Skills Labs - Deliverable 2.4.a: Casusidee Building with Nature: Blue Greens in Volkerak-Zoommeer

Skills Labs

Hoogwaardige e-practica Water Management met EMERGO

Deliverable 2.4.a

Casusidee
Building with Nature: Blue Greens in Volkerak-Zoommeer

Auteur: Tjeerd Blauw, Piet Dekker, Jan Stel, Rob Klomp, Bert Kortsmit, Ansje Löhr

Skills Labs penvoerende instelling: Open Universiteit Nederland
- CELSTEC (Centrum voor Leertheorie en Technologieën)
- Faculteit Natuurwetenschappen
- Faculteit Managementwetenschappen

Skills Labs partner instellingen:
Hogeschool Zeeland
Kennis Netwerk Delta Water (KNDW)
(Provincie Zeeland, Delta, de Waterschappen, Roosevelt Academy, NIOO-Nederlands Instituut voor Ecologie, Rijkswaterstaat, Deltares en Wageningen Universiteit en Researchcentrum)

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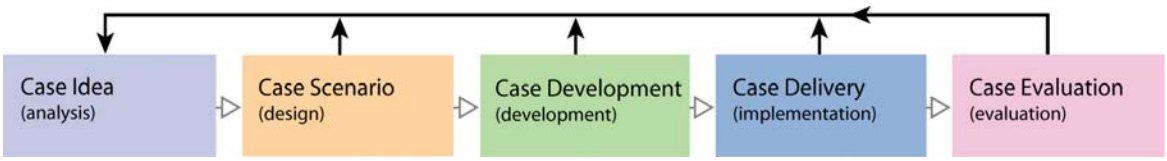
1. Inleiding

Met de in het Surf-project EMERGO ontwikkelde deliverable 1.4.b kunnen de casusontwikkelaars bij Skills Labs vertrouwd raken met de EMERGO-methodiek (zie Figuur 1). Daarnaast worden er vanuit WP 3 een aantal workshops georganiseerd waarin casusontwikkelaars worden begeleid in het toepassen van de EMERGO-methodiek. De basisgedachte is dat via de workshops casusontwikkeling efficiënter en effectiever verloopt. Daarnaast zullen casusontwikkelaars – in het kader van de disseminatie-activiteiten tijdens het Skills Labs project - ook als ambassadeurs binnen hun instelling optreden ('zegt het voort'). Dit is de tweede functie van de workshops. Last, but not least, via workshops kan de teamvorming binnen Skills Labs mede worden vormgegeven.

De deliverables bij de casussen voor Skills Labs zijn achtereenvolgens casusidee, casusframework, testversie casus, en evaluatieversie casus. Bij het doorlopen van de EMERGO-methodiek en het gebruik van de EMERGO-toolkit worden als tussenproducten onderscheiden: casusidee (fase analysis), casusframework (fase design) , casusingrediëntenverhaal (fase design) , casusdetailscenario (fase design), testversie casus (fase development), en evaluatieversie casus (fases implementation en evaluation). Zoals blijkt is bij Skills Labs niet elk mogelijk tussenproduct als deliverable gedefinieerd.



Figuur 1. Methodiek voor casusontwikkeling: van casusidee tot casusevaluatie
De open pijlen geven een geadviseerde volgorde van doorlopen aan. De fasen kunnen bovendien iteratief (gesloten pijlen) worden doorlopen.

Deze eerste deliverable bij de casus *Building with Nature:Blue greens in Volkerak-Zoommeer* betreft het casusidee.
We beschrijven eerst kort wat een casusidee is en hoe we binnen Skills Labs de uitwerking van het casusidee *Building with Nature:Blue greens in Volkerak-Zoommeer* ter hand hebben genomen.

Casusidee
Voordat de casusontwikkelaars beginnen met het concrete ontwerp- en ontwikkelwerk, is vanuit WP3 gevraagd aan hen om na te denken over uiteenlopende zaken die direct en indirect verband houden met de te ontwikkelen casus. Daarbij gaat het om zaken als:

- opleidingscontext van de casus
- inhoud van de casus
- voortgang in de casus
- studentcontact en studenteninformatie in de casus
- mediagebruik in de casus
- uitleverproces van de casus
- ondersteuning van de casus
- exploitatiekosten van de casus
- rechten en intellectueel eigendom met betrekking tot de casus.

Door diverse malen met elkaar te spreken over deze zaken aan de hand van concrete vragen wordt het projectteam zich nadrukkelijker bewust van het voor wie, wat, waarom en hoe van de casus (context). Een en ander leidt al vroeg in het ontwikkeltraject tot een realistisch(er) beeld van de mogelijkheden en beperkingen waarmee het team rekening te houden heeft. Mede aan de hand van de antwoorden op deze vragen kan het team een *globale beschrijving* van de casus maken: het casusidee.
In Appendix 1 is een leeg casusidee opgenomen dat als richtsnoer/checklist een opsomming van concrete vragen bevat. Het is dus niet zo dat altijd alle vragen in gelijke mate beantwoord moeten worden. Daarnaast heeft het casusontwikkelteam een uitgewerkt voorbeeld van een in het EMERGO-project ontwikkelde casus (de Waddenzee) gekregen en is een light versie van de checklist als tussenstap gebruikt om tot een definitieve versie van het casusidee te komen. Overigens, het casusidee kan – gegeven de iteratieslagen in de EMERGO-methodiek – bij nadere uitwerking nog tot op zekere hoogte bijgesteld worden. Deze flexibiliteit is nodig om op veranderende contextuele aspecten te kunnen inspelen (bijvoorbeeld: curriculumwijziging, (on)beschikbaarheid van bronnenmaterialen, expertconsultatie).

2. Casusidee Building with Nature:Volkerak-Zoommeer

Hieronder volgt de uitwerking van het casusidee voor de casus *Building with Nature:Blue greens in Volkerak-Zoommeer.*
Bij de vervolgstappen van de casusuitwerking zal steeds meer “letterlijke” inhoud van de uit te leveren casus in de casusuitwerking aanwezig zijn. Omdat de casus in het Engels aan studenten zal worden uitgeleverd, is besloten de casusontwikkeling eveneens in het Engels te doen. Het casusidee is dus in het Engels uitgewerkt.

Subject	Questions & Answers
Case embedding	Q1: For which courses, curricula and institutions will it be used? A1: This case will be one of four cases within the Skills Labs Water Management project. Each of the four cases covers other parts of the field Delta Water Management. These parts together will cover the "water management" competence (exploration > investigation > 'setting the course'/intervention) (ref: rapport Beroepenveldconsultatie). In each casus selective subdomains of the domain Delta Water Management and selective parts of the water management competence will be trained. The four cases in total will cover the diverse aspects of this competence. The four cases to be developed within this SURF Skills Labs project are: 'The Scheldt – Estuarine Systems'; 'Water Governance – Perkpolder'; 'Aquaculture'; and 'Working together with Nature' This (Working with nature) case will be embedded within the Master (MSc) Deltawater Management (Hogeschool Zeeland). This program (120 ECTS) is accessible for both β and γ students holding a relevant Bachelor's degree. Since the actual start of the Master has been postponed, the scheduled trail run of the case 'Volkerak – Zoommeer – Aquaculture' will be performed with Bachelor of Water Management students (Hogeschool Zeeland). Most likely the case will also be incorporated in the specialization Aquatic Production of the above mentioned Bachelor of Water Management program. Other institutes might use the case as well, possibly in a blended learning context, using f2f collaboration, where groups of students work together on the case, in an atmosphere open for discussion and reflection.
	Q2: Is it a stand-alone item or used with other instructional materials? A2: It is a stand-alone item, but as such this case will be embedded within Master (MSc) Deltawater Management (Hogeschool Zeeland). Although the main course materials in Dutch, it is explicitly meant to offer the case in English, together with the other academic publications incorporated in the course materials. The case will likely be used in other water management study programs as well, for example in the Short academic programs at Master level on 'Water Management', to be developed and offered by the OUNL. Other institutes might use the case as well, possibly in a blended learning context, using f2f collaboration, where groups of students work together on the case, in an atmosphere open for discussion and reflection. The case aims to present a real life situation with which the students can test their skills obtained in their working experience and in their knowledge obtained during this Master study. From that point of view the case is not used as a stand alone and reference will be made to the relevant study material.
	Q3: What study load and time interval is expected? A3: We expect that studying this case takes about 15 hours of study load (SBU: StudieBelastingsUren). This accounts for 20 'normal' hours. Depending on individual time available, a time interval of two weeks should be doable for most students.
	Q4: How many credit points earn students by successfully completing it? A4: Based on the study load of 15 hours per case, each of the four cases accounts for approximately 0.5 EC (European Credit). The total for all four cases will add up to approximately 2 EC. (28 hours of study load account for 1 EC)

Case content	Q5: What is the main complex cognitive skill? A5: The main cognitive skills are: 1. Analysis of scientific research. 2. Determination of scope of works, budget cost and planning. 3. Governance process from political issue to decision making 4. Projectmanagement from preparation, planning, tendering, execution, handover under the regional political umbrella
	Q6: Do other complex cognitive (sub) skills need to be acquired? A6: Project management, stakeholder analysis, costing, planning, hydrology, morphology, operational field knowledge,
	Q7: What subject matter domain(s) are involved? A7: This issue is highly multi-disciplinary. Involved are comprehensive water management, ecology, stakeholder analysis, project management
	Q8: What prior knowledge and skills are expected for enrolled students? A8: Is part of an advanced course. Prerequisites courses in water management, ecology, public affairs, project management at the BSC-level. Working experience with scientific, public or private parties (knowledge) in watermanagement domain.
	Q9: What is central to the case (for example: patient, equipment, process)? A9: Central tot the case is the learning aspect of a complex process from 'problem' identification towards permanent solution.
	Q10: What are physical locations in the case? (try to map them to virtual spaces) A10: In the virtual in-company we will need offices to consult the virtual coach, researchers, civil servants, administrators at different levels and stakeholders, engineering firms and contractors. , locations where sources can be consulted, locations where meetings and presentations can be followed
	Q11: What case characters (real persons, virtual persons) are relevant? A11: Of relevance are students' own role (project manager), the role of the virtual coach (Senior policy maker), various virtual experts , virtual administrators, virtual stakeholders, the role of the virtual teacher. In the further elaboration of the case a possible role of a real teacher should be considered. **Note:** In an EMERGO-case, playing characters and non-playing characters are distinguished. Non-playing characters can be virtual persons (i.e. all actions, reactions are predefined) or objects/tools. Playing characters are always executed by real persons during case runtime. Case characters can be real or virtual persons.
	Q12: Do students need to proceed via a stepwise procedure? A12: Yes, the case-scenario will be based on a structured narrative, where the student (project manager) will be given stepwise instruction

	by the coach (senior). After each step the environment will contain different resources and tools, progress on each step will be assessed. During the further elaboration of the case attention has to be given to who will decide that a step has been set successfully.
	Q13: What kind of activities do students need to perform for acquiring the main complex cognitive skill? A13: Students will perform various activities, using a rich variety of resources and tools, including having a consultation with experts, interviews with administrators and stakeholders, attending a presentation, studying written reports, and relevant technical background info, looking at documentaries or news, making notes, writing reports, discussing outcomes with teacher.
	Q14: Is there a strict order for the compulsory tasks? A14: Although students follow the cases in a specific order, and this case by a sequence of steps, within a step there still will be plenty of freedom to spend as much time within the virtual environment an individual student wants.
	Q15: Are there compulsory tasks, non-compulsory tasks and what determines this? Q15: There will be a compulsory entry test, there will be a compulsory report each student has to submit after studying the case, but furthermore students are at liberty to neglect feedback provided in the program (both positive and negative). The entry test will be build in into the case if possible, the final report will be sent to the real teacher for judgement.
	Q16: Is redundant information provided, or is everything strictly needed? Q16: The case is authentic, meaning that it is ill-defined, at times contains distracting and useless information and unexpected events (like in reality). It is for the student to decide what is relevant or most useful (part of the competence involved)
	Q17: How realistic and authentic is the case? A17: We have modelled reality to make it studyable and feasible within a certain course and timeframe. However, most resources are derived from reality (e.g. experts) or directly taken from reality (e.g., recorded news), so it was made as real as required. Furthermore, task conditions like available time and budget are provided realistically.
	Q18: If students can redo a case: will this be the same case or a variant? A18: No, there is no variant of the case available. Studying the same case for a second time can different progress and outcomes, based on intermediate decisions taken.
	Q19: Can students undo former decisions? A19: No. only when this is part of the case-scenario (e.g., they can re-submit a task till it meets the required criteria before proceeding with the next step).
	Q20: Are different learning routes and tasks for different students offered? A20: No, we do not model routes according to individual profiles. Learning route does depend on individual decisions taken.
	Q21: What kind of cooperation is needed by students? A21: In this case no cooperation is needed by students. The multi-actor-character of the case is in the case itself. **Note:** this will have to be different for skills labs cases where cooperation is an explicit competence defined in the project plan
	Q22: Do students have different case characters? A22: All students have the same role of project manager constructing a project process in interaction with different actors to solve the blue green algae problem.

	Q23: Do students have active roles? A23: Students need to take several decisions and need to perform various activities in order to be able to finish a step successfully. This makes them a rather active participant instead of an inactive spectator. Although students are rather active, they can only partly influence the flow of the case (within steps), they cannot skip steps nor change step sequence.
	Q24: Do teachers have active roles? A24: This depends on the quality of the report send. Teachers do actively monitor all progress, and may decide to actively provide feedback if the quality of progress and reports is too poor, cannot be handled by automated feedback and needs manual input. The way teachers do monitor progress has to be elaborated during further construction of the case.
	Q25: What aspects induce and sustain interest and motivation? A25: Various design measures will be taken to warrant sufficient interest and motivation, including identification with the student role (projectmanager) and responsibility (helping others, e.g. by adding own resources, being supported and assessed by coach), gaining knowledge that is highly authentic and implicit, having rich resources available that make the course lively, introducing interactivity and gaming elements (like unexpected, real-life events) that raise the awareness of actually being involved, In addition by: 1. back ground info on case from news reports, 2. easy access to coach and specialists and interactive contact.. 3. relevance to specific courses in MS programme
	Q26: What unforeseen circumstances are incorporated? A26: The case is a simulation of a process, that has taken place in realty. During this process a sudden event took place, consisting in till then unforeseen consequences of intended measures with a lot of political commotion as a consequence. The student will be asked to manage this. E.g. a conflict of interest between the economics and environment aspects or a conflict between nautical use and flooding risk
	Q27: Is competition incorporated? How do students get rewarded for excellent performance or behaviour? A27: No, the teacher might ask students to compare their report with that from another.
Students' progress	Q28: How do students discover not yet having acquired the main complex cognitive skill? A28: The task list provides an overview of tasks to be carried out for each case, including an estimation of time for each task. So time wise they can monitor amount of study time passed and ahead. To assess progress on each step (usually a collection of some tasks) students will be provided automated feedback (provided by coach, or by partial worked out examples). Each report has to be accepted by the teacher.
	Q29: How can students monitor their progress?

	A29: Ibid. The task list provides an overview of tasks to be carried out for each case, including an estimation of time for each task. So time wise they can monitor amount of study time passed and ahead. To assess progress on each step (usually a collection of some tasks) students will be provided automated feedback (provided by coach, or by partial worked out examples). Each report has to be accepted by the teacher.
	Q30: How is it checked if students have acquired the main complex cognitive skill? A30: Students select appropriate methods and models from a (gross) list. Teacher will take this into account when assessing the final reports send in. There is a list of assessment criteria available, focusing on content but also structure, source annotation, use of language, etc. Furthermore we have (good and bad) worked out examples of reports available for comparison. Attention has to be given to how teachers can keep track of various methods and examples to be used (who used what).
	Q31: Is summative assessment included and are its results used in formative assessment? A31: A summative assessment of each case can be used to input formative assessment of progress in the course. This assessment is related to the method/model/criteria selected. Students know that competences acquired in each case later have to be integrated in the final case. Eventually, the only formal assessment will be the final course exam, successfully having studied the virtual program (as a whole task) will yield a partial score.
	Q32: Which students' progress figures are to be used by teachers during run time? A32: Selected methods and models, reports send in, ….
Contact with peers	Q33: Should contact between students be encouraged? A33: No, not for this case. Students can compare their report with those of others during reflection. **Note:** this will have to be different for skills labs cases where cooperation is an explicit competence defined in the project plan
	Q34: Should students see if peers are on line, when they have been on line? A34: No, not for this case.
	Q35: Can students compare their progress with peers? A35: Ibid. We plan to make availability and progress of peers visible. Finalized and approved reports will be compared between students in a discussion session lead by the coach.
Using media	Q36: Will existing material be used, is new material needed? A36 When possible, we will try to acquire existing material. Feasibility depends on whether we can use Beeld en Geluid collection, what will be acquisition costs for resources beyond this collection, whether we can use external linking, et cetera. New material (mainly video) will be needed to record some of the virtual actors (like coach, experts and colleagues)
	Q37: What media genres are used (e.g., interviews, docudrama, movie, animations)? A37: All kinds of multimedia will be used.
	Q38: What media assets are needed and what are their costs? A38: Aside from video, no other media assets (music, animations, et cetera) are needed.
Case delivery	Q39: Is the number of students within one run restricted? A39: There are no restrictions as such.

	Q40: When can students enrol for a run? A40: Depends on curricular organisation for each partner institution. Ideally, this could be as flexible as possible. When not cohorts of students can start enrolling at more fixed intervals.
	Q41: Is it possible to change the case after starting a run? A42: No, this is not possible. User-generated content during a run evidently will change the case.
(embedded) Support	Q42: How will technical support be provided? A42: : Technical support will be provided by a super user at the Hogeschool Zeeland. Training super users for each participating institute is an explicit target defined in the project. **Note:** This will have to be different for skills labs cases. Training super users for each institute is an explicit target defined in the project plan
	Q43: How will support be provided for acquiring the main complex cognitive skill? A43: See above as well. (Virtual) Coach will provide leading questions, (real) teacher will monitor decisions made in the program, both will provide partial worked examples, and teacher assesses reports sent, and provides feedback when needed.
Costs	Q44: How many students will enrol each year? A44: The first trial run will be with 10 students. Later runs will be limited to small groups of about 25 students
	Q45: What are the development costs per student? A45: The expected costs of case development are incorporated in SURF Skills Project, including the costs of 10 students in the trial run. Based on a production ratio of about 1:25, development costs of about €75 an hour, foreseen number of future students (around 200) plus some additional costs, each case of 15 hours will cost around 25*15*75+X=€30.000/200=€140. The expected cost on exploitation of the case are incorporated in the regular cost in exploitation in the educational setting the case is offered (MSc Deltawater Management).
	Q46: What is the expected teacher/student ratio during exploitation? A47: Hard to estimate at this moment. It strongly depends on the elaboration of Q30.
IPR	Q47: Is it allowed for others to use the case? A48: All EMERGO products, including cases, are freely available and adjustable as Open Source software under Creative Commons license. In practice it will be hard to use the cases without accompanying services and course materials though.
	Q48: Are materials from other parties incorporated and what are their Intellectual Property Rights(IPR) arrangements? A48: Has to be decided, but all IPR for contributing partners in development of the case will be brought under a SURF license based on Creative Commons. Others, not being project partners can sublicense via SURF.

Appendix 1- **Template global description / case idea: "XXX"**

Introduction

Case developers first need to consider various issues related to the intended case. By discussing them, the project team gains more insight, common ground and awareness: why is the case needed, for whom is it meant, how will it be placed in the curriculum, what are the (learning) objectives, what content and media will be needed, how will it be structured, how will progress be monitored, a.s.o.? A realistic picture of possibilities and impossibilities has to emerge before actually starting case design and development using the EMERGO toolkit. By answering – could be an appropriate subset of - the questions in the table, the case team provides a *global description* of the intended case as input document for the design phase. Case designers will then continue by working-out a framework scenario.

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Case embedding	Q1: For which courses, curricula and institutions will it be used? A1:
	Q2: Is it a stand-alone item or used with other instructional materials? A2:
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Case content	Q5: What is the main complex cognitive skill? A5:
	Q6: Do other complex cognitive (sub) skills need to be acquired? A6:
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