed discussions between Michelle and Frits on technical issues. Read on to see how they worked together from their separate computers, and made their decisions. They include lots of useful advice for all Green Mapmakers.

FL: The first idea is about producing a map of the city, which would then contain the icons and be shown on the web. I thought of scanning a city map, removing unwanted information and placing the icons where they should be.

MT: There is the problem of the final publishing medium - the web - and having to keep the file sizes small. Hence your idea to scan a map and then remove all but the essential information is probably the best way to do it.

FL: The map will be on my URL (http://web.inter.nl.net/users/F.vd.Laan/milieu-defensie) at first as a .GIF file which should be downloadable. Later on I can work out the clickable map. Wendy Brawer is coordinating and will keep track of the greenmaps in the world. The icons for the map are placed in the Windows directory as fonts and the file with the icons and what they mean is a MSWord text file.

MT: Wendy's mail mentions numerous possibilities for various types of map output. Building a map for people to have in their hands means the possibilities of great detail and interpretation - a good scan with the carefully selected information, would then be the best start. However if the map is only going to be produced for the web, all of that clarity will just be a time gobbler when anyone tried to download the gif file. Then a cheaper scan would be better. You asked "is it possible with a scanned map to make an overlay?" Yes, with a mapping program, but most of these are geared towards PC/workstation viewing plus plot/printouts, rather than the web.

MT: A pity about the expense of obtaining a digital map. You mentioned that "It's made up of a basic map with overlays." How was their overlay information going to be supplied e.g. vector over raster? If it was, that could be useful for different plot outputs when you have some simple mapping software (however more expense!). Perhaps Mapedit software for windows? Their latest release is supposed to cut out the need for running the CGI script (the callable part of the clickable map) from a server. See Mapedit at http://www.boutell.com/mapedit/. I'm also looking at other possibilities for you e.g. "Map This" which is freeware.

MT: A brief conclusion to your questions - perhaps first decide what forms of output will be required - long term. Then compare costs for increasing your scanner memory as compared to buying supplied raster/digital.

Then the plan to buy the required digital data went awry, so another plan was developed:

FL: Sudden change of events - there is a big financial and copyright problem. Time for plan B, or another way to get things going. I made a calculation (money is time). There are about 1000 streets in Gouda, and if it takes 7 seconds to draw one street it takes less than 2 hours to draw the whole street plan. Take 2 more hours and I think the map is ready. To make it different and original the streets could be drawn as straight lines (digital look) so no copyright problems. The program Mapmaker can do this (I think) as overlays. It is also possible to do this on paper (maybe even faster). I want to try this with the city centre (very small and only a few streets).

MT: I like your optimistic calculation :) Just from experience, getting a good line traced takes a bit longer. Yes, Mapmaker can do this by using sections of straight lines plus free drawn stream-curved lines (the software's pencil option). These drawn elements can be put on a 'live' layer then a background scan can be switched off. [Mapmaker, the Professional version, obtainable from the author email:

eric@mapmaker.com or view the web site at
http://www.mapmaker.com/bespoke.htm].

Mapmaker is shareware, a self-extracting compressed shareware version of
Mapmaker can be downloaded. However please note what the author says "This
software has been designed for the benefit of students, academics,
non-governmental not-for-profit organisations, and governmental organisations in
Africa, Asia, Latin America, and Eastern Europe. If you do not fall into these
categories you are welcome to download the software for evaluation purposes but if
you wish to continue using it then please consider buying one of the low-cost
commercial licences for Map Maker Pro."

MT: However, [re: the idea of drawing on paper], after working in a landscape
architect's office with old fashioned design tables and rotary pens, hand drawing
making neat results won't be faster, but if we need to resort to it, I'll give it a go,
though a digitiser would be very useful!

FL: With my knowledge of mapping, I was about to draw the map as an analog map,
but a digitiser (whatever this does?) must be easier to handle in correcting and
redrawing (did I guess right?). I made another test map and you were right about me
being optimistic with 7 seconds per street, but starting with the city centre, I still
think it's worth the invested time.

MT: Yes, a digitiser does make it easier to handle and control a redrawing process.
By converting an analogue map to the digital format with the use of a cursor/mouse
that works within a sensitive area, this helps towards the accurate tracing of the
map's features.

FL: I want your opinion on the following scenario: start with a small scanned B+W
map as the basic map (economic). As the scanner is small, parts of the map will be
stitched together to make one map. Then edit the map with some graphic software
and remove as much of the non-essential information as possible. Color the bicycle
routes and footpaths, railroad, parks etc. and give it a background color. Place the
Icons on the map. Place some basic text somewhere and then the map is ready.
With Mapedit, it is made into a clickable map. What good software can we use? I
can get Coral Draw if I have to, I do have Paintshop and similar programs.

MT: The basic idea would work with most browsers. GIS (geographical information
systems) software offers raster editing functionality (e.g. calibrating for precision)
that is not needed for an Internet image, and raster results (e.g. tif, OS standard
etc) would still have to be translated to GIF, a format for the web. So a good raster
image editor which works with images for the net is better.

MT: Scans of the area (which contained many colours) turned out to be difficult to
handle in the Mapmaker and Paintshop software programs. However, the simple MS
Windows Paint package came to the rescue, allowing us to first import the BMP
image (which had been converted from the scanned TIFF file) before saving it as a
16 colour bitmap map. This produced no errors with the other software we used -
keeping things simple often preserves the compatibility. The maps begin to appear
on the web.

FL: I've been a bit busy and have a map of Gouda included as a BMP file made with
Mapmaker and the resultant Gouda outline greenmap is now placed on my website.
There are a few errors, mistakes etc. but the basic map is ready. The roads are
lines and the waterways all are polygons. The colour settings are customized to
make me work more efficiently. There are 9 layers in use because I didn't like to
risk losing data after re-saving. The city centre will be filled with roads too, but the
details are for the city centre map. I wanted to place a few insert maps to the left of
main map, with the insert maps located with numbers. This map can also be used
for the walking routes, of which there are 4 here in Gouda (nature-walks). The basic
map format is A4 -1:22.000 (North up).

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MT: Hence 1mm on the map will be 22.000 mm (22 metres) on the ground. 1:10.000

would give wonderful detail (10 cm = 1 km), but A4 is a bit small to contain this image. Re: 'North up' - take a true north reading - not grid north, as we have no grid lines to deal with.

FL: On the map: Waterways, Lakes, Railroad, all other roads (same width) bike lanes (if possible).

MT: If not too cluttered, perhaps also any sand/dune areas adjacent to water features. Suggest that the railroad and station should be in black. At 1:25.000 or 22.000 scale, some roads may be a little tightly packed and be too detailed without screen magnification facilities, and some of the smaller roads may have to be deleted. For the bike lanes, it would be a surprise if the city office did not have this data (as they will also need the service and public access data). If not, we can take a look at a 1:50.000 bicycle map and hand draw this information.

FL: Green spots: Parks, wild plants, gardens, burial places, natural areas.

MT: If allocation colours allow, would be good to clearly show any special tree areas e.g. mixed wood or non-coniferous wood. Also would be good to include a few standard landmarks that help people orient themselves e.g. the old gemeente house (as a monument) wind or watermolens (mills) and something of everyday use like a post office and the tourist office.

FL: Color/contrasts: Roads drawn as a double line, or a colored/gray line, 0.8 or 1.0 mm width (there will be no names on the roads). Bicycle lanes, if possible, a different shade of gray/color, all water 1 shade, the width as in the scale with a minimum of .8 mm (A4). All non-green areas as white or gray.

MT: Perhaps a better colour for the roads would be light brown, gives them less focus but with the main arterial road shown as in black. Bicycle lanes perhaps shown as a small broken/dashed line. Water, let's try for light blue.

Cross checking of each others' work on the web begins:

MT: I have attached and returned the Gouda.gif to you. It looks really good and easy to read. I only made a few changes which are included in the attached gif file, for example, making the names of the waterways blue so that it is more intuitive to read, otherwise "Gouwe" could be thought of as name for a land area. Also, repositioning some place names so that they are clearly seen. The roads and the canals are the main arteries enabling people to think their way around the map, yellow for the roads (which first had to be toned down) then blue for the canals, as the main navigation features on the city centre map - the two colours made a good combination.

MT: I have also checked the map within both Netscape Explorer version 3 and Internet Explorer version 3. There were some discrepancies e.g. text in Netscape is aligned right of gif, while in Internet Explorer, it is placed underneath. The gray background in IE has a light black speckle in it and it gives nicer definition, though both browsers look good. Also, within Netscape at a 256 screen colour setting, some of the place names can not be easily read as the background colour appears too dark. On a screen with 16 colours, these names can be clearly seen within the Netscape browser.

MT: Also just a comment about the North symbol. Perhaps it could be moved to bottom left of map, or kept black without any red on it. A north symbol/bearing is meant to be unobtrusive so that it relates the information without becoming a feature in itself (unless the style of map requires such).

MT: It would be good to have one easting and northing grid reference (latitude, longitude). The digital office can place this accurately on the map.

FL: Except for some major roads, there will be no names on the map. The names of the city areas will be placed later. The coordinates will be added later in metres. I don't think anyone will use the scale of the map to calculate, so any scale will do as long as the distance is known. (Grid/Scale in x metres).

Then there were also some Frame problems while writing the HTML for version 2 compatibility:

MT: If anyone else encounters similar problems, a good place to reference for HTML clarification can be found at http://ls.ctc.edu/Exp/Technique/Netscape/Frames/frames.html. The reference guide for Internet Explorer version 3 also has some clear examples. Other reference books I used (so easy to read) "Teach Yourself Web Publishing with HTML in 14 Days" by Laura Lemay, ISBN:1-57521-014-2 (covering HTML versions 2 and 3, plus CGI) With a revised book "Teach Yourself Web Publishing with HTML 3.2 in a week " also by Laura Lemay, ISBN:1-57521-192-0 (covering HTML 2, 3.2, Netscape and Explorer extensions and CGI).

WEB: Then Frits & Michelle held quite a few discussions about which icons to use. At first Frits collated all of the information gathered from a 'green guide.' After verifying each organisation's status and geographical location, we cross-checked each others' thoughts on which organisations should be placed on the map and which icons should be applied, what colours were appropriate (e.g. red for a negative site) and the best sizes for the icons. It was difficult to decide on a compromise for some organisations which did not really fit the description of any of the icons available. It was decided that the information given about each clickable icon (in the frame at the side of the map) could clarify the ambiguities, as well as including a short sentence explaining what the company's 'mission' or eco interest was. For further orientation, a few main road and pedestrian street names were given and written in a simple, clear sans serif font. Stylised writing which can often clutter an image, such as that used for the name on the Gouda Coat of Arms, should be kept to a minimum.

MT: We should also include a Key to use with the map's icons, including other colours/drawing symbols we have used. We could also have a little piece about Gouda (couple of paragraphs) with a bit of current and historical information - just to give an identity to the place. Also to be clearer, the names/titles given on the small clickable maps (at the bottom of each main map) should also be included as titles on the larger maps they access. We should also have a key which lists and explains the meaning of all the icons we decide to use, then make it accessible from any of the maps.

FL: The space above or below the address window can be used for the hotlinks, e.g. the Gouda story you wrote (displayed in the big window) and the other small clickable maps. The centre map and the green Gouda map are about 60% of screen width while the city map is 75%, so there is more space available for additional information alongside the first two maps just mentioned.

Then a decision on the title:

FL: "Gouda greenmap" for Gouda is not a very common search word, so I placed it at front. It's very nice to be in non-English, as English titles often give search results with counts of up to 12000 or more, while Dutch mostly stops at a workable amount in the search engines.

MT: However, there are things left to be improved with a future version, the non-smooth raster lines on the maps for example, which can be seen if anyone would zoom into the map images using products such as Paintshop Pro or Lviewpro. This same non-smooth raster finish is also apparent if a simple print of the screen image is made, for example at A4 size. People like to closely inspect maps, so if anyone wants to take a closer look at the map from the web they will currently not see smooth vectors. That is something we can surely improve when a paper map is produced.

WEB: The Gouda Greenmap was posted in-progress in October 1996, and it officially "opened" in November 1996. It came out great! If you haven't seen it, take a look now.

It took 3 .5 months to put it all together, just a bit longer than the month Frits thought it would take. I think it's brilliantly executed, and want to congratulate Frits & Michelle, and to thank them for sharing the inside story!

We hope this gives you a good impression of the process developed by Michelle and Frits, combining their skills and knowledge of Gouda's environment, mapmaking and design for a very successful outcome. If you have questions for them, email Frits and Michelle directly or to the editor, Wendy at web@greenmap.org. Every city is creating their own process and we will be sharing more of them in a fresh format soon. This experience exchange is central to the Green Map System. Mapmakers can request the minutes from our online meetings in either full length or archive format.

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GREEN MAP