



2nd CRESTING ESR Training WORKSHOP:

Circular Economy: from concept to practice-oriented research designs

January 26-February 1st, 2019

Academic Guide

Part of the Circular Economy Doctoral Training Year One (part 2)

(an updated version will be distributed the week before the workshop)

FINAL VERSION

Venue:

Landgoed de Horst,

De Horst 1,

3971 KR Driebergen, The Netherland

Organised by

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Copernicus Institute of Sustainable Development

Utrecht University



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Part I - Practical matters

Program overview

Utrecht University						
Januari 2019 CRESTING Workshop Timetable (preliminary)						
	Session 1 - 9.00-10.30	Session 2 - 11.00-12.30	Session 3 - 13.30-15.00	Session 4 - 15.30-17.00	18.00-19.30	Evening
Saturday 26/01/2019	Location de Horst, Driebergen	Travelling	Travelling / Arrival	Arrival at de Horst	Arrival at de Horst	free
Sunday 27/01/2019	de Horst, Driebergen	Local cultural tour: Rural and Urban Historical Utrecht starting: 10:00	Local cultural tour: Rural and Urban Historical Utrecht	Return at de Horst: ~16:30	18.00 - 19.30 Opening CRESTING workshop 2: connecting research needs and research strategies	Dinner 20:00
Monday 28/01/2019	de Horst, Driebergen	REA Midterm Check Meeting Start 8:30	REA Midterm Check Meeting	REA Midterm Check Meeting Consortium Meeting (14:30-16:00)	Reception (17:15 - 18:00) (18:00: Time for WP package meetings)	Dinner 19:30
Tuesday 29/01/2019	de Horst, Driebergen	Multi-level policy challenges of CE: research needs (workshop with guests) part 1	Multi-level policy challenges of CE: research needs (workshop with guests) part 2	Multi-level policy challenges of CE: research needs (workshop with guests) part 3	Multi-level policy challenges of CE: research needs (workshop with guests) part 4	free
Wednesday 30/01/2019	de Horst, Driebergen	Research methods workshop:	Research methods workshop:	Research methods workshop:	Preparing field visits	free
Thursday 31/01/2019	Various locations in NL	Field visits: observation of Rx cases (in small groups)				free
Friday 01/02/2019	Utrecht University, Copernicus Institute of Sustainable Development, Vening Meinesz Building - Meeting Room 1.02	9.30 Meet Copernicus & Reporting on field visits: observation Rx cases (6 small groups)	Reporting on field visits: observation Rx cases (7 small groups)	Break	departs after 15:00	free
			Lunch	Break		
			Preparing for Q3 & Q4 in ESR trajectory and workshop 3			

Detailed program: day to day

CRESTING Workshop 2

Agenda for the Sunday 27th January 2019:

Rural and urban cultural-historical visit to Utrecht Province

Venue: Landgoed de Horst, De Horst 1, 3971 KR Driebergen, The Netherlands

Agenda

10:00	Departure by bus from de Horst, Driebergen
10:45	Arrival bus in Oudewater (https://www.oudewater.net/en/bekijken-2/)
11:00	Villagetrip or certification experience (shift 1)
11:45	Certification experience or Villagetrip (shift 2)
12:45	Departure bus Oudewater Lunch in bus
14:00	Arrival bus in Utrecht, Domplein
14:30 - 15:45	DomUnder Tour 75 minutes
16:00	Departure bus Utrecht
16:30	Arrival bus at de Horst, Driebergen (19 km)
18:00	Meeting all participants
18:30	Meeting supervisors / Meeting ESR's
20:00	Diner

Agenda for the mid-term review

28th January 2019

Venue: Landgoed de Horst, De Horst 1, 3971 KR Driebergen, The Netherlands

Agenda

- 08.30 Arrive
- 08.45 Co-ordinator's Introduction
- 08.50 Tour de table WP Leaders
- 09.15 REA Project Officers Presentation
- 09.45 Co-ordinators Report
- 10.30 Break
- 10.45 Fellows' Individual Presentations (WP 1 – 3)
- 12.15 Lunch
- 13.15 Fellows' Individual Presentations (WP 4 – 5)
- 14.30 Restricted Session with Fellows only
- (14.30-16.00 Parallel Supervisory Meeting)*
- 15.30 Break, restricted session with Fellows only (continued)
- 16.30 Restricted Session (Co-ordinator and Project Officer)
- 17.00 Feedback and discussion
- 17.15 Close & Reception
- (18:00: Time for WP package meetings)*
- 19.30 Dinner

Agenda for Tuesday 29th January 2019

Multi-level Policy Challenges of CE: Research needs (workshop with practitioner guests)

Venue: Landgoed de Horst, De Horst 1, 3971 KR Driebergen, The Netherlands

Agenda

- 08.30 Arrivals
- 09.00 Opening ([Ernst Worrell](#), [Pauline Deutz](#))
- 09.15 Introducing today's challenges. ([Walter J.V. Vermeulen](#))
- 09.30 First round of identifying research challenges
- Three decades of CE: looking forward ([Walter Stahel](#))
 - European CE policy and current research challenges ([Hans Christian Eberl](#), [European Commission](#))
 - Circular Economy Labs 2013-2019; lessons learned from a research perspective, ([Carolien van Hemel](#), Utrecht Sustainability Institute)
 - Plenary Q&A
- 10.45 Break
- 11.00 Second round of identifying research challenges
- National level: Dutch ambitions and how to get there ([Cuno van Geet](#), Dutch Ministry of Infrastructure and Water management)
 - National level: Helicopter views as policy advisors ([Maikel Kishna](#), [Dutch PBL](#))
 - Canon: transforming a large international operating firm towards CE, ([Walter Tobé](#) Canon Europe)
 - Plenary Q&A
- 12.15 Lunch
- 13.30 **Pitch Carousel 1:** Knowledge Markets: demand and supply
- 15.00 **Pitch Carousel 2:** Market demand for knowledge types, skills and capabilities of CE professionals and best form of policy briefing
- 16.30 Feedback and discussion
- 17.00 Closing & drinks

(18:00: *Time for WP package meetings*)

Evening: free

Agenda for the Wednesday 30st January 2019:

Creating impact with your research work and secondments

Venue: Landgoed de Horst, De Horst 1, 3971 KR Driebergen, The Netherlands

Agenda

- | | |
|---------------|--|
| 9.00 - 9.10 | Welcome |
| 9.15 - 9-35 | Introduction: challenge of making sustainability research transformative & maximizing the impact of your secondments (dr. W.J.V. Vermeulen) |
| 9.35 -10.45 | Opportunities and challenges of deep engagement with target group: experience with Emergent Transdisciplinarity (dr. Lauren Rosenberg) |
| 10.45 - 11.00 | Break |
| 11.00 - 12.15 | Interactive sessions: optimizing your field experience in the secondments
(interviews (3 x 10 minutes), discuss, present) |
| 12.15 - 13.30 | LUNCH |
| 13.30 - 14.00 | Participatory methods for intervention and stakeholder engagement: group model building and more (prof. dr. Etienne A.J.A. Rouwette en dr. Vincent de Gooyert, Radboud University) |
| 14.00 - 16.30 | Interactive group model building experience in two groups |
| 16.00 – 16.45 | Presentation, comparison and implications |
| 16.45 | Finish |
| 17.30 - 18.30 | Preparations for Thursday's field visits (in 6 teams) (use any open space as group). |

Evening: free

Agenda for the Thursday 31st January 2019:

Field visits

Venue: Various locations departing from Landgoed de Horst, De Horst 1, 3971 KR Driebergen, The Netherlands

Agenda

8.00 Individual departures of the 6 field visit teams

17.00 ~ 19.00 Return of the 6 field visit teams

Evening: free

Agenda for the Friday, 1st February 2019:

Meet Copernicus & reporting on field visits: observation Rx cases and looking forward

Venue:

Utrecht University, Copernicus Institute of Sustainable Development,
Vening Meinesz Building - Meeting Room 1.02

Agenda

8.00 – 8.30 Check out

8.30 - 9.10 Bus transport to UU Campus

9.30 – 12.00 Reporting on filed visits

12.00 - 13.00 LUNCH

13.00 - 14.30 Looking forward: preparing for Q3 & Q4: issues identified during the week

14.30 - 15.00 Wrapping up

15.00 Departure

Travelling arrangements: getting there & going back home

Public transport in NL

- OV Chipcards can be used on all forms of public transport. If you are intending on taking trips into Utrecht in the evening, or coming in the future we recommend this. You can purchase an **'anonymous card'** at the station at the NS counter or the yellow machines near the platforms, the cost is € 7.50.
- When travelling on a train you need to have a minimum of € 20 credit, otherwise you cannot check in. More info on OV Chipcards [here](#). If you intend to take a bus to Utrecht one or more of the evenings, it may be wise to add some additional euros.
- Check your OV card in/out of the train station using the following machine:



- If you do not want an OV card, you can buy single train or bus tickets at airport/buses. Bus tickets in the bus are far more expensive than using the OV-chip card. Note that you will need one of the following cards:



Schiphol – Driebergen-Zeist - Landgoed de Horst

Best route 1: Schiphol – Driebergen-Zeist (Direct)

- Take the train from Schiphol to Driebergen-Zeist directly on the NS Intercity to Nijmegen. It usually departs from platform 3, you can check your route [here](#). The cost of a single ticket is € 10.80. At Driebergen-Zeist take bus 50 (Wageningen via Doorn) 6 stops and check out at Driebergen Akkerweg (just outside the village). This bus leaves every 15 minutes on weekdays

and 30 minutes evenings and weekends. A single should cost no more than 4 euros. From there it will be a 2 minute walk to the Hotel (see below).

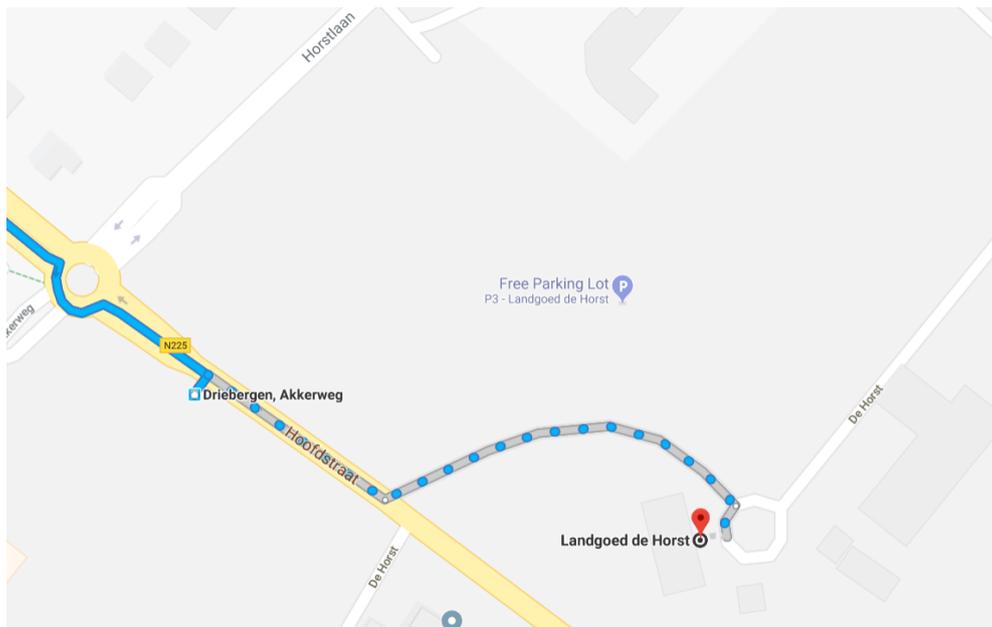
Route 2:

- Take the NS intercity to Venlo from Schiphol, exiting at Utrecht Central. This train usually goes from platform 3. Change at Utrecht Central to the NS Sprinter to Rhenen (usually platform 15) and exit at Driebergen-Zeist. Cost, again € 10.80. At Driebergen-Zeist take bus 50 (Wageningen via Doorn) 6 stops and check out at Driebergen Akkerweg. This bus leaves every 15 minutes on weekdays and 30 minutes evenings and weekends. A single should cost no more than 4 euros. From there it will be a 5 minute walk to the Hotel.

Route 3:

- Take either the NS Intercity to Nijmegen or the NS Intercity to Venlo to Utrecht Central. Either one of these trains goes every 15 minutes. Trains usually depart from platform 3, cost 8.80. Exit the station following the signs to the bus. Take Bus 50, usually stand C4 going to Veenendaal via Zeist/Doorn. This bus route will take roughly 40 minutes (25 stops) and will cost roughly 4 euros (one way). Exit at Driebergen, Akkerweg then walk 5 minutes to the hotel.

Akkerweg bus stop to Landgoed Hotel on foot



Bus 50 from Driebergen, Akkerweg to Utrecht Central (Route 1 & 2)

Driebergen, Akkerweg

 50 richting Utrecht CS Jaarbeurszijde



Alleen geldig: 09 December 2018 - 14 December 2019

Maandag t/m vrijdag	Zaterdag	Zon- en feestdagen
06 02 29 46 57	06 46	08 16 46
07 14 25 35 45 55	07 16 46	09 16 46
08 05 16 26 36 46 56	08 16 46	10 16 46
09 06 16 26 46 56	09 16 44 59	11 13 28 43 56
10 11 26 41 56	10 14 29 44 58	12 12 27 42 57
11 11 26 41 56	11 13 28 43 58	13 12 27 42 57
12 11 26 41 56	12 13 28 43 58	14 12 27 42 57
13 11 26 41 56	13 13 28 43 58	15 12 27 42 57
14 11 26 41 56	14 13 28 43 58	16 12 27 42 57
15 10 25 40 55	15 13 28 43 58	17 12 27 42 57
16 05 15 25 36 45 56	16 13 28 43 58	18 12 27 42
17 06 16 26 36 46 56	17 13 28 43	19 00 17 47
18 08 17 28 43 58	18 00 15 30 45	20 17 47
19 11 23 39 53	19 00 15 47	21 17 47
20 20 50	20 17 47	22 17 47
21 20 50	21 17 47	23 16 46
22 20 50	22 17 47	00 23 46
23 20 50	23 17 47	
00 20	00 17	

Bus 50 from Utrecht Central to Driebergen Akkerweg (Route 3)

Utrecht, CS Jaarbeurszijde

 50 richting Veenendaal Stat. De Klomp



Alleen geldig: 09 December 2018 - 14 December 2019

Maandag t/m vrijdag	Zaterdag	Zon- en feestdagen
05 45	06 25 55	08 29
06 00 15 32 39 49 59	07 10 25 40 55	09 06 27 42 57
07 09 19 26 36 46 54	08 10 25 40 54	10 12 27 42 57
08 04 14 24 34 44 54	09 09 24 39 54	11 12 27 42 54
09 04 27 37 52	10 09 24 39 53	12 09 24 39 54
10 07 22 37 52	11 07 22 37 54	13 09 24 39 54
11 07 22 37 52	12 09 24 39 54	14 09 24 39 54
12 07 22 37 50	13 09 24 39 54	15 09 24 39 54
13 05 19 34 49	14 09 24 39 54	16 09 24 39 54
14 04 20 35 50	15 09 24 39 54	17 09 33
15 05 20 32 42 52	16 09 24 39 54	18 03 33
16 02 12 22 32 42 52	17 09 33	19 03 33
17 02 12 22 32 42 58	18 03 33	20 03 33
18 13 32	19 03 33	21 03 33
19 02 32	20 03 33	22 03 33
20 02 32	21 03 33	23 09 35
21 02 32	22 03 33	00 05 45
22 02 32	23 03 33	01 20
23 02 32	00 05 45	
00 02 45	01 20	
01 20		

Main websites

- NS journey planner, [here](#).
- Bus 50 route planner, [here](#).
- Hotel website, [here](#). Address: Landgoed de Horst, De Horst 1, 3971KR Driebergen

Going back on Friday, 1st February: UU campus to Schiphol via Utrecht Central Station*- UU Campus to Utrecht Central station*

Buses from campus for Utrecht Central Station leave from the stop Padualaan (bus no. 12) and stop Botanische Tuinen next to Kiosk Kruytgebouw (bus no. 27 & 28). Bus 12 departs every 10 minutes and buses 27/28 every 8 minutes.

Exit bus at Utrecht, CS Jaarbeurszijde

- Utrecht Central Station to Schiphol airport

Trains to Schiphol from Utrecht leave every 15 minutes from either platform 5 or 7.

Dress code – weather preparations

During the workshop most of the activities are indoor, but we are in an estate with different buildings: you will need to walk from one building to another every now and then. For all meetings normal convenient, decent dress code is applied. Dinners are informal. Wear easy shoes. Walking between the buildings is only a few minutes, but with the winter weather, have a coat at hand always.

For leisure time, you may want to enjoy the natural environments, best take some good hiking shoes with you and rain proof coat.

We are in the winter time, the type of weather may vary between greyish, wet with moderate temperatures (5-10 °C; most likely) to cold freezing weather (nights -5 to -10 °C; daytime -5 to 5 °C). Please check the weather forecast the day before you go ([check here](#)).

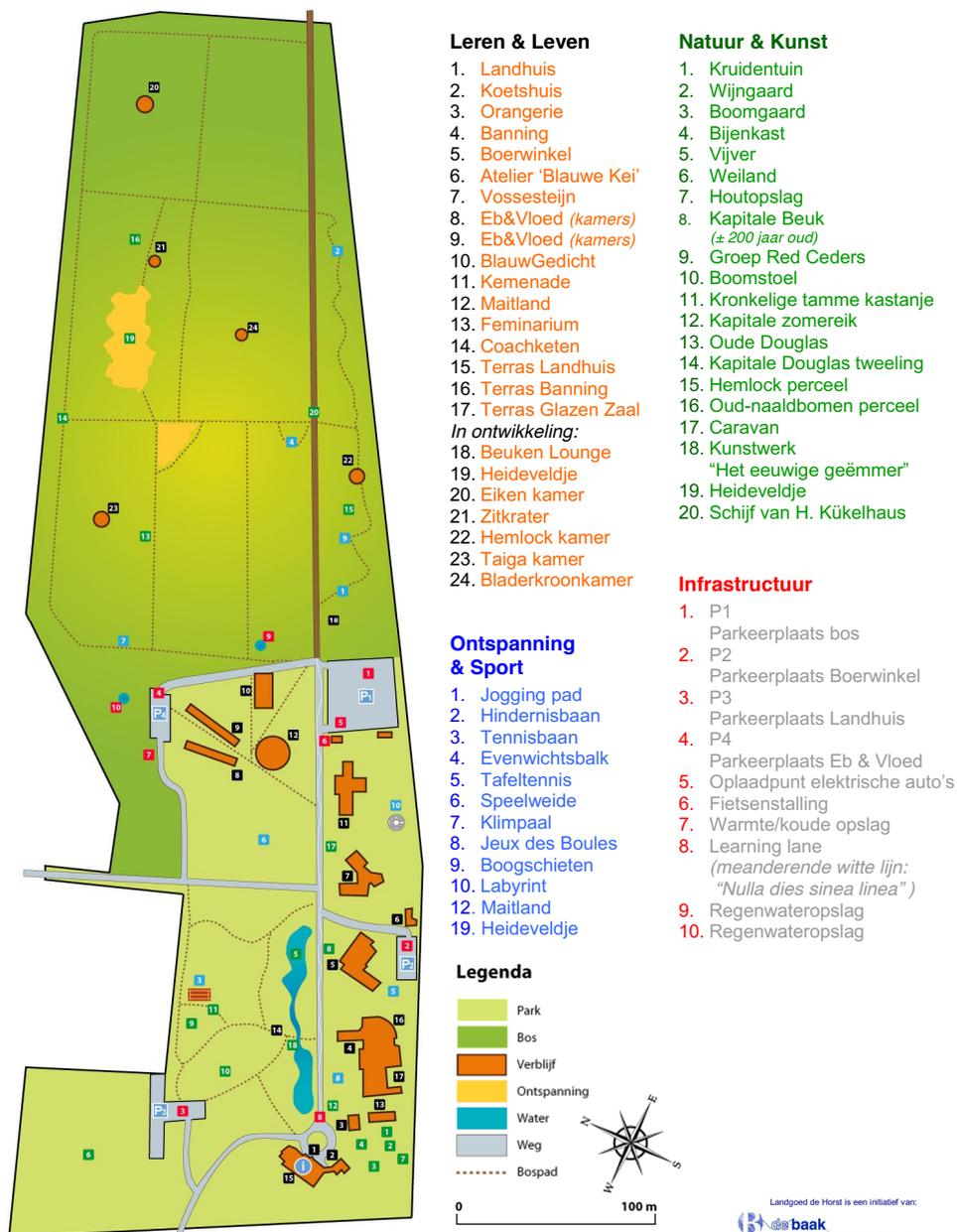
For the excursion on Sunday and the field visits for health and safety reasons everyone must wear full length trousers and long-sleeved tops for these visits. You may in some cases be supplied with safety gear (e.g., high-vis vest and hard hat), which you must wear as directed by the hosts. You need to follow their instruction in all cases.

Venue information & map of buildings and rooms

During the week we are staying in **Driebergen-Rijsenburg**, a town in the municipality Utrechtse Heuvelrug in the central Netherlands, in the province of Utrecht, not far from the city of Utrecht. It is surrounded by the National Park Utrechtse Heuvelrug.

Most of the time we will be on one of the many old estates in this regions: Landgoed de Horst, created in 1835.

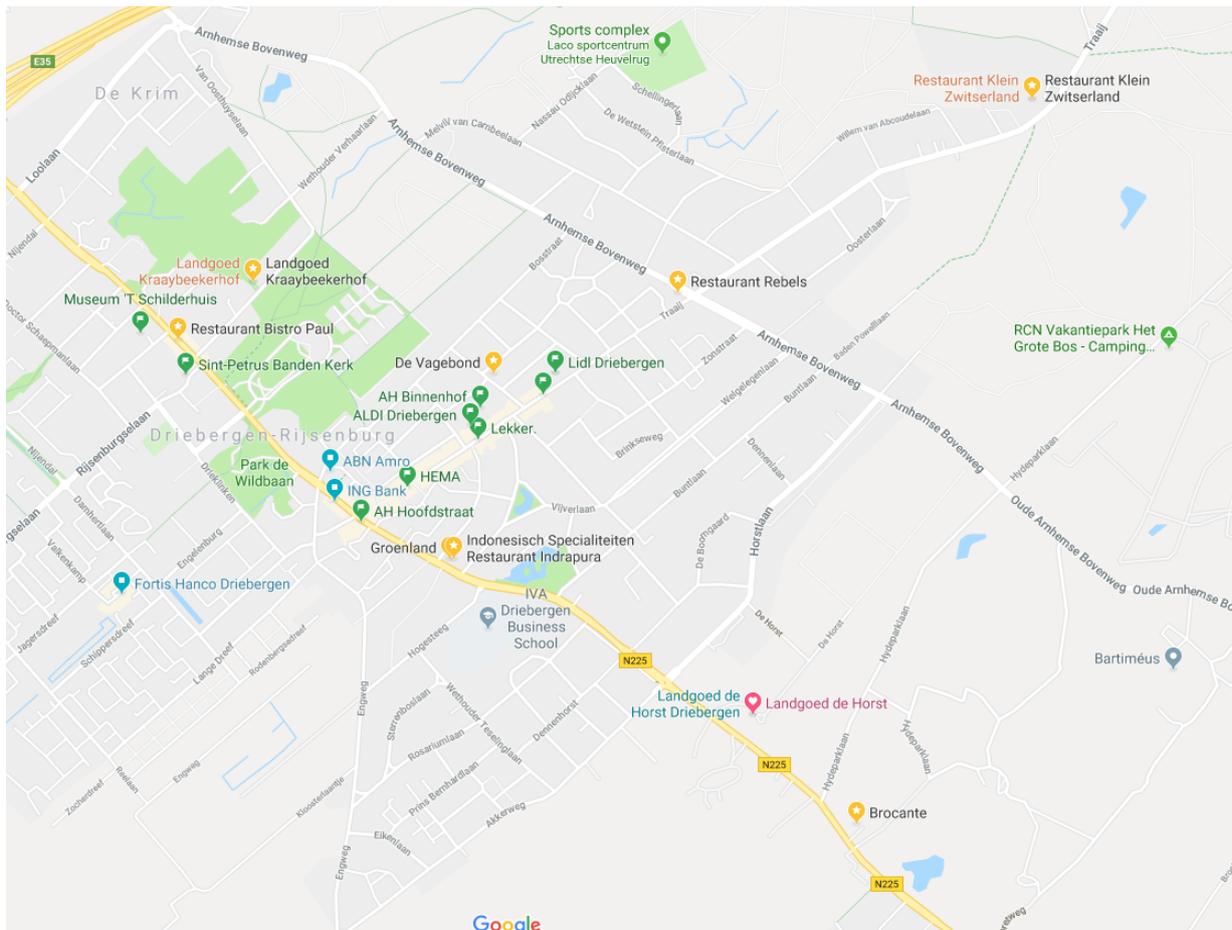
Landgoed de Horst



Leisure time options

Information on Driebergen

- Restaurants and bars are marked in Yellow 
- Points of interest such as stores and museums are marked in Green 
- The Venue (Landgoed de Horst, De Horst 1, 3971 KR Driebergen) is marked in magenta 
- ATMs are marked in blue 



On the free evenings you may wish to look for places to eat:

Restaurants and Bars:

- **Indrapura:** Indonesian restaurant (dishes 15-24 €). Tue to Sat, open 17-22
- **Groenland:** Organic northern European “tapas” (3 for 25 €). Tue to Sat, 11-23

- **Kraaybeekershof:** Biodynamic lunch (7,5-15 €). Wed to Sat, open 11-15
- **Brocante:** Western European, lunch 10-15€, dinner 30€. Mon to Sun, 11-1am
- **De Vagebond:** Late night food and drinks (dishes 18-22€). Tue to Sat, 17-23
- **Restaurant Rebels:** Western 3-5 course dinners (30-50€). Tue to Sat, 11-00
- **Restaurant Klein Zwitserland:** swiss cottage (dishes 11-21 €). Wed to Sun, 10-20
- **Restaurant Bistro Paul:** Late night food and drinks (dishes 11-24€). Tue to Sun, 17-00

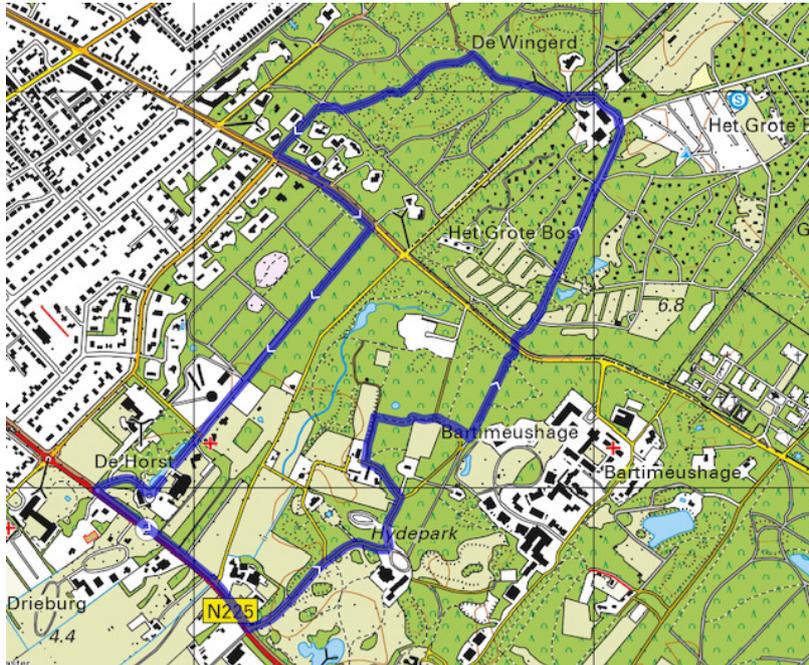
Grocery Stores, museums and attractions:

- **AH:** supermarket. Mon to Sat, 8-20, sun 12-18
- **Lidl:** supermarket. Mon to Sat, 8-20, sun 12-18
- **ALDI:** supermarket. Mon to Sat, 8:30-18
- **Lekker:** Gourmet grocery store Tue to Sat, 8:30-18
- **Mol DrankenSpecialist:** liquor store. Mon to Sat, 9-18,
- **Hema:** department store, Mon to Sat, 9-18
- **Sint-Petrus Banden Kerk:** church
- **Museum 'T Schilderhuis:** Military tradition museum.

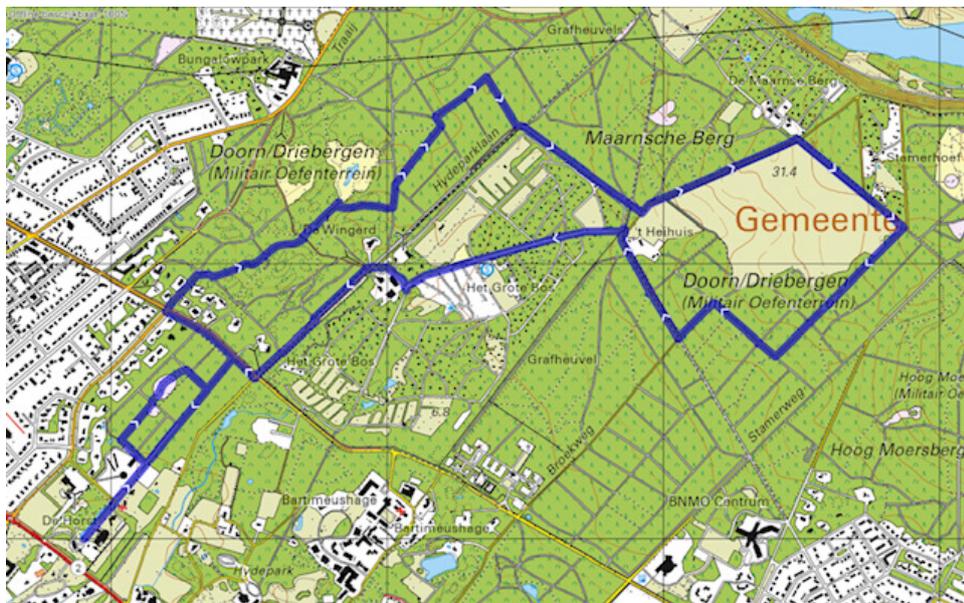
Local hikes

Arriving on Saturday, if you still have time, you may wish to make a short hike in the close neighborhood. We have three alternatives: (.gpx routes are available on request).

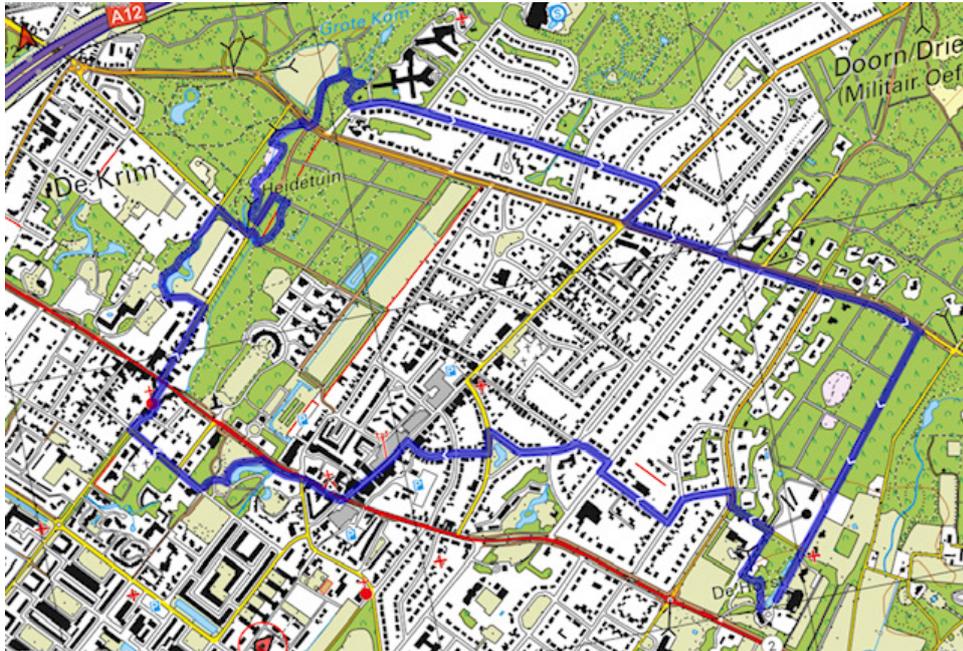
Shorter nature hike (4.8 km)



Longer nature hike (8.8 km)



Village highlights walk (7,3 km)



Instructions for Mid-term review on Monday

On Monday we will spend most of the time to the Mid-term review. You have been informed about it earlier by Claire Lea, and provided her with the necessary documentation.

As you can see in the program a few short presentations are expected:

- **Tour de table:** – Work Package Leaders to introduce their work package, noting key activities/actions so far (5 minutes). The best for all 5 WP leaders is to restrict the powerpoint to 1 overview slide. And only talk the 5 minutes with that (the PhD's will all present their own work later).
- **ESR Individual Presentations:** – Fellows to introduce their projects, providing an overview of the project and progress to date – key activities (8 minutes) followed by any questions (2 minutes). Also have a limited powerpoint presentation available, summarizing your draft research plan as far as it is.

On Sunday before dinner we planned for a first meeting, to assure we all are well prepared for the Mid-Term review.

Part II – Training

Training Materials

This second workshop builds on the first workshop of September 2018 in Hull, and is a part of the first year of training within the Cresting project. Activities comprise a combination of speakers, group discussion, and field visits. There is also time scheduled for meetings with supervisory teams.

Topics covered are:

1. Sharing the progress made and identifying areas of common interest and needs for mutual recognition, integration or alignment;
2. Identifying stakeholder's knowledge needs and required capabilities of academic professionals in the field of circular economy;
3. Research methodologies: translating transdisciplinary research and critical realism into effective methods for researcher's engagement in secondments;
4. Investigating the circular economy in practice.

This handout provides a brief rationale for each topic so that participants know what to expect, what the purpose is, and can prepare in advance. A reading list is also included. There is no expectation that everything on the list will be read in advance, but it would be useful if participants can have done some preparatory reading.

1. Sharing the progress made and identifying areas of common interest and needs for mutual recognition, integration or alignment

The CRESTING project has been designed with a multidisciplinary social science approach, advancing the critical analysis of the concept and sustainability implications of the CE through in-depth analyses of CE-related activities and initiatives in a range of geographic and economic settings within a carefully integrated framework. For this a thorough integration of non-academic partners was created as a particular feature of CRESTING. Both these inter-organisational and inter-sectoral collaboration and the multidisciplinary set-up are seen as crucial requirements for a successful transformation to a CE. At this stage, a half year after the start of the work of the ESRs' and the research plans maturing, we need to reflect on the challenges of creating well-integrated multidisciplinary work which links fruitfully to the stakeholders' needs and enables mutually beneficiary syntheses between the various work packages and ESR projects.

During the workshop we will have various opportunities to exchange the progress made and planned steps to be made. We have planned various informal group activities opening the floor for exchanges and discussions and some meetings explicitly addressing this. A large transdisciplinary project like the CRESTING project requires us to exhale our feelers to search for opportunities and challenges of our collective co-production of knowledge. We need to allow for what is called in the transdisciplinary literature 'abduction', both in our own encounters, but later also in our field work with partners in our secondments and elsewhere.

Questions that arise at this stage are: what specific studies are each of the ESRs planning to do? Which sectors, which types of materials waste, in which countries, what classes of businesses and organisations are we addressing? Which basic literature are we using as starting points? Do we apply comparable theoretical perspectives or do we have conflicting approaches?

2. Identifying stakeholder's knowledge needs and required capabilities of academic professionals in the field of circular economy

During the first workshop in Hull we have seen examples of practitioners and scholars presenting their views and approaches to circular economy, illustrating that the meaning, nature, achievability and implications of it are open to debate. After this, each of you have been reviewing the recent literature on CE. During this second workshop we will further elaborate this and connect this observed diversity in actor positions and perceptions to identifying the implications of such diverse views of the 'theory of change' to the current knowledge needs, the required academic skills and capabilities of 'circular economy professionals' and ways of producing applicable knowledge for stakeholders in the circular economy. With this, we intend to enable successful translation of the scientific discourses on CE to the users of our knowledge (in your secondments) in the transdisciplinary set-up of the CRESTING project.

On the Tuesday we will have a multi-stakeholder workshop with invited speakers from various levels of government and societal stakeholders, each with a long history of experience in the field of CE, each from their own specific position. The workshop is organised in an interactive way enabling as many as possible small group interactions for each ESR with each of the invited experts. Apart from short presentations by each speaker, about their views on the most challenging current knowledge needs for enabling the transformation to CE, the workshop aims, with your direct communications with the speakers, to identify the demands on academic CE professionals' skills and capabilities, which ESRs can further develop during the project and their views on effective science-to-policy and science-to-practitioner's communication, which can be guiding for the next phases of the CRESTING project.

The speakers invited include the government level (European Commission: Hans-Christiaan Eberl, Dutch national government: Cuno van Geet), experts engaged in knowledge development and transfer to practitioners (Walter Stahel and Joppe van Driel, Utrecht Sustainability Institute), and the market (Canon Europe: Walter Tobé).

Several questions come to mind (but you might think of many others): how does the approach that I am developing connect to the challenges and needs presented by the governmental speakers or experts and practitioners? How does my research plan connect to challenges the speakers present? What specific skills and capabilities can be identified in relation to the challenges presented. How can I best develop my skills to address the needs presented by them?

3. Research methodologies: translating transdisciplinary research and critical realism into effective methods for researcher's engagement in secondments;

The CRESTING project aims to contribute to the transformation to CE. Each of the projects within Cresting translates their list of specific research questions into the research designs and adequate methodologies to be applied, which will be very diverse and project specific. Yet, being part of the

overall project the inter-organisational and inter-sectoral collaboration and the multidisciplinary set-up are seen as crucial requirement for a successful transformation to a CE. The close connection to various stakeholder with secondments during the individual projects allows us to develop our projects more into a transdisciplinary direction, each in its own context and abilities. During the Wednesday we will elaborate experiences and opportunities for this in various group activities. We provide optional readings on this topic (see reading list).

Spending a part of the research work in a secondment at a stakeholder allows ESR's to fully understand and work with the specific circumstances and conditions linked to the position of this actor in the wider context. In reflecting on the specific opportunities that such secondments could possibly offer you, we can look in various directions in the scientific literature.

Taking societal stakeholders' problem perception as a starting point is a key ambition in transdisciplinary research and is de facto the starting point of most of the secondments in the CRESTING project. A first line of literature useful for looking at methods of working with stakeholders is that of action research and transdisciplinary.

In various social sciences a longer history of 'action research' or 'participatory research' is available, focussing on enabling learning by the stakeholders under investigation (Borda 2011; Nakamura 2015), with guidelines for dealing with data collection available (Kawulich 2005; Sandiford 2015). In the field of sustainability science transdisciplinary research has been promoted as the appropriate approach to deal with complex and wicket problems (Lawrence 2015; Polk 2015). Designs in transdisciplinary research may in practice vary to a very large extent, and hardly address the specific position of PhD researchers engaged with stakeholders. An exception to this is the work of South African researchers that developed the 'emergent transdisciplinary research process' (van Breda & Swilling 2018; van Breda et al. 2016), using inputs from the stakeholder field as starting point of research work, also by PhD researchers.

In the Tuesday morning we will meet dr. Lauren Rosenberg who recently finished such a 'deep TD' research process in the heart of Africa (Rosenberg 2017) and we will explore opportunities of maximizing stakeholder inputs.

This type of work goes beyond the traditional 'mode one' scientific approach (Gibbons et al. 1994) but is often challenged, especially in the context of academic requirements for PhD research. Starting research as social engagement with a local knowledge and local needs perspective may conflict with academic requirements of embedding research in the disciplinary research discourse lines and paradigmatic boundaries. Academic needs and requirements may seem to be incompatible with issues and challenges that emerge from encounters with societal stakeholders. Scientific requirements for validity, reliability and representativeness may be jeopardized when societal relevance is leading. Careful preparation may however allow you to deal with these challenges. For this a second line of literature can be very useful.

From the field of critical realism some author give guidance on how to connect the required literature review to conceptual model building during the doctoral research process (Knight & Cross 2012). Using skills to develop, construct and re-construct conceptual models, not only your own (academic) model to explain how the world works, but also collaboratively with your stakeholder group or groups is seen as a very fruitful way to jointly identify ways forward for complex transformation processes.

In the field of sustainability research, we are often supporting and evaluating new approaches applied addressing sustainability challenges, like the transformation to CE. In this type of work the creation of

conceptual (explanatory) models is a central element of the research work, as research method often labelled as ‘grounded theory development’, in which literature review-based initial theoretical reasoning is exposed to empirical experiences, resulting in cycles of improved theoretical modelling. Linking these lines of thought with the literature on transdisciplinary, we suggest you to read some of the work on grounded theory and the role of abduction, which suggests to use stakeholder engagement for creating *abductive reasoning* (Reichertz 2010; Bruscalioni 2016; Ong 2012; Timmermans & Tavory 2012): using the hunches of thoughts that emerge when exposing yourself as researcher to the practical positions of the stakeholders you are connecting or engaging with.

The creation of models for transitions as ‘logic models’ or as ‘theory of change’ as perceived by stakeholders can be a way to bridge the challenges of academic work and stakeholder engagement in transdisciplinary research. In the field of policy or governance evaluation such ‘group model building’ methods have been elaborated and developed as a tool for action research and transformative learning with stakeholders. It can be applied as a form of ‘self-reflection’ and critical assessment of existing practices at many levels: national policy, local policy, multi-stakeholder initiatives and inside (larger) companies and organisations (de Gooyert et al. 2016; Pelzer et al. 2014; Andersen et al. 2007; Bell & Morse 2007; Asif et al. 2015; Rouwette et al. 2016; Sterman 2012).

In the afternoon of the Wednesday we will be introduced to methods to jointly develop and reconstruct conceptual models or ‘mind maps’ in an interactive session with two scholars in ‘group model building, who worked in many different countries and topics with this; Prof. dr. Etienne Rouwette and dr. Vincent de Gooyert from Radboud University in the Netherlands.

Several questions come to mind (but you might think of many others): how can I include participation of stakeholders in my project, how can I register all my impressions and observations during my field work and secondment in the best way, how can I include working towards applicable results during my projects, how can I apply mind mapping and group building techniques in my project, how do I assure that the personal observations are also useful for academic publishing?

4. Investigating the circular economy in practice

On the Thursday we will go beyond indoor academic discourses on implications of the concept of CE, and the implications for designing your research. As promoted in the school of emergent transdisciplinary sustainability research, possibly the best way to ‘fact check’ one’s theoretical assumptions is to go out and experience the diverse practices of CE in real life and be surprised, impressed, disappointed, enchanted and/or more, but try to be open for abductive thoughts.

For this we have organised 6 field trips for the same number of small field visit teams. You will be in one of these team and each visit with 2 or 3 colleagues two cases of CE in practice. With this jointly we will cover 12 different examples of CE practices in such a way that we have covered most of the 10R value retention options as discussed in (Reike et al. 2018). For each field visit the hosts have prepared an introduction to their CE example, their business case and their experiences and (when possible) you will have a field/factory tour to see their form of recycling / re-use in practice. After this there is time for questions and discussion.

Every team has one visit planned for the morning and one for the afternoon, more or less in the same direction. You will have a car available to drive and we have one experienced driver willing to be the pilot. You are asked to identify one navigating co-pilot to support the 'pilot'. In advance each team will receive a **team visit document** with the routes, the backgrounds and information about safety requirements for the visit.

For some of the companies we had to give the names of the visitors in advance, this is why the teams are created in advance. Note that for health and safety reasons everyone must wear full length trousers and long-sleeved tops for these visits. You may in some cases be supplied with safety gear (e.g., high-vis vest and hard hat), which you must wear as directed by the hosts. You need to follow their instruction in all cases.

As a team you are asked to prepare in advance during the days before the visit. Have a look at the website of your hosting companies: what kind of CE practice can you expect, what kind of questions would you want to raise. Also consider linking to the discussion on Tuesday and Wednesday about knowledge needs, challenges, needs for skills and capabilities of (higher level) jobs and about best ways to link and communicate our research work to them and creating useful and applicable results.

During the visits you can have an open and critical reflection on the merits, opportunities and challenges of each of your cases. On the next day Friday morning each team is asked to present their experience in a short presentation (4-6 slides, some pictures possibly (but ask for permission)).

CE Field visits: 12x R's



PhD Assignment

Like for the first part of PhD Training Module Year ONE you will need to produce a REFLECTION Report after this workshop. The detailing will be discussed with your first supervisor. This assignment will be aiming at achieving the learning outcomes of this first-year module.

LO 1: Demonstrate understanding of the principles of the circular economy and policies in place to promote it;

LO 2: Design a cross-disciplinary (i.e., multi-, or interdisciplinary) research project relating to the circular economy;

LO 3: Demonstrate understanding of methods for using secondments as research and employment training;

LO 4: Demonstrate understanding of ethical issues relating to research and training in the circular economy.

The purpose of this assignment is for you to reflect on the discussions and materials provided in the 2nd workshop, but also to relate this to the first workshop in Hull and the draft research plans that you have been developing in between the two workshops.

Therefor you will examine how your planned project relates to academic debates relating to the circular economy and the design of transdisciplinary and participatory forms of research, especially for your intended secondments. The task is to identify and justify relevant debates and methodologies, whilst also indicating how your research would contribute to those debates.

The deadline and the size of the report will be determined by your supervisor, who will also assess the report, according to local academic requirements.

Appendices

Appendix 1: Reading list

Try to read something from each section ahead of the workshop. Not all items will be available at all institutions; pdfs of journal articles can be provided if needed on BOX.

LINE 1: General empirical cycle

1a From theory towards research: creating conceptual models

Knight, S.A. & Cross, D., 2012. Using contextual constructs model to frame doctoral research methodology. *International Journal of Doctoral Studies*, 7, pp.39–62.

1b. Grounded theory... general

Corbin, J. and Strauss, A. (1990) 'Grounded Theory Research: Procedures, Canons, and Evaluative Criteria', *Qualitative Sociology*, 13(1), pp. 3–21.

Starks, H. and Brown Trinidad, S. (2007) 'Choose Your Method: A Comparison of Phenomenology, Discourse Analysis, and Grounded Theory', *Qualitative Health Research*, 17(10), pp. 1372–1380. doi: 10.1177/1049732307307031.

1c Models in the practice

Introducing 'logic models' and 'Theory of Change' as tools for analysing governance practices:

Morra Imas, L. G. and Rist, R. C. (2009) *The Road to Results: Designing and Conducting Effective Development Evaluations*. doi: 10.1596/978-0-8213-7891-5. (The Road to Results is available as an interactive textbook at <http://www.worldbank.org/r2r>.) Read chapter 4: especially p. 150-171.

Discussing the usefulness for literature review:

Kneale, D., Thomas, J. and Harris, K. (2015) 'Developing and optimising the use of logic models in systematic reviews: Exploring practice and good practice in the use of programme theory in reviews', *PLoS ONE*, 10(11), pp. 1–26. doi: 10.1371/journal.pone.0142187.

Discussing the use in practice of these tools:

Blamey, A. and Mackenzie, M. (2007) 'Theories of Change and Realistic Evaluation: Peas in a Pod or Apples and Oranges?', *Evaluation*, 13(4), pp. 439–455. doi: 10.1177/1356389007082129.

1d Grounded theory and abduction

Reichert, J. (2010) 'Abduction : The Logic of Discovery of Grounded Theory', *Forum Qualitative Social Research / Forum Qualitative Sozialforschung*, 11(1), p. 16. doi: 10.1387/theoria.448.

Bruscaglioni, L. (2016) 'Theorizing in Grounded Theory and creative abduction', *Quality and Quantity*. Springer Netherlands, 50(5), pp. 2009–2024. doi: 10.1007/s11135-015-0248-3.

Ong, B. K. (2012) 'Grounded Theory Method (GTM) and the Abductive Research Strategy (ARS): a critical analysis of their differences', *International Journal of Social Research Methodology*, 15(5), pp. 417–432. doi: 10.1080/13645579.2011.607003.

Timmermans, S. and Tavory, I. (2012) 'Theory construction in qualitative research: From grounded theory to abductive analysis', *Sociological Theory*, 30(3), pp. 167–186. doi: 10.1177/0735275112457914.

1e. Participatory Group Model Building, participatory planning support

de Gooyert, V. et al. (2016) 'Sustainability transition dynamics: Towards overcoming policy resistance', *Technological Forecasting and Social Change*. Elsevier Inc., 111, pp. 135–145. doi: 10.1016/j.techfore.2016.06.019.

- Asif, F.M.A. et al., 2015. System dynamics models for decision making in product multiple lifecycles. *Resources, Conservation and Recycling*, 101, pp.20–33. Available at: <http://dx.doi.org/10.1016/j.resconrec.2015.05.002>.
- Sterman, J.D., 2012. Sustaining Sustainability: Creating a Systems Science in a Fragmented Academy and Polarized World. In *Sustainability Science*. New York, NY: Springer New York, pp. 21–58. Available at: http://link.springer.com/10.1007/978-1-4614-3188-6_2.
- Rouwette, E., Bleijenbergh, I. & Vennix, J., 2016. Group Model-Building to Support Public Policy: Addressing a Conflicted Situation in a Problem Neighbourhood. *Systems Research and Behavioral Science*, 33(1), pp.64–78.
- Pelzer, P. et al. (2014) 'The added value of Planning Support Systems: A practitioner's perspective', *Computers, Environment and Urban Systems*. Elsevier Ltd, 48, pp. 16–27. doi: 10.1016/j.compenvurbsys.2014.05.002.
- Andersen, D. F. et al. (2007) 'Group model building: Problem structuring, policy simulation and decision support', *Journal of the Operational Research Society*, 58(5), pp. 691–694. doi: 10.1057/palgrave.jors.2602339.
- Bell, S. and Morse, S. (2007) 'Problem structuring methods: theorizing the benefits of deconstructing sustainable development projects', *Journal of the Operational Research Society*, 58(5), pp. 576–587. doi: 10.1057/palgrave.jors.2602311.

LINE 2: Transformative research through engagement

2a - TD as collaborative: requires participation / observation in action research:

- Borda, F. O. (2011) 'Action Research and Participatory', *International Journal of Action Research*, 7(2), pp. 160–174. doi: 10.1688/1861-9916.
- Nakamura, N., 2015. What is a community's desire? A critical look at participatory research projects with Indigenous communities. *Social and Cultural Geography*, 16(2), pp.165–182.
- Lawrence, R.J., 2015. Advances in transdisciplinarity: Epistemologies, methodologies and processes. *Futures*, 65, pp.1–9.
- Gibbons, M. et al., 1994. *The new production of knowledge: the dynamics of science and and research in contemporary societies*, London: Sage.

2b - How to do Participatory observation:

- Kawulich, B.B., 2005. Participant Observation as a Data Collection Method. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 6(2), pp.1–19.
- Sandiford, P.J., 2015. Participant Observation as Ethnography or Ethnography as Participant Observation in Organizational Research. *The Palgrave Handbook of Research Design in Business and Management*, (July), pp.411–443.

2c - From TD to deep ETD:

- van Breda, J. and Swilling, M. (2018) 'The guiding logics and principles for designing emergent transdisciplinary research processes: learning experiences and reflections from a transdisciplinary urban case study in Enkanini informal settlement, South Africa', *Sustainability Science*. Springer Japan. doi: 10.1007/s11625-018-0606-x.
- van Breda, J., Musango, J. and Brent, A. (2016) 'Undertaking individual transdisciplinary PhD research for sustainable development', *International Journal of Sustainability in Higher Education*, 17(2), pp. 150–166. doi: 10.1108/IJSHE-07-2014-0107.
- Rosenberg, L.L., 2017. *Turi kumwe (we are together): A transdisciplinary exploration of the Burundian specialty coffee sector and its sustainability challenges*. Stellenbosch University.

LINE 3. Squeezed between the two lines:

3a Active engagement as PhD in internship:

Scott, B.J.E. & Silbey, S.S., 2000. Turning an Internship into a Research Opportunity. *World*, pp.1–26. Available at: http://web.mit.edu/ssilbey/www/pdf/intern_to_research.pdf.

Darling, R.B., 2018. The Value of a Pre-Internship Observation Experience Author (s): Rosalyn Benjamin Darling Source : *Teaching Sociology* , Vol . 26 , No . 4 (Oct . , 1998), pp . 341-346 Published by : American Sociological Association Stable URL : <https://www.jstor.org/stable/1318773> REFERENCES Linked references are available on JSTOR for this article : You may need to log in to JSTOR to access the linked references . , 26(4), pp.341–346.

Hansmann, R. et al., 2009. Improving group processes in transdisciplinary case studies for sustainability learning. *International Journal of Sustainability in Higher Education*, 10(1), pp.33–42.

3b. Skills, competences, capabilities to be developed:

Podger, D.M., Mustakova-Possardt, E. & Reid, A., 2010. A whole-person approach to educating for sustainability. *International Journal of Sustainability in Higher Education*, 11(4), pp.339–352.

Brundiers, K., Wiek, A. & Redman, C.L., 2010. Real-world learning opportunities in sustainability: from classroom into the real world. *International Journal of Sustainability in Higher Education*, 11(4), pp.308–324.

Vermeulen, W.J.V., Bootsma, M.C. & Tijm, M., 2014. Higher education level teaching of (master's) programmes in sustainable development: analysis of views on prerequisites and practices based on a worldwide survey. *International Journal of Sustainable Development & World Ecology*, 21(5), pp.430–448.

Tarrant, S.P. & Thiele, L.P., 2016. Practice makes pedagogy – John Dewey and skills-based sustainability education. *International Journal of Sustainability in Higher Education*, 17(1), pp.54–67.

Bruce Hull, R. et al., 2016. International field experiences promote professional development for sustainability leaders. *International Journal of Sustainability in Higher Education*, 17(1), pp.86–104. Available at: <http://www.emeraldinsight.com/doi/10.1108/IJSHE-07-2014-0105>.

2c Leadership

MezaRios, M.M. et al., 2018. Strengthening sustainability leadership competencies through university internships. *International Journal of Sustainability in Higher Education*, 19(4), pp.739–755. Available at: <http://www.emeraldinsight.com/doi/10.1108/IJSHE-03-2015-0064>.

Christensen, P. et al., 2009. Sustainable development: Assessing the gap between preaching and practice at Aalborg University. *International Journal of Sustainability in Higher Education*, 10(1), pp.4–20.

Runhaar, H., Tigchelaar, C. and Vermeulen, W.J.V. (2008) 'Environmental leaders: Making a difference. A typology of environmental leaders and recommendations for a differentiated policy approach', *Business Strategy and the Environment*, 17(3), pp. 160–178. doi: 10.1002/bse.520.

Other source referred to in this document:

Reike, D., Vermeulen, W.J.V. & Witjes, S., 2018. The circular economy: New or Refurbished as CE 3.0? — Exploring Controversies in the Conceptualization of the Circular Economy through a Focus on History and Resource Value Retention Options. *Resources, Conservation and Recycling*, 135, pp.246–264. Available at: <https://doi.org/10.1016/j.resconrec.2017.08.027>.

Additional resources suggested by speakers:

- <https://www.pbl.nl/nieuws/nieuwsberichten/2019/in-nederland-zijn-85000-circulaire-activiteiten-maar-nieuwe-circulaire-initiatieven-breken-moeilijk>
- <https://www.pbl.nl/en/publicaties/circular-economy-what-we-want-to-know-and-can-measure>
- <https://www.pbl.nl/en/news/newsitems/2018/the-circular-economy-starting-progress-measurement>
- <https://themasites.pbl.nl/circular-economy/>

Appendix 2: PhD Training Module Specification

PhD Training MODULE SPECIFICATION

A GENERAL INFORMATION	
1	Module Title: Circular Economy Doctoral Training Year One (part 2)
2	Period: January – February 2019
3	Module Level: PhD
4	Portfolio/Programme: Graduate School Faculty of Geoscience, Utrecht University
5	Credit Value: 20 (ECTS 10)
6	Module Leader: Dr Walter J.V Vermeulen (w.j.v.vermeulen@uu.nl)
7	Total Number of Learning Hours: 200 hours
8	Pre-Requisite: This module is only available for students funded by the CRESTING ITN
9	Co-Requisite: Finished appropriate master level education
10	Post-Requisite: Circular Economy Doctoral Training Year One and Year Two
11	Semester: 2
12	Module Delivery Mode: Face to face
	Approval:

	 Prof. dr. E. Worrell, Director of Research, Copernicus Institute of Sustainable Development, GeoSciences, Utrecht University										
B MODULE DESIGN											
13	Module Aims										
	This module aims: <ol style="list-style-type: none"> 1. To provide knowledge and understanding of the concept of and policies for the circular economy 2. To introduce students to research design in a cross-disciplinary context 3. To provide knowledge and understanding of research and employment training potential of secondments 4. To ensure that students are familiar with the ethical issues relating to research and training in the circular economy 										
14	Module Learning Outcomes										
	<i>On successful completion of this module (part 1 in Hull and part 2 in Utrecht), students will be able to:</i> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="text-align: left;">Module learning outcome description</th> </tr> </thead> <tbody> <tr> <td>LO1</td> <td>Demonstrate understanding of the principles of the circular economy and policies in place to promote it</td> </tr> <tr> <td>LO2</td> <td>Design a cross-disciplinary research project relating to the circular economy</td> </tr> <tr> <td>LO3</td> <td>Demonstrate understanding of methods for using secondments as research and employment training</td> </tr> <tr> <td>LO4</td> <td>Demonstrate understanding of ethical issues relating to research and training in the circular economy</td> </tr> </tbody> </table>		Module learning outcome description	LO1	Demonstrate understanding of the principles of the circular economy and policies in place to promote it	LO2	Design a cross-disciplinary research project relating to the circular economy	LO3	Demonstrate understanding of methods for using secondments as research and employment training	LO4	Demonstrate understanding of ethical issues relating to research and training in the circular economy
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LO3	Demonstrate understanding of methods for using secondments as research and employment training										
LO4	Demonstrate understanding of ethical issues relating to research and training in the circular economy										
15	Module Indicative Content										
	<ol style="list-style-type: none"> 1. Principles of the circular economy 2. Perspectives on and policies for the circular economy 3. Research design for multi-, interdisciplinary and transdisciplinary projects 4. Research methods: observation, participant observation, learning by doing, reflection 										
16	Module Learning and Teaching Methods and Rationale for Selection										
	This module is designed for PhD students participating Circular Economy: Sustainability implications and guiding progress (CRESTING) Marie Skłodowska- Curie innovative Training Network http://cresting.hull.ac.uk/ . This network comprises the Universities of Graz, Austria, Utrecht, Netherlands, Messina and University “G. d’Annunzio” Pesara, Italy, Aberta and New University of Lisbon, Portugal, and the University of Technology Troyes, France in addition to the University of Hull. Students complete 60 credits of postgraduate training within the context of the ITN. Topics included are both specific knowledge and understanding relating to a circular economy and research/professional skills delivered with a focus on the circular economy.										

	Learning and teaching is provided primarily through network-wide workshops. Students will gather at one of the participating universities for an intensive 5-10 days of training. The latter will comprise keynote presentations by leading academics or practitioners in the field, workshops and seminars drawing on pre-assigned readings, student presentations and group work. Additional support will be provided via tutorials with the individual student's supervisory team. Students will be exposed to ideas and expertise from beyond the network by attendance at externally organised workshops and conferences.										
17	Breakdown of Teaching and Learning Hours										
	<table border="1"> <thead> <tr> <th>Student time associated with the module</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>Guided independent study, including online</td> <td>85</td> </tr> <tr> <td>Placement/Study abroad</td> <td>N/A</td> </tr> <tr> <td>Scheduled learning and teaching activities</td> <td>15</td> </tr> <tr> <td>Total</td> <td>100</td> </tr> </tbody> </table>	Student time associated with the module	%	Guided independent study, including online	85	Placement/Study abroad	N/A	Scheduled learning and teaching activities	15	Total	100
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Guided independent study, including online	85										
Placement/Study abroad	N/A										
Scheduled learning and teaching activities	15										
Total	100										
18	Ethical Issues, Risk and Inclusivity <i>Universities research and develop modules which deal with issues that may be sensitive or involve ethical considerations. As with research, the duty of care extends to all involved in learning and teaching. Please highlight any relevant issues that relate to content, teaching methods and assessment and state how they are to be addressed (include evidence of support from relevant ethics committees and relevant risk assessments as appropriate).</i>										
	NA										
C MODULE ASSESSMENT											
19	Rationale for Assessment Methods Chosen										
	<p>The assessments are designed to be supportive of, but not duplicate, the work that students are doing directly towards their PhD. They should help with relevant skills such as reflection, reviewing literature, critical reading and writing, understanding of methods and methodological issues.</p> <p>Assessments are marked by the student's PhD supervisor, in line with their university's requirements.</p>										
20	Formative Assessments for this Module: (part 2)										
	Students should discuss their experiences arising from this module, and especially how it relates to their own research field, with their PhD supervisor.										
21	Summative Assessment for this Module (part 2)										
	<table border="1"> <thead> <tr> <th></th> <th>Assessment type and title (where relevant)</th> <th>%</th> <th>Module LOs addressed</th> </tr> </thead> <tbody> <tr> <td>SA1</td> <td>Literature and workshop discussions review relating this to the student's research plans developed so far, relating to the aspects of</td> <td>20</td> <td>LO 1 and 2</td> </tr> </tbody> </table>		Assessment type and title (where relevant)	%	Module LOs addressed	SA1	Literature and workshop discussions review relating this to the student's research plans developed so far, relating to the aspects of	20	LO 1 and 2		
	Assessment type and title (where relevant)	%	Module LOs addressed								
SA1	Literature and workshop discussions review relating this to the student's research plans developed so far, relating to the aspects of	20	LO 1 and 2								

		interdisciplinary or multidisciplinary debates relating to the circular economy (1000 words)		
	SA2	Reflection on the training, networking and field visit experience of the workshops (1000 words)	20	LO 3
	SA3	Research proposal-style methods section describing and justifying how the various options of action research, transdisciplinary modes of research and collaborative forms of 'group model building' experience could be applied to the student's secondments (1000 words)	40	LO 3
	SA4	Report on the ethical issues raised by the student's proposed research and how they will be managed (1000 words)	20	LO 4
22	Module Re-assessment Method <i>(if different)</i>			
	As above Students will only be reassessed on failed elements			
D READING LIST				
23	Reading List			
	<p>LINE 1: General empirical cycle</p> <p>1a From theory towards research: creating conceptual models Knight, S.A. & Cross, D., 2012. Using contextual constructs model to frame doctoral research methodology. <i>International Journal of Doctoral Studies</i>, 7, pp.39–62.</p> <p>1b. Grounded theory... general Corbin, J. and Strauss, A. (1990) 'Grounded Theory Research: Procedures, Canons, and Evaluative Criteria', <i>Qualitative Sociology</i>, 13(1), pp. 3–21. Starks, H. and Brown Trinidad, S. (2007) 'Choose Your Method: A Comparison of Phenomenology, Discourse Analysis, and Grounded Theory', <i>Qualitative Health Research</i>, 17(10), pp. 1372–1380. doi: 10.1177/1049732307307031.</p> <p>1c Models in the practice <i>Introducing 'logic models' and 'Theory of Change' as tools for analysing governance practices:</i> Morra Imas, L. G. and Rist, R. C. (2009) <i>The Road to Results: Designing and Conducting Effective Development Evaluations</i>. doi: 10.1596/978-0-8213-7891-5. (The Road to Results is available as an interactive textbook at http://www.worldbank.org/r2r). Read chapter 4: especially p. 150-171. <i>Discussing the usefulness for literature review:</i> Kneale, D., Thomas, J. and Harris, K. (2015) 'Developing and optimising the use of logic models in systematic reviews: Exploring practice and good practice in the use of programme theory in reviews', <i>PLoS ONE</i>, 10(11), pp. 1–26. doi: 10.1371/journal.pone.0142187. <i>Discussing the use in practice of these tools:</i> Blamey, A. and Mackenzie, M. (2007) 'Theories of Change and Realistic Evaluation: Peas in a Pod or Apples and Oranges?', <i>Evaluation</i>, 13(4), pp. 439–455. doi: 10.1177/1356389007082129.</p> <p>1d Grounded theory and abduction</p>			

<p>Reichertz, J. (2010) 'Abduction : The Logic of Discovery of Grounded Theory', <i>Forum Qualitative Social Research / Forum Qualitative Sozialforschung</i>, 11(1), p. 16. doi: 10.1387/theoria.448.</p> <p>Bruscaglioni, L. (2016) 'Theorizing in Grounded Theory and creative abduction', <i>Quality and Quantity</i>. Springer Netherlands, 50(5), pp. 2009–2024. doi: 10.1007/s11135-015-0248-3.</p> <p>Ong, B. K. (2012) 'Grounded Theory Method (GTM) and the Abductive Research Strategy (ARS): a critical analysis of their differences', <i>International Journal of Social Research Methodology</i>, 15(5), pp. 417–432. doi: 10.1080/13645579.2011.607003.</p> <p>Timmermans, S. and Tavory, I. (2012) 'Theory construction in qualitative research: From grounded theory to abductive analysis', <i>Sociological Theory</i>, 30(3), pp. 167–186. doi: 10.1177/0735275112457914.</p> <p>1e. Participatory Group Model Building, participatory planning support</p> <p>de Gooyert, V. <i>et al.</i> (2016) 'Sustainability transition dynamics: Towards overcoming policy resistance', <i>Technological Forecasting and Social Change</i>. Elsevier Inc., 111, pp. 135–145. doi: 10.1016/j.techfore.2016.06.019.</p> <p>Pelzer, P. <i>et al.</i> (2014) 'The added value of Planning Support Systems: A practitioner's perspective', <i>Computers, Environment and Urban Systems</i>. Elsevier Ltd, 48, pp. 16–27. doi: 10.1016/j.compenvurbsys.2014.05.002.</p> <p>Andersen, D. F. <i>et al.</i> (2007) 'Group model building: Problem structuring, policy simulation and decision support', <i>Journal of the Operational Research Society</i>, 58(5), pp. 691–694. doi: 10.1057/palgrave.jors.2602339.</p> <p>Bell, S. and Morse, S. (2007) 'Problem structuring methods: theorizing the benefits of deconstructing sustainable development projects', <i>Journal of the Operational Research Society</i>, 58(5), pp. 576–587. doi: 10.1057/palgrave.jors.2602311.</p> <p>LINE 2: Transformative research through engagement</p> <p>2a - TD as collaborative: requires participation / observation in action research:</p> <p>Borda, F. O. (2011) 'Action Research and Participatory', <i>International Journal of Action Research</i>, 7(2), pp. 160–174. doi: 10.1688/1861-9916.</p> <p>Nakamura, N., 2015. What is a community's desire? A critical look at participatory research projects with Indigenous communities. <i>Social and Cultural Geography</i>, 16(2), pp.165–182.</p> <p>Lawrence, R.J., 2015. Advances in transdisciplinarity: Epistemologies, methodologies and processes. <i>Futures</i>, 65, pp.1–9.</p> <p>Gibbons, M. <i>et al.</i>, 1994. <i>The new production of knowledge: the dynamics of science and and research in contemporary societies</i>, London: Sage.</p> <p>2b - How to do Participatory observation:</p> <p>Kawulich, B.B., 2005. Participant Observation as a Data Collection Method. <i>Forum Qualitative Sozialforschung / Forum: Qualitative Social Research</i>, 6(2), pp.1–19.</p> <p>Sandiford, P.J., 2015. Participant Observation as Ethnography or Ethnography as Participant Observation in Organizational Research. <i>The Palgrave Handbook of Research Design in Business and Management</i>, (July), pp.411–443.</p> <p>2c - From TD to deep ETD:</p> <p>van Breda, J. and Swilling, M. (2018) 'The guiding logics and principles for designing emergent transdisciplinary research processes: learning experiences and reflections from a transdisciplinary urban case study in Enkanini informal settlement, South Africa', <i>Sustainability Science</i>. Springer Japan. doi: 10.1007/s11625-018-0606-x.</p>

van Breda, J., Musango, J. and Brent, A. (2016) 'Undertaking individual transdisciplinary PhD research for sustainable development', *International Journal of Sustainability in Higher Education*, 17(2), pp. 150–166. doi: 10.1108/IJSHE-07-2014-0107.

Rosenberg, L.L., 2017. *Turi kumwe (we are together): A transdisciplinary exploration of the Burundian specialty coffee sector and its sustainability challenges*. Stellenbosch University.

LINE 3. Squeezed between the two lines:

3a Active engagement as PhD in internship:

Scott, B.J.E. & Silbey, S.S., 2000. Turning an Internship into a Research Opportunity. *World*, pp.1–26. Available at: http://web.mit.edu/ssilbey/www/pdf/intern_to_research.pdf.

Darling, R.B., 2018. The Value of a Pre-Internship Observation Experience Author (s): Rosalyn Benjamin Darling Source : Teaching Sociology , Vol . 26 , No . 4 (Oct . , 1998), pp . 341-346 Published by : American Sociological Association Stable URL : <https://www.jstor.org/stable/1318773> REFERENCES Linked references are available on JSTOR for this article : You may need to log in to JSTOR to access the linked references . , 26(4), pp.341–346.

Hansmann, R. et al., 2009. Improving group processes in transdisciplinary case studies for sustainability learning. *International Journal of Sustainability in Higher Education*, 10(1), pp.33–42.

3b. Skills, competences, capabilities to be developed:

Podger, D.M., Mustakova-Possardt, E. & Reid, A., 2010. A whole-person approach to educating for sustainability. *International Journal of Sustainability in Higher Education*, 11(4), pp.339–352.

Brundiers, K., Wiek, A. & Redman, C.L., 2010. Real-world learning opportunities in sustainability: from classroom into the real world. *International Journal of Sustainability in Higher Education*, 11(4), pp.308–324.

Vermeulen, W.J.V., Bootsma, M.C. & Tijn, M., 2014. Higher education level teaching of (master's) programmes in sustainable development: analysis of views on prerequisites and practices based on a worldwide survey. *International Journal of Sustainable Development & World Ecology*, 21(5), pp.430–448.

Tarrant, S.P. & Thiele, L.P., 2016. Practice makes pedagogy – John Dewey and skills-based sustainability education. *International Journal of Sustainability in Higher Education*, 17(1), pp.54–67.

Bruce Hull, R. et al., 2016. International field experiences promote professional development for sustainability leaders. *International Journal of Sustainability in Higher Education*, 17(1), pp.86–104. Available at: <http://www.emeraldinsight.com/doi/10.1108/IJSHE-07-2014-0105>.

2c Leadership

MezaRios, M.M. et al., 2018. Strengthening sustainability leadership competencies through university internships. *International Journal of Sustainability in Higher Education*, 19(4), pp.739–755. Available at: <http://www.emeraldinsight.com/doi/10.1108/IJSHE-03-2015-0064>.

Christensen, P. et al., 2009. Sustainable development: Assessing the gap between preaching and practice at Aalborg University. *International Journal of Sustainability in Higher Education*, 10(1), pp.4–20.

Runhaar, H., Tigchelaar, C. and Vermeulen, W.J.V. (2008) 'Environmental leaders: Making a difference. A typology of environmental leaders and recommendations for a

	differentiated policy approach', <i>Business Strategy and the Environment</i> , 17(3), pp. 160–178. doi: 10.1002/bse.520.
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Appendix 3: Risk Assessment

RISK ASSESSMENT of

2nd CRESTING ESR Training WORKSHOP:

Circular Economy: from concept to practice-oriented research designs

January 26-February 1st, 2019

<p>Date and Venues and General Description</p> <p>26-1-2019 to 1-2-2019</p> <p>The workshop is held for the second workshop for the CRESTING project. Most of the field trips include low risk activities spent in Utrecht and Driebergen, with some medium risk exposure on the day of the field trip.</p> <p>26-1-2019 Saturday: arrivals</p> <p>27-1-2019 Sunday: with a cultural-historical trip in the rural and urban Utrecht.</p> <p>28-1-2019 Monday: workshops at Driebergen/ EU officer visit</p> <p>29-1-2019 Tuesday: workshops at Driebergen / guest lectures</p> <p>30-1-2019 Wednesday: workshops at Driebergen / information of secondment</p> <p>31-1-2019 Thursday: CE & 10R field visit and return</p> <p>1-2-2019 Friday: Conclusion of the workshop Copernicus Institute</p>	<p>Leader Name and Mobile #:</p> <p>Walter Vermeulen, +31 6 24472914</p> <p>Accommodation Address Landgoed de Horst, De Horst 1, 3971 KR Driebergen, The Netherlands https://www.landgoeddehorst.nl/en/arrangementen/hotel/</p> <p>Emergency: 112</p> <p>Utrecht Cresting Staff:</p> <p>Kieran Campbell Johnston +44 7938 541067 Martin Calisto Friant +31 6 36087300 Kaustubh Thapa +31 6 85536944 Walter Vermeulen +31 6 244672914</p> <p>All places have first aid cover.</p>
<p>Transport Information:</p> <p>The conference centre is located adjacent to the accommodation venue. Coaches will</p>	<p>Pre-requisites (indicate either Yes or No or Nor Applicable)</p> <p>Personal details form provided/updated NA</p>

<p>provide all required transportation to and from Utrecht city. Highly experienced drivers will drive rental cars of Thursday during the field visits. Maximum driving hours: 2 in one stretch, 4 in one day.</p>	<p>Code of Conduct understood & signed NA</p> <p>Briefing from academic supervisor NA</p> <p>Briefing to any/all participants NA</p>
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Hazards Identified	How might someone be harmed	Rating (HML)	Control Measures
Participants walking by foot in Utrecht and Driebergen to go to conference venues.	Road traffic accident or getting lost.	L	Prior information will be disseminated including maps of the venue, information to and from the venue from airport to the venue. Weather appropriate winter clothing and warm boots are advised.
Participants will have a cultural trip in Oudewater and in Utrecht city centre.	Road traffic accident or getting lost. Exposure to low temperature.	L	Experienced drivers of coaches are hired, standard supplier for bus trips to Utrecht University. Tours at the location in Oudewater and Utrecht are guided by professional guides of the local tourist organisation. Warm winter boots and clothes for the weather.
Field work visits at various locations can include industry, factories etc.	Exposure to dust, chemicals, high temperature equipment, tripping hazard, falling from height.	L	All safety measures (hats, glasses, mask whenever needed) will be discussed with the hosting companies in advance and provided to the field visit teams.

Summary of fieldwork organization	
Relevant Staff Experience	Walter Vermeulen, the leader has experiences leading field trips.
Knowledge of sites visited	Walter Vermeulen along with Utrecht University staff are knowledgeable most sites.
Student Briefing	This risk assessment will be provided to students.
Student supervision	Staff likely to be in groups, but no direct supervision.
Personal Information	Personal information is collected for logistical reasons.

Approved by: dr. W.J.V. Vermeulen

Date: 4-1-2019

Signature:



Reviewed by: Prof. dr. E. Worrell, Director of Research, Copernicus Institute of Sustainable Development

Date: 8-1-2019

Signature:

