

Call for (pre-)proposals for BioGeoCivil

January 2010

The challenge

The program Bio-Based Geo & Civil Engineering for a Sustainable Society (BioGeoCivil) aims to develop biology-based concepts as a basis for future materials, construction and engineering processes that substantially mitigate the pressure from the geo & civil engineering activities on the environment. Although the industry is at the forefront of implementing sustainable technologies, the activities still consume large amounts of raw materials and energy, resulting in a heavy burden on the environment and rapid depletion of natural resources.

The spectacular results achieved with bio-based concepts such as bio-concrete, bio-grout and green-facades have convinced us that joint research by biologists and (civil) engineers will result in the development of new highly innovative and more sustainable engineering concepts. Currently the field of bio-based geo and civil engineering is very fragmented, however, the experience from the mentioned concepts shows that the fundamental processes underlying the bio-based concepts are very similar.

In this program we will bring biologists, material scientists, civil and geo-engineers together to jointly work on deepening our (fundamental) knowledge of the underlying processes of bio-based geo and civil engineering. Bringing the, until now, fragmented research field together in one program will strengthen the research body and allow for pre-competitive collaboration in order to solve common fundamental issues which currently limited application.

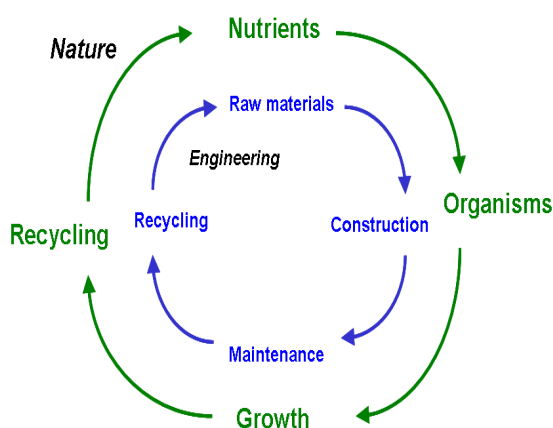


Figure 1: Comparison of the building cycle with the life cycle in nature

The challenge of this BioGeoCivil program is to develop biology-based materials, technology and processes that solve engineering challenges

addressing sustainable performance (in terms of resource depletion and required functionalities related to strength, permeability, climate control, air quality improvement and more), while at the same time reducing the impact on the environment compared to traditional solutions. Figure 1 illustrates the starting point of the program: engineered applications go through a cycle, similar to the circle of life, but nature is far more balanced as production and maintenance processes are more efficient and often no waste is produced due to symbiotic recycling.

The program challenges researchers from different disciplines to work together to find answers to a number of fundamental questions that are generic for all elements in the building cycle and which are essential for further development of bio-based concepts towards innovations that can be implemented in the field of geo and civil engineering. It is expected that this knowledge will significantly shorten the development cycle of the currently explored concepts mentioned earlier. In addition the increased collaboration together with more knowledge will provide a stimulus for a whole new range of concepts. Academic researchers are invited to submit pre-proposals. Aiming at a direct link between public research centres and the industrial world, BioGeoCivil projects should have at least one industrial partner that participates substantially (in cash and/or in-kind) in the research. The contributions of the industrial partners should add up to 25% of the total project costs if expressed in financial means. Industry should be involved in this research by identifying and formulating engineering challenges with a large ecological footprint and where bio-based concepts may prove beneficial.

Application fields

This program aims to bring researchers from geo- and civil engineering and biology together with industrial partners and stakeholders in order to utilize bio-based technology or materials for a wide range of applications. The four major application fields are the major elements of the building cycle as can be seen in figure 1:

1. Production of (raw) materials;
2. Construction;
3. Maintenance;
4. Upgrading, reduction and recycling of waste materials.

The current bio-based geo and civil engineering projects focus on a part of the building cycle. The goal of this program is to focus on the common fundamental

knowledge that is required for all developing bio-based approaches for all elements in the complete building cycle. New bio-based building materials will be developed that combine traditional civil engineering properties like strength and durability with different integrated biological functions such as the capacity for self-healing or adaptation to changing environmental conditions. This will lead to a substantial improvement of environmental quality in combination with expected large economic benefits.

It is encouraged that (e.g. the agricultural) industry will start to play a role in the production of bio-based building materials such as bio-cement, fibres and plastics. This market is as yet non-existing.

Research topics

The research in this program should focus on obtaining a deeper insight in how nature (micro-organisms, plants, ecosystems) produces and (re)cycles materials and how nature changes functional characteristics of materials and structures like strength, water retention, noise adsorption, flow and transport of water and chemicals etc. The aim is to harness this knowledge for enhancing the development of innovative applications in geo and civil engineering. Essential research topics that need to be addressed are:

1. **Functional and fundamental properties:** Key to the successful implementation of bio-based concepts is the understanding of underlying mechanisms. What is current state-of-the-art knowledge, what is still largely unknown and needs to be resolved for practical application?
2. **Bio-based material functionality:** How does the newly proposed concept, functionally, replace the currently applied system and to what extent is the new concept superior?
3. **Bio-based material compatibility:** Is the proposed biology compatible with the material / construction? How can possible negative aspects be overcome?
4. **Process control:** How can the applied biology be controlled in the short- and long term?
5. **Multi-scale integration:** This aspect has two faces:
 - 1) Can the proposed bio-based system be up-scaled for (future) full-scale practical applications?
 - 2) The scale of the biological process is generally much smaller than the scale of application of the bio-based solution. Overcoming this wide range in scales requires significant innovations in scientific approaches.
6. **Quantification of sustainability:** The goal of this program is to achieve a significant reduction in ecological foot-print. Several methods exist to quantify this reduction, which is best and what further development is required?

Joint program activities

The ambition of the BioGeoCivil program is to bring biologists, material scientists, civil and geo-engineers together to jointly work on deepening our (fundamental) knowledge of the underlying processes of bio-based geo and civil engineering. In order to develop a common focus and a knowledge platform, yearly program workshops will be organized which should be joined by all involved researchers. The goal of these workshops is to stimulate the exchange of knowledge and provide a platform for in-depth discussions.

Budget

For this call a budget of M€ 3.9 is available which must be matched by the contributions of potential technology users (companies / institutes) to a total of at least M€ 5.2. The maximum of budget that can be requested from STW is € 750.000 per project. A contribution of potential "users" of at least 25% of the total project budget is compulsory and adds up to the requested amount.

The users do not have to co-finance up-front in the program but may contribute in-kind (materials, equipment, facilities etc.) and/or financially in the project wherein they will participate.

To realize the ambitions and cohesion of the program a budget of k€ 70 for conferences, workshops and events will be reserved at program level. This funding will be made available by the STW board upon advice of the program committee.

Who can apply

Scientists employed by Dutch universities or institutes recognized by NWO are eligible to submit a (pre-) proposal (see OTP-guidelines of STW for eligibility criteria). Since BioGeoCivil is a multidisciplinary program, projects which involve two or more research groups with different backgrounds are required (biology, geo and civil engineering and perhaps others). In the project description, it should be made very clear how the perceived collaboration will take place. How are the different work-packages tied together and how will this lead to the required results.

Proposals and selection

The selection of proposals will be made in two steps: a call for pre-proposals and a subsequent invitation of selected applicants of pre-proposals to submit full proposals. The pre-proposals will be evaluated by the program committee. The STW board will decide on the funding of the full proposals.

Program requirements

The main criteria for assessment whether a specific project application falls within this program are the following:

- The projects should focus on studying a bio-based concept that aims to solve an engineering challenge in at least one of the four Key Application Fields: production of materials, construction,

maintenance, and reduction and recycling of waste;

- The project description should clearly state which essential research topics will be addressed and how the expected results strengthen the fundamental knowledge base for the chosen bio-based concept, but also how the fundamental knowledge would be valuable for the complete building cycle;
- The project should be carried out by at least two clearly collaborating researchers (PhD and Post-docs). This collaboration should at least be a combination of geo or engineering and biology. For certain issues, researchers from other backgrounds can be added;
- The project is based on a collaboration between two academic groups. The proposal must make clear how the collaboration between the groups will be implemented and it should become apparent how the different knowledge fields and expertise domains are integrated;
- Projects must contain excellent scientific research with an innovative approach;
- The ultimate goal of this program is to achieve a significant reduction in the ecological foot-print of the geo and civil engineering sector. The proposal must provide a clear indication how the proposed process will lead to this reduction, what potential problems are expected and how the project aims to solve these problems.

Not eligible for this program

The program explicitly aims for concepts that integrate biological processes in the geo and civil engineering building cycle. The following topics are **excluded** from this program:

- concepts based on bio-mimicry, where biological solutions are copied using the biological processes;
- the well established fields of waste water treatment and remediation of soil contamination;

Funding

Project grants will cover:

- personnel costs (PhD and postdoc researchers, technical assistants);
- costs for consumables;
- national travel costs in order to facilitate intensive collaboration between the different research groups in a project;
- international travel costs;
- costs for equipment;

The institution(s) of the applicant(s) ensure(s) the required infrastructure, the supervision and the fitting into the research program of the research institute. STW may verify this with the dean or the executive board of the institute.

The expertise required for the research must be available at the requesting institute(s), so that external consultants will not be necessary. When foreign

universities and institutes that cannot apply for STW-funding (e.g. TNO) are involved in the program, these parties take care of their own funding. This funding might be considered to be part of the required 25% "users" contribution.

How to submit?

In order to minimize the time needed for writing and evaluating the proposals, it is compulsory to submit a preliminary proposal. All pre-proposals must be written in accordance with the formal guidelines that can be found in the call for pre-proposals. Only pre-proposals written in English and in accordance with the guidelines will be accepted for evaluation. Pre-proposals should be sent to STW via Iris (on-line electronic submission system of STW). **Pre-proposals should be submitted to STW before Tuesday March 9, 2010, 12:00 AM.** Pre-proposals submitted after this deadline will not be accepted.

Pre-proposals

Pre-proposals should contain a short description (3 pages A4) of the proposed research, utilization paragraph and estimated budget. The proposal should make clear which potential users will contribute to the project. Support letters are optional for the pre-proposals and can be included (letters of intent are accepted).

The pre-proposals will be ranked by the program committee on the basis of how well they fit within the scope of the program. The members of the program committee will first assess the pre-proposals individually before discussing them plenary in the committee. The program committee will advise the applicants 1) to submit a full proposal or 2) to adjust the proposal so that it would fit better into the program or 3) not to enter the subsequent selection procedure.

Full proposals

Full proposals must consist of a detailed description of the expected results, planning of the research and a utilization section. The utilization section should include the important industrial challenges that will be solved, the time frame towards implementation and the expected bottle-necks during the implementation. Companies and institutes, which will potentially contribute, should be involved bottom-up during the preparation of the proposal.

A full proposal will be evaluated only if it is preceded by a pre-proposal.

The scientific quality and the utilization perspective of the full proposals will be evaluated individually by peer review. An independent jury of about eight (inter)national experts of universities and industry (applicants will be excluded) will rank the full proposals. Each jury member will give 3 marks for each proposal: one for scientific quality, one for utilization potential and one for the strategic fit within the program. The marks

will be averaged with equal weight to one final score for the proposal which determines the ranking.

In addition to the ranking by the jury the program committee will formulate an advice on the cohesion between the project proposals and their relevance for the program. The decision of the STW board will be based on the ranking by the jury and the advice of the program committee.

The guidelines for full proposals are based on the "Open Technology Program (OTP)" with a main

difference that the potential technology users (companies/institutes) should contribute for at least 25% of the total project costs. The proposals should therefore be accompanied by a 'letter of participation' in which the contribution has been made explicit and in which details are given on what, when and how these contributions will be made available. For further details see "richtlijnen voor het Open Technologieprogramma" (www.stw.nl).

Time schedule BioGeoCivil proposals

Call for pre-proposals open	Monday January 25, 2010
Deadline pre-proposals	Tuesday March 9, 2010, 12:00 AM
Notification to applicants pre-proposal of the positive/negative advice to submit full proposal	Tuesday March 23, 2010
Deadline full proposals	Tuesday May 25, 2010, 12:00 AM
Review by experts	June-August 2010
Protocol sent to applicants	Tuesday September 7, 2010 (at last)
Deadline comments applicants	Tuesday September 20, 2010
Ranking by jury ready	Tuesday October 19, 2010
Decision by STW board on funding + notification to applicants	Monday November 22, 2010

Program Committee

- Dr.ir. T.J. Heimovaara, program chairman
Faculty of Civil Engineering and Geosciences, Delft University of Technology
- Prof.dr.ir. A.Q.C. van der Horst (co-program leader)
BAM-Infraconsult / Faculty of Civil Engineering and Geosciences, Delft University of Technology
- Dr.ir. J.T.C. Grotenhuis
Sub-department Environmental Technology, Wageningen University Research Centre
- Dr. H. Jonkers
Faculty of Civil Engineering and Geosciences, Delft University of Technology
- Prof.dr.ir. S.M. Hassanizadeh
Department of Earth Sciences, Utrecht University / Deltares-TNO, Department of Soil and Groundwater Quality
- Prof.dr. R.N.J. Comans
ECN, Petten / Sub-department Soil Quality, Wageningen University Research Centre
- Prof.dr. O. Adan
TNO Bouw & Ondergrond / Faculty of Applied Physics, Eindhoven University of Technology
- Prof.dr. J.A. van Veen
Netherlands Institute of Ecology (NIOO-KNAW) / Faculty of Science, Leiden University
- Ir. W.H. van der Zon
Royal VOPAK B.V., Rotterdam

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Appendices

Annex 1: The pre-proposal

For future reference only:

Annex 2: The full proposal

Annex 3: Assessment and selection criteria

Annex 4: Assessment and selection procedure

Annex 5: Utilization

Annex 6: Procedure after granting

Possibility of appeal

The applicant may appeal against a decision of the STW board by sending an objection letter including a motivation and argumentation to the general board of NWO within six weeks after the date of the granting or the rejection letter. Address: Algemeen Bestuur van NWO, Postbus 93138, 2509 AC Den Haag.

Annex 1 The pre-proposal; Deadline Tuesday March 9, 2010, 12:00 AM

The project outline - which must not exceed 3 pages – should be written in English with minimum font size 10 point Arial.

STW receives your proposal via Iris (on-line electronic submission system of STW) in pdf format.

The structure must be as follows:

- Mention on the front page 'Perspectief BioGeoCivil' in the upper left corner
- Title
- Names and addresses of the applicants
- Present expertise of the applicants
- Fit within Key Application Fields and Essential Topics of the program
- Main goals of the project
- Concise description of the planned research. At least a description should be given of the expected results and the implementation thereof in industry
- Names and addresses of the industrial partners of the project, if possible the names of the contacts within the companies
- Support and involvement of the industrial project partners to this research project (qualitatively and quantitatively) For information about the criteria for contributions of partners see <http://www.stw.nl/Infobalie/Gebruikers.htm>.
- Preliminary budget (with a maximum STW contribution of €750.000). The partner contribution is at least 25% of the total project cost. (In-kind contributions are an integral part of the research project and belong in the total project cost.)
- References, limited to five key publications of the applicants

Upon receiving a pre-proposal STW will decide on its admission (eligibility criteria). The program committee will assess the strategic fit within the research program and its topics. Each individual program committee member will give a mark for the strategic fit for each proposal. Then, in a plenary session the program committee will discuss all pre-proposals and formulate an advice to the applicants. This advice can be:

- 1) to submit a full proposal or
- 2) to adjust the proposal so that it would better fit into the program or
- 3) not to enter the subsequent selection procedure.

The program committee will evaluate the fit of the pre-proposals within the framework of the program and will use the following considerations:

- The projects should focus on studying a bio-based concept that aims to solve an engineering challenge in at least one of the four Key Application Fields: production of materials, construction, maintenance, and reduction and recycling of waste;
- The project description should clearly state which essential research topics will be addressed and how the expected results strengthen the fundamental knowledge base for the chosen bio-based concept, but also the potential for all four key-application domains.
- The project should be carried out by at least two clearly collaborating researchers (PhD and Post-docs). This collaboration should be a combination of geo or civil engineering, biology and perhaps others;
- The project is based on a collaboration between two academic groups. The proposal must make clear how the collaboration between the groups will be implemented and it should become apparent how the different knowledge fields and expertise domains are integrated;
- Projects must contain excellent scientific research with an innovative approach;
- The ultimate goal of this program is to achieve a significant reduction in the ecological foot-print of the geo and civil engineering sector. The proposal must provide a clear indication how the proposed process will lead to this reduction, what potential problems are expected and how the project aims to solve these problems;

Not eligible for this program

The program explicitly aims for concepts that integrate biological processes in the geo and civil engineering building cycle. The following are excluded from this program:

- concepts based on bio-mimicry, where biological solutions are copied using the biological processes;
- the well established fields of waste water treatment and soil contamination remediation;

Furthermore, the Program Committee will compare projects to see whether project proposals overlap each other and if so, what advice can be given on cooperation between projects or about the research focus of projects?

Annex 2

Format of the full proposal *(for future reference only)*

STW receives your proposal in pdf format by Iris (on-line electronic submission system of STW).

- *Mention on the front page 'BioGeoCivil' in the upper left corner + STW dossier number*
- *The maximum length is approximately 12 (twelve) pages of A4, with minimum font size 10 point Arial*
- *The proposal and support letters must be written in English.*

Administrative data

On maximally half a page you should provide:

- Title. The title of the project has a maximum of 225 characters. For publicity purposes, a short, non-technical title or acronym is required as well.
- Name, address, phone number, fax number and e-mail address of the applicants and possible co-applicants and the telephone number of the secretary.
- STW sends the official correspondence to the main applicant. This is the first applicant mentioned. STW assumes the main applicant will have the supervision on the project. He or she becomes the project leader and bears the final responsibility for the execution of the research and the utilization plan.
- Applications elsewhere. If support has been applied for elsewhere, you should give the status of this application at the time of submission.

Project description

1. Summaries

The summaries should be clear to those active in the field.

Research summary

Summarize in half a page the context, problem statement, research method and expected results.

Utilization summary

Summarize the utilization potential of the expected results in half a page. Provide everything the reviewers should know about the utilization: the chosen approach, the chosen partners and the way results will be brought into practice.

2. Composition of the group

The current group

Describe in half a page the composition of the team (academic and industrial) that will perform the research as well as the reason this team is fit for this research. Indicate the supervisors of the project, the proposed staff, and how the tasks will be divided.

The research in the projects should consist of a collaboration of researchers (PhDs and/or Postdocs) from at least two research fields (Biology and geo- or civil-engineering). The researchers should come from two research groups.

Available infrastructure

This information includes available laboratory room and equipment.

Candidate researchers

In case candidates for the proposed staff positions are already known, you mention them here. Give a short explanation of their suitability.

3. Scientific description

In this section of maximally four pages an expert in the field should find all information to assess the quality of the proposed research. Treat the following subjects:

Contents of the research

Provide the scientific objectives, the starting-points and the substance of the project. Describe the methods and techniques you will apply, the available knowledge in the team, the knowledge to be developed, and the instruments and models you will use for this. In-kind support of potential users must be an integral part of the research project.

Required personnel and equipment

Provide motivations for staff and equipment and possible other requirements for the research.

Time schedule and allocation of tasks

Describe the proposed course of the research over the years and how the different parts must interact. The researchers should come from two research groups. Please describe how the collaboration will take place, how responsibilities are shared and how the joint supervision will be organized so that optimal integration of expertise and knowledge is achieved. You give decision points (milestones) and moments research results are expected (deliverables). Further, you indicate which partner will perform which tasks.

STW will ask for a so-called "project plan" for all rewarded full proposals. This should contain a more detailed planning and budget.

Connections with other research

Mention similar research that is performed elsewhere, either in the Netherlands or in the rest of the world. Describe the relation with your own research and the contacts with these groups (or the plans to establish them).

4. Fit within the research topics of the program

Describe explicitly the fit of the proposal within the Key Application Fields and Essential Topics of the program. This section will particularly be used for the assessment of the fit in the program.

5. Utilization plan

The utilization plan must be clear to those with general knowledge of the application domain.

The challenge from the practice and the proposed solution

Your research will address problems encountered in industry with not-yet-existing solutions. Indicate the industrial relevance of this problem and the impulse this research gives towards the solution. Indicate which steps you will take to bring the research results into actual practice. Provide details for assessment of the feasibility and the conditions for successful application.

The users committee

All BioGeoCivil projects will have "users committees". For further information on this you are referred to the STW website (see Open Technology Program). Mention the contact persons from companies and organisations that already accepted invitations to join the users committee, or that are willing to co-operate in another relevant way to realise utilization of results.

Past performance in utilization

Indicate the past successes that the academic team achieved in bringing academic research results into industrial practice.

6. Contracts and patents

If there are any contracts relevant to the proposed research project, these should be mentioned here. Also provide patent search results, or the reason why such a search is not necessary for your proposal. Indicate if you have patents or running patent applications in the field of the research. This section takes maximally half a page.

7. Budget

In the main document you find a general explanation on which costs are considered for financing by STW and which are not. All amounts are without BTW (VAT). The length of this section is at maximum one page.

- **Personnel**
You can apply for temporary staff: PhD-students, post-docs or technicians. Staff is appointed by the executive institution. The actual appointment is subject to prior written permission of STW. STW may withdraw a grant if vacancies are not filled within a year after granting. The rates for staff can be found at www.stw.nl → infobalie
- **Materials**
The costs of office and laboratory goods, small instruments and appliances must be specified here. National travel expenses of the project are also part of this budget.
- **Foreign travel expenses**
These are costs for foreign travel and subsistence for congress visits abroad for the project.
- **Investments**
These are costs for necessary equipment and other investments for the project.
- **Contributions of partners**
Provide financial and technical (staff and material) contributions that the partners bring to the project. After granting STW will invoice the financial contributions and add them to the corresponding credit of the project. Present details on the capitalization of in-kind contributions as well. For in-kind staff contributions the maximum rates are 116 €/hr for senior staff and 81 €/hr for staff up to HBO-level. For material contributions, please explain the capitalization. For information about the criteria for contributions of partners see <http://www.stw.nl/Infobalie/Gebruikers.htm>.
- **Overview of the total project costs**
Present a table with the planning of the staff appointments and the budgets per project year. Use the above mentioned headers. The partner contributions must be specified separately. The total project costs are the costs for STW as well as the contributions of the partners. The contribution requested from STW is at most 750.000 €. The partner contributions are at least 25% of the total budget.

8. Literature

In maximally two pages list all relevant and publicly available publications of the participating parties of the proposal, as well as relevant publications of others.

9. Key words, abbreviations and acronyms

Please give a list of Key words and an explanation of used abbreviations and acronyms.

Appendix: Confirmation letters.

These participation letters written by competent partner authorities, officially and explicitly state their technical and financial contributions and explains their interest in the project. The participation letter should be written in English.

Appendix: Potential referees.

(not to be included in the proposal; please submit on separate page)

STW presents the proposal to a number of experts in the field of the proposal. These referees are from the scientific community, knowledge institutes and relevant industry. Please, list four to six (inter-)nationally renowned referees that could potentially review your proposal. The referees should be able to review the proposal objectively and therefore should not have participated as co-author in publications of the applicants.

Annex 3

Assessment and selection criteria

Full proposals will be evaluated by peer review on scientific quality and utilization potential.

Scientific quality

- Originality and innovative character of the proposal
- Contribution to the aims of the Perspectief program
- Expected impact on the scientific community
- Research method
- Time schedule
- Budget
- Infrastructure

Utilization

- Potential economic impact
- Past performance in utilization by the applicants
- Contribution to the development of applied knowledge and aims of the program
- Impact on utilization if the project is carried out successfully
- Different steps needed (time path) to utilize the results
- Chance on patents and/or know how agreements
- Participation of users

Thereafter, the jury will be asked to assess the proposals on these aspects and also on the strategic fit within the program, see annex 4.

Annex 4

Assessment and selection procedure

Check of the project proposal by STW

The STW office confirms the receipt of every proposal. A general check is performed whether or not the proposal satisfies all requirements as mentioned in this document as well as the freedom to operate rule of STW. In case of doubt the office will contact the applicant and may ask for a revised version.

Peer review

STW presents the proposal to a number of experts in the field of the proposal. These referees are from the scientific community, knowledge institutes and relevant industry. They will review the proposal on the basis of criteria for scientific quality and utilization potential. These criteria are stated in Annex 3. Per project the comments of at least four referees will be used

STW will combine the comments of the referees in a protocol. In this protocol the comments of the individual referees are made anonymous.

Reply by the applicants

STW will send the protocol to the main applicant requesting to react to the comments of the referees. Applicants may add possible project changes to the protocol in such a way that it is clear which comments have resulted in which changes in the proposal.

Assessment by the jury and program committee

An independent jury of about eight (inter) national experts of universities and industry (applicants will be excluded) will rank the full proposals. Each jury member will give 3 marks for each proposal: one for scientific quality, one for utilization potential and one for the strategic fit within the program on a scale from 1-9. The marks will be averaged with equal weight to one final score for the proposal which determines the ranking. In addition to the ranking by the jury the program committee will formulate an advice on the cohesion between the project proposals and their relevance for the program. The decision of the STW board will be based on the ranking by the jury and the advice of the program committee.

Possibility of appeal

The applicant may appeal against a decision of the STW board by sending an objection letter including a motivation and argumentation to the general board of NWO within six weeks after the date of the granting or the rejection letter. Address: Algemeen Bestuur van NWO, Postbus 93138, 2509 AC Den Haag.

Annex 5

Utilization

A very important aspect is the utilization of the project results in industrial practice. Two mechanisms exist here: partners and users.

Partners

Partners are companies that participate actively in the project execution by means of financial or technical (material and/or staff) support. The contributions of the project partners are an integral part of the project and are stated explicitly in the project proposal. Confirmation letters in English of the partners are attached to the project proposal. Partner contributions are the main indication for the importance of the research to the partners and for their intention to utilise the results. Therefore partners are seen as users by definition.

Users

Users are interested parties that can potentially use the project results. They are allowed to take knowledge of the progress and results of the research performed. They can be companies, authorities, research institutes, but also consumers or end-users. Users help to make sure that the research is performed as should be and to justify grants from the public sector. For protection of the intellectual properties of the partners it may be necessary for the users to sign a non-disclosure agreement. The project proposal should mention at least three potential users.

Users committee

STW research is funded largely from public resources. Therefore a proper inspection of the progress and the effectiveness of the research is required. Moreover, the knowledge from the research should be transferred to the community in an optimal way. Therefore, STW demands for all research projects a users committee. Apart from partner representatives, this committee will consist of the users mentioned before and one representative of the program committee. The users committee is composed by the project leader in consultation with STW. Exclusion of users from the users committee is only possible on explicit, substantiated request of an (industrial) partner that delivers a significant contribution to the project.

Knowledge management

Knowledge management is the regulation of the property, the protection and the exploitation of knowledge. Partners and members of the users committee are first in line for gaining knowledge from the results of the research, but they have no rights to exploit or commercialise this knowledge. To gain such rights a "reasonable compensation" has to be provided.

A well-known and generally accepted measure for knowledge protection is the request for a temporary ban on the publication of particular results. This may be required for e.g. the submission of a patent.

For the BioGeoCivil program the STW rules apply, see for the main principles of IP policy on <http://www.stw.nl/Infobalie/Aanvragers.htm>.

Annex 6

Procedure after granting

During the course of a project the following procedures apply. Extensive information is available on: <http://www.stw.nl/Infobalie/Projectleiders.htm>.

Granting

The main applicant becomes the project leader, unless otherwise indicated in the project proposal. After granting, the project leader obtains a number of documents in which the legal and financial conditions are stated. The grant is available only after these documents have been signed and returned to the STW office.

Initially, the credits for materials, travel and investments are granted only for the first two years and the staff is granted only for the first three years. STW reserves the remaining budget for the "Request for project continuation" after two years.

Project plan

After granting, the project leader should write a project plan as an appendix to the proposal, containing a more elaborate planning and task scheduling, including the in-kind contribution of the partners. The project plan contains a rolling forecast: At least once a year and whenever necessary the project plan is adapted to the situation. The next year is planned with most detail. The project plan is written together with the partners and is presented to STW as well as the users committee.

The commitments of the project partners to the execution of the project as put forward in the project plan may form a project contract between the partners and STW. A detailed division of tasks is given.

Start of the project

The budget is available from the moment that the abovementioned documents are received by STW. The start date of the project is the date of the appointment of the first staff member. Usually, this is not the date of granting.

Users committee en reporting

Approximately six months after the start of the project the users committee will meet for the first time. Hereafter, the committee will meet once or twice a year to discuss the progress. The users committee will receive all scientific publications for approval prior to publication. They will also receive all progress reports.

The project leader reports semi-annually on the progress of the research to the STW office. The representative of the program committee reports to the program committee on the progress of the project in terms of issues and recommendations.

Contribution to the program

Each project will contribute to the coordinating and cohesion stimulation activities as described in the program plan and as will be developed by STW and the program committee during the course of the program. Examples are the attendance and presentation of project results on annual program meetings, input for the program website, etc.

Continuation of projects

For projects that last for three years or longer, the project leader must submit a continuation request one and a half year after the start of the project. To decide on the continuation STW will be advised by the users committee.

Termination

Termination of projects before the official final date is possible if the commitments are not fulfilled (anymore) or if the scientific quality of the research or utilization is below the required level.