Questionnaire landscape inventory LSRI

The information gathered through this questionnaire will be used to update the Landscape for Large-Scale Research Infrastructures (LSRI). The Landscape LSRI provides an overview of LSRI available for Dutch researchers.

Questionnaire landscape inventory large-scale research infrastructure
The Landscape for Large-Scale Research Infrastructures (LSRI) gives an overview of (plans for) research infrastructures (RI) that promote a policy of open access for research and with a size of at least 10 million euros - in terms of capital investments and operating costs over a period of five years - that are available for researchers in the Netherlands. All research infrastructures that satisfy the definition of LSRI (see http://onderzoeksfaciliteiten.nl/permanente-commissie/definitie) are included on the Landscape LSRI. The Landscape LSRI covers the entire spectrum of scientific research.

Through the Landscape LSRI a research infrastructure can gain visibility to potential users. The Landscape LSRI is also valuable for policy makers and ministries as the overview forms the basis and starting point for formulating strategies for funding research infrastructures in the Netherlands. Every five years and in consultation with the research field, a subset of LSRI and LSRI-plans from the Landscape are selected and published in the National Roadmap for LSRI (short: Roadmap). The research infrastructures selected for the Roadmap are considered to be of national importance and of the highest priority for the research community to enable scientific breakthroughs. Every two and a half years NWO publishes a call for proposals for consortia that are associated to LSRI included on the Roadmap to apply for funding for the realization of their research infrastructure plans.

About the questionnaire
This questionnaire is aimed at all research infrastructure (plans) that satisfy the definition of LSRI.

By submitting this questionnaire, research infrastructure (plans) can sign up for the Landscape LSRI or update their information.

- Please submit details for only one infrastructure per form.
- For distributed LSRI we request that only one form is submitted on behalf of all partners.

The information gathered through this questionnaire will be used to update the current Landscape LSRI.

Submitting the questionnaire
1.   Fill out and submit the questionnaire via the online tool.
2.   Ask the board or director of the knowledge institution that acts/will act as the official secretary of the (envisaged) research infrastructure to mail a cover letter to pc-gwi@nwo.nl. Note that in case the knowledge institution acts as the secretary of more than one LSRI, all the LSRI can be mentioned in the same cover letter.

*Deadline for submission (both questionnaire and cover letter) is 10 April 2025.

We are available to respond to questions via pc-gwi@nwo.nl.

Instructions
Questions indicated by an asterisk (*) are compulsory.

Some of the information will be published on the Landscape LSRI website. It is clearly indicated in the questionnaire what information this concerns.

The questionnaire includes between 70 and 90 questions. The number of questions depends on the stage your research infrastructure is at.

Please note that when you close the session, your answers will not be saved. Therefore, it is advised to prepare the questionnaire before filling out. The full questionnaire in pdf format is available from https://www.onderzoeksfaciliteiten.nl/node/3985.

Please note that if you want to change your answers, you can only edit after submitting the complete form. You can edit your answers of the questionnaire online by opening the submitted form in your https://forms.office.com/ environment, and use the 'edit form' functionality.

Definitions Research Infrastructure (RI)
Research infrastructure (RI): Research infrastructures means facilities, resources and services for the research communities with the aim to conduct research and foster cutting-edge research in their fields. RI include: the associated human resources; major equipment or sets of instruments; knowledge-related facilities such as collections, archives or scientific data infrastructures; computing systems, communication networks, and any other infrastructure of a unique nature and open to external users, essential to achieve excellence in research and innovation. RI may, where relevant, be used beyond research, for example for education or public services and they may be single sited, multiple sited, virtual or distributed. (Cfr. ESFRI, https://www.esfri.eu/roadmap-2026).

Single-sited RI: Single-sited RIs are central facilities geographically localised in a single site or in a few dedicated complementary sites designed for user access.

Multiple-sited RI: Multiple-sited RIs are facilities located at several sites that form together one RI. A multiple-sited RI includes a user support structure to optimise access to the relevant site and has in place a long-term planning for the sites throughout its life cycle.

Distributed RI: A distributed RI consists of a central hub and interlinked nodes. It contains a common and consistent access policy across all nodes, provides a single point of access for all users and possesses a defined joint investment strategy across the nodes and the common/shared facilities.

Virtual RI: A virtual RI is an infrastructure that works as an e-infrastructure, providing remote access to electronic services, networks, archives, databases and databanks.

Large-scale RI (LSRI):

A large-scale research infrastructure (LSRI) is an RI that:

- o promotes a policy of open access for research. That is to say, the RI has to provide access to researchers from outside the hosting organisation(s) based on scientific excellence;
- o has a size, in terms of total capital investment and operating costs for 5 years, of at least 10 million euros. These costs do not include accommodation costs for the facility. The operating costs pertain exclusively to the costs needed to make the facility accessible, so they do not include the costs for the research programme;

  (Additional conditions for a distributed RI:)

- o provides one central access point for researchers from external organisations, even though the infrastructure is distributed across multiple locations;
- o has one management board responsible for the entire infrastructure;
- o has a legal structure.

The following questionnaire is aimed at all research infrastructure (plans) that satisfy the definition of LSRI.

Large-Scale Research Infrastructure (LSRI) and submitting organisation
The information in this section will be published on the Landscape LSRI website.

Q1. Please enter the name of the LSRI*:

Q2. If relevant, please enter the acronym of the LSRI:

Q3. Please enter the name of the submitting organisation (i.e. university, medical center, other knowledge institution, ...)*:

1. Contact information (to contact you with questions regarding the landscape inventory)

Q4. Please enter the name of the contact person of the LSRI.*

Q5. Please enter the affiliation of the contact person of the LSRI.*

Q6. Please enter a contact email address.*

Q7. Please enter a contact telephone number.*

2. General information on the LSRI
The information in this section will be published on the Landscape LSRI website.

Q8. Please indicate which description fits your infrastructure best (if in doubt, select "not sure").
For a definition of the type of research infrastructure, see above.*
- o Single-sited research infrastructure
- o Multiple-sited research infrastructure
- o Distributed research infrastructure

- o Virtual research infrastructure
- o Digital research infrastructure
- o Not sure

Q9. Would you consider that your infrastructure is a data or digital infrastructure or has a significant requirement for or dependency on data/digital infrastructure? *
- o Data/digital is its primary function (e.g. genomic database, AI resource)
- o It is not its primary function but it has a significant requirement for data/digital infrastructure (e.g. it produces a lot of data or requires complex software so has dependencies on digital infrastructure)
- o No

Q10. Where is/will be your infrastructure located? For distributed, digital and data infrastructures, consider the location of the main human resource. You can select more than one.*
- o The Netherlands
- o Outside the Netherlands
- o Mobile or extraterrestrial (e.g. ship, plane or space telescope)

Q11. Please enter the address of the central access point of the research infrastructure.

Q12. Please enter the general contact email address of the research infrastructure. Through the general contact email address interested researchers can get in touch with your infrastructure.

Q13. Please enter the name of the main contact person of the research infrastructure.*

Q14. Please provide the URL of the web page or website of the research infrastructure.

Q15. In case your research infrastructure is a collaboration between several institutions, state all institutions involved, including, when relevant, international collaborators (e.g. universities, public and private partners, NGO's).

Q16. Which of the following terms describes your research infrastructure? You can select more than one. *
- o Equipment
- o Physical collection
- o Digital collection
- o Data (i.e. information)
- o Database (i.e. hardware)
- o Digital infrastructure
- o Supercomputing (High Performance Computing, etc)
- o Digital models and virtual systems
- o Software, workflows
- o Living lab
- o Test bed or testing facility
- o Other: ....

Q17. What stage is your research infrastructure at? You can select more than one option.*
- o Idea
- o Design/planning/scoping

- o   Implementation/build/development
- o   Operation (including regular upgrades and maintenance)
- o   Decommissioning/Termination
- o   Repurposing
- o   Major upgrade

Q18. When not straightforward, provide here a clarification of the stage of your research infrastructure.

Q19. In what year did your infrastructure begin operations or in what year are operations planned to commence?*

Q20. What is the expected operational lifespan in years from start of operations of your research infrastructure?*
- o   Up to 5 years
- o   5-15 years
- o   15-25 years
- o   Over 25 years

3. Description of the LSRI

Q21. Please summarise your research infrastructure (max. 100 words), to reach out to the general public. The summary will be published on the Landscape LSRI website.*

Q22. Please enter a general description of your research infrastructure i) in terms of equipment/facilities/data/collections/… , and ii) in terms of services to users (max. 250 words).*

Q23. Please describe the (type of) research that is/will be facilitated by your research infrastructure (max. 250 words): *

Q24. Please enter a few keywords (max. 10) that characterize your research infrastructure. The keywords will be published on the Landscape LSRI website. *

Q25. Please enter the research fields for which the research infrastructure is relevant (see https://www.nwo.nl/en/nwo-research-fields). *

Q26. Which of the following scientific Domains are relevant for your research infrastructure? The Domain(s) will be published on the Landscape LSRI website. In case your LSRI significantly (>20%) facilitates research in more than one Domain, you may select more than one. *
- o   Social Sciences and Humanities
- o   Life sciences and Medical sciences
- o   Technical and Natural sciences

Q27. In which of the following Roadmap Groups, as defined in the Roadmap LSRI 2021, does your research infrastructure fit? You may select more than one
(see https://www.nwo.nl/sites/nwo/files/media-files/National%20Roadmap%20for%20Large-scale%20Research%20Infrastructure%202021_0.pdf). If you select 'None of the above' please briefly describe the field the research infrastructure fits in. *

- o   Social Sciences and Humanities

- Green Life Sciences
- Health Sciences
- Medical Sciences
- Life Sciences and Enabling Technologies
- Technology
- Astronomy and Particle Physics
- Materials
- Geosciences
- None of the above: ....

Q28. If you selected the option 'None of the above' in the previous question, please briefly describe the field the research infrastructure fits in.

4. Organisational structure and governance
As the following questions are only relevant for LSRI that are beyond the phase of design/planning/scoping, we ask you to answer the following question first.

Q29. Is (part of) your LSRI beyond the phase of design/planning/scoping? *
- Yes
- No

(In case of 'no' proceed to section 5.)
(In case of 'yes' the following questions are to be answered:)
Q30. Please describe how the governance of your infrastructure is organised (max. 150 words). *

Q31. Is a consortium agreement available for your research infrastructure? *
- Yes
- No

Q32. Is your research infrastructure a legal entity? *
- Yes
- No

(In case the answer is 'no', go to section 5; In case the answer is 'yes':)
Q33. Which type of legal entity is your research infrastructure? *

5. Users, user groups and capacity
Definitions:
Internal users are part of the knowledge institute or consortium that owns the research infrastructure.
External users are <u>not</u> part of the knowledge institute or consortium that owns the research infrastructure.

Q34. What is the most appropriate way of estimating the number of users that your infrastructure has or will have? *
- Individuals (inc. researchers from academia or business)
- Groups (e.g. research group, company account)
- Downloads/hits
- Experiments

  o Not yet known
  o N.A.
  o Other: ...

(*In case the answer is 'N.A.':)* Q35. Explain why you cannot answer this question and explain how you will demonstrate that your research infrastructure is being used. *

Q36. Who are the (expected) users and user groups of your research infrastructure in the Netherlands? If possible, provide (an estimate of) the percentage of usage per user group. (Examples of user groups: internal or external academic users, industrial users, researchers at governmental bodies, ...).*

Q37. Do/will you have users from outside the Netherlands? *
  o Yes
  o No
  o Don't know
  o N.A.

Q38. If you have international users, please provide – if known - an estimate of the percentage of international users with respect to the entire user group.

Q39. Please tell us whether your userbase is stable, growing or declining. If your infrastructure is not yet operational, select N.A.*
  o Stable
  o Growing
  o Declining
  o I don't know
  o N.A.

Q40. How do/will you measure the capacity of your infrastructure, e.g. experimental days per year, CPU (Central Processing Unit) hours, samples processed? If your capacity is essentially unlimited (e.g. an open access data infrastructure) please state this. *

Q41. Choose the situation that fits the situation of your research infrastructure best. *
  o The demand is higher than the available capacity
  o The demand is lower than the available capacity
  o The demand meets the available capacity
  o Not appropriate
  o N.A.

Q42. If you would like to provide a brief explanation (e.g. the estimated over/undersubscription rate), please do so.

6. Access mechanism and policy
Q43. What type of access mechanism does/will your infrastructure offer? Please select all options that are relevant and that contribute to 10% or more of the access mechanisms. *
  o Physical access
  o Virtual (digital) access
  o Remote access

Q44. Please provide a brief explanation of your access mechanism. E.g. you can elaborate on the percentage per type of access mechanism. (max. 100 words) *

Q45. How is it decided who can use your infrastructure? You can select multiple options. *
- o   Based on excellence, e.g. peer reviewed proposals
- o   Based on payment, e.g. buy time or access
- o   Open access (with or without registration)
- o   Ringfenced proportion of access, e.g. to own PhD students
- o   Membership quota e.g. international agreement
- o   Do not know yet
- o   Other: ...

Q46. Please describe briefly the (intended) access policy for internal and external users.*

7. Scope
Q47. How would you define the (intended) scope or reach of your research infrastructure? *
- o   Local (e.g. within an institution or university)
- o   Regional
- o   National
- o   International

Q48. Does your research infrastructure collaborate with other research infrastructures or is/will be your research infrastructure connected to other research infrastructures? *
- o   No
- o   Yes

(If no, go to question Q50, if yes:) Q49. Please tell us which other research infrastructure(s) you collaborate/connect with and briefly describe the collaboration/connection.

Q50. Is a research infrastructure of similar scale and capability as your research infrastructure available for researchers? Please think quite broadly and in terms of an infrastructure that would enable a researcher to solve their problem rather than finding an exact replicate of your infrastructure. *
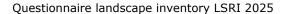- o   Yes, within the Netherlands
- o   Yes, outside the Netherlands
- o   No
- o   Mine is a virtual (digital) infrastructure and alternative entry points or alternative infrastructures are also virtual
- o   Not sure

Q51. If you would like to provide a brief explanation of your answer to the previous question, please do so here.

8. Financial aspects
Definitions
Capital investment costs: costs for the establishment (i.e. development and acquisition/construction) of the infrastructure or costs for a modification of an existing infrastructure, excluding the costs for housing the infrastructure. Capital investments also include the Dutch membership contributions to

an international research infrastructure or an international research project if these are related to the establishment of the infrastructure.

Operating costs: costs needed for keeping the infrastructure operational and for the facilitation of external users. Operating costs include personnel costs, consumables, IT costs, Dutch membership contributions to an international research infrastructure or an international research project if these are related to the operation of the infrastructure. They do not include costs related to the research programme.

Total costs: capital investment costs, operating costs, and – when relevant - decommissioning costs.

Size of the infrastructure: the total costs over 5 years. These costs should not include:

- *the costs for housing the infrastructure;*
- *insurance costs;*
- *costs related to research programmes that use the infrastructure;*
- *costs for already available IT infrastructure provided by the institutions involved, or those that are already nationally available, such as SURF.*

'Own contribution' versus 'contributions from partners': 'Own contribution' comprises the contributions of the research institution(s) (in cash or in-kind) that (co-)own the infrastructure. Contributions from partners comprise the contributions of industrial partners, user fees, acquired grant/subsidies, etc.

To be eligible for the Landscape LSRI, the size of the infrastructure, in terms of total capital investment and operating costs for 5 years, should amount to at least 10 million euros.

Funding source: A funding source represents a specific stream of money to finance your research infrastructure (capital investment and operations). Examples are, among others, direct funding ('eerste geldstroom'), NWO grants, local/regional public funds, private sector, EU funding/grants, international contributions, charity, philanthropy, Governmental Knowledge institutes, user fees,…

As the following set of questions differ for LSRI plans and LSRI that are beyond the phase of the design/planning/scoping, we ask you to answer the following question:

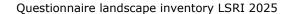Q52. Is (part of) your LSRI beyond the phase of design/planning/scoping? *
- o   Yes
- o   No

[In case of 'no', proceed to question Q61].
[In case of 'yes':]
Q53. What are the capital investment costs of your infrastructure (in euros)? *

Q54. Briefly describe the capital investment costs of your research infrastructure (excluding housing costs):*

Q55. What are the different funding sources for the capital investments of your research infrastructure (excluding housing costs)? If possible, please provide an estimate of the general breakdown of capital investment costs over the different funding sources. *

Q56. What is – on average – the (expected) annual operating cost of your research infrastructure (excluding housing costs) (in euros)? (Please indicate if the costs are actual or expected). *

Q57. Briefly describe the (expected) operating costs of your infrastructure (excluding housing costs): *

Q58. What are the (expected) different funding sources for the operational costs of your research infrastructure (excluding housing costs)? If possible, provide an estimate of the general breakdown of operational costs over the different funding sources. Please indicate if the funding is secured or expected. *

Q59. Please let us know if the research infrastructure (in terms of capital investment costs and operational costs) is dependent on time-limited funding or has stable long-term funding. In case of stable long-term funding, define the time frame until when the stable funding is guaranteed. *

Q60. When relevant, briefly describe the current investment needs of your research infrastructure (in terms of capital investment needs and/or financing of operational costs). Please also provide an estimate of the amount (in euros) needed and information on the urgency of the investment needs.
[Proceed to 9. Alignment with strategic agendas]

[In case the answer is 'no' to 'Is (part of) your LSRI beyond the phase of design/planning/scoping?':]
Q61. What are the expected capital investment costs of your infrastructure (in euros)? *

Q62. Briefly describe the expected capital investment costs of your research infrastructure (excluding housing costs): *

Q63. What are the expected different funding sources for the capital investments of your research infrastructure (excluding housing costs)? If possible, please provide an estimate of the general breakdown of capital investment costs over the different funding sources. (Please indicate if funding is already secured, expected, or wished for). *

Q64. What is – on average – the expected annual operating cost of your research infrastructure (excluding housing costs) (in euros)? *

Q65. Briefly describe the expected operating costs of your infrastructure (excluding housing costs): *

Q66. What are the expected different funding sources for the operational costs of your research infrastructure (excluding housing costs)? If possible, provide an estimate of the general breakdown of operational costs over the different funding sources. Please indicate if the funding is already secured or expected. *

Q67. Do you have a definite commitment from the highest authorities of consortium partners that your research infrastructure will be sustainably embedded in the knowledge institution(s)? *

   o Yes
   o No

[In case of 'No' proceed to Section 9. In case of 'yes':]
Q68: Please name the authority/ies that committed to sustainable embedding of the LSRI.

9. Alignment with strategic agendas

Q69. To the realization of the objectives of which agendas has/will your research infrastructure **demonstrably** contribute(d)? You can select multiple options. *
- Dutch National Roadmap Large-scale Research Infrastructure
- ESFRI Roadmap
- Dutch National Science Agenda (NWA)
- Implementation Plan Investments Digital Research Infrastructure
- Knowledge and Innovation Covenant (KIC)
- Sector plans
- National strategic agenda within a specific field of research
- International strategic agenda within a specific field of research
- Strategic agenda of (a) knowledge institution(s)
- Sustainable Development Goals (SDGs)
- Other
- None
- Unable to answer

Q70. For the checked options above, please specify which strategic agenda(s) your research infrastructure aligns with. Please provide concrete examples of how your research infrastructure contributes/contributed to the realization of the objectives of these agendas. Please specify which strategic agendas provide a means to execute new types of research.

10. Impact

Q71. Briefly describe the expected innovation and envisioned scientific breakthroughs of your research infrastructure (max. 150 words). *

Q72. Briefly describe the most important scientific outcomes realised so far. If your research infrastructure is not yet operational, answer N.A. *

Q73. Which funds finance scientific research programmes that make use of your infrastructure? You can select multiple options. *
- Funding from universities, UMCs, NWO/KNAW institutes, RKI, TO2, etc.
- NWO grants
- EU grants (e.g. Horizon Europe)
- Other international grants
- Subsidies from Dutch ministries (overheidsmissies)
- Funding obtained through contract research
- Industry
- National Growth Fund (NGF)
- Charity
- Philanthropy
- Other

- o None
- o Unable to answer

Q74. Which large research project(s) rely on the use of your infrastructure? (e.g. NWO Gravitation, NWO Summit, National Research Agenda (NWA), Knowledge and Innovation Covenant (KIC), NWO Open Competition XL, Horizon Europe,...).

Q75. Regarding research that could not be conducted without your infrastructure: please provide a rough estimate of the amount of funding/grant (in euros) that your research infrastructure has generated through research projects. Where possible, name the type of subsidy/grant and the amount. If your research infrastructure is not yet operational, answer N.A. *

Q76. Briefly describe the appeal of your infrastructure in terms of societal impact and non-scientific use (max. 150 words). *

Q77. Has your research infrastructure already enabled research that has contributed to solving global challenges. If so, please provide some examples. If not, do you see possibilities for the future?

Q78. Briefly describe the extent to which your research infrastructure is attractive to industry (large and small companies) (max. 150 words) *

Q79. Where do or will the outputs of your infrastructure lie on a research-to-innovation spectrum? *
- o Mostly research
- o Biased towards research
- o Similar balance of research and innovation
- o Biased towards innovation
- o Mostly innovation

Q80. Is/will be your infrastructure used by industry? *
- o Yes
- o No

[In case of 'No' go to question 82. In case of 'yes':] Q81. If so and if possible to quantify, please state what percentage of overall usage is by industry on average per annum and whether this is direct access by industry or indirectly through a collaboration (or both).

Q82. If applicable, please tell us with which companies your infrastructure interacts with.

Q83. Have any spin-outs or patents been developed by your infrastructure over the past 10 years? You may select multiple options. *
- o Direct spin-outs
- o Indirectly supported spin-out of another
- o Yes – patents
- o No
- o N.A.

Q84. If so, please provide brief details, including the number of spin-outs/patents.

Q85. Considering all usage, which of the following broad Readiness Levels [RLs] (e.g. technology, data, product, business) are relevant to the output of your infrastructure? Typically, lower RL levels correspond to research and higher RL levels to innovation. Please select options that account for at least 10% of the output only. You may select multiple options when appropriate. *
- o RL 0 Challenge or opportunity identified
- o RL 1 Basic research, fundamentals observed
- o RL 2 Lab research, data exploration, concept and application have been formulated
- o RL 3 Applied research, proof of concept, business concept described
- o RL 4 Small scale prototype, pilot, experimental research, algorithm validation against sample data, business model development
- o RL 5 Large scale prototype, pilot, experimental research or business model tested in intended environment, algorithm validated against real data
- o RL 6 Prototype system tested or algorithm integrated in intended environment, quality assurance
- o RL 7 Demonstration system, product development, market fit demonstrated
- o RL 8 System integration, evaluation, business model fine tuned
- o RL 9 Finished product, service or business model proven in real environment

11. Staff and staffing

As the following questions are only relevant for LSRI that are beyond the phase of design/planning/scoping, we ask you to answer the following question first.

Q86. Is (part of) your LSRI beyond the phase of design/planning/scoping? *
- o Yes
- o No

(In case of 'no' proceed to Section 12. In case of 'yes' the following questions are to be answered:)

Q87. How many staff work at your infrastructure (headcount)? Please estimate if a precise answer is difficult (e.g. for an open source project, or when staff work across multiple infrastructures within an institution). *

Q88. What is the equivalent number of FTEs (Full Time Equivalents)? Please estimate if a precise answer is difficult. *

Q89. What percentage (approximately) of staff are research staff? *

Q90. What percentage (approximately) of staff are technical staff? *

Q91. What percentage of staff perform other roles (e.g. management, administration, …)? (note: research staff, technical staff and other roles should add up to 100%) *

12. Opportunities and challenges
Q92. Please identify five opportunities that can improve your research infrastructure over the next 10 years (or less/more than 10 years, if that is more relevant for your research infrastructure). *

Q93. Please identify five challenges you expect to encounter in the coming years. *

13. Other
Q94. If there is any important issue not yet covered by the questions above that you would like to share with us, you can do so here.

Next Steps
Thank you for filling out the landscape inventory form and supporting the update of the Landscape LSRI!

Please do not forget to ask the board or director of the knowledge institution that acts/will act as the official secretary of your RI to mail a cover letter to pc-gwi@nwo.nl. The deadline for submitting the cover letter is 10 April 2025.

The updated Landscape LSRI will be presented in autumn 2025. An overview of research infrastructures on the Landscape will be published on our searchable website of the Landscape LSRI.

You can choose to download a copy of your answers using the link provided on the next page after finishing the survey and before leaving the site. However, it is only available for a limited period and only until you leave the site, so please don't delay downloading it.

If you want to change answers after submission, it is possible to edit your answers of the questionnaire online. You can do so by opening the submitted form in your https://forms.office.com/ environment, and use the 'edit form' functionality. Edits are allowed until the deadline of 10 April 2025.

If you discover any errors after the deadline of 10 April 2025, or if you have any other question related to the Landscape LSRI, please contact us at pc-gwi@nwo.nl.