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Science for international development

Strategy Plan 2007 – 2010



WOTRO



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Published by
Netherlands Organisation for Scientific
Research (NWO)
WOTRO

Postal address
P.O. Box 93120
2509 AC Den Haag
T: +31 70 344 0763
F: +31 70 381 9874
wotro@nwo.nl
www.nwo.nl/wotro

Design
BeeldinZicht, Rotterdam
Peter Snaterse

Print
Salland de Lange, Deventer

The Hague, July 2006
Netherlands Organisation for Scientific Research

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Science for international development

WOTRO Strategy Plan 2007–2010

Abstract

WOTRO is part of the Netherlands Organisation for Scientific Research (NWO). This document describes WOTRO's strategy and plans for the period 2007-2010. This new strategy has emerged from broad consultation and discussion with major stakeholders, notably the Netherlands Ministry of Foreign Affairs (DGIS), the research community and relevant societal organisations.

WOTRO's mission for the next strategy period is to ensure innovative scientific research to the benefit of development and societal issues of local and global concern in the South. With this strategic orientation WOTRO is responding to global and national developments in the scientific arena, the development arena, and the Dutch research system. Scientific excellence will remain a key condition for all funded research.

In general, the new strategy (2007-2010) entails:

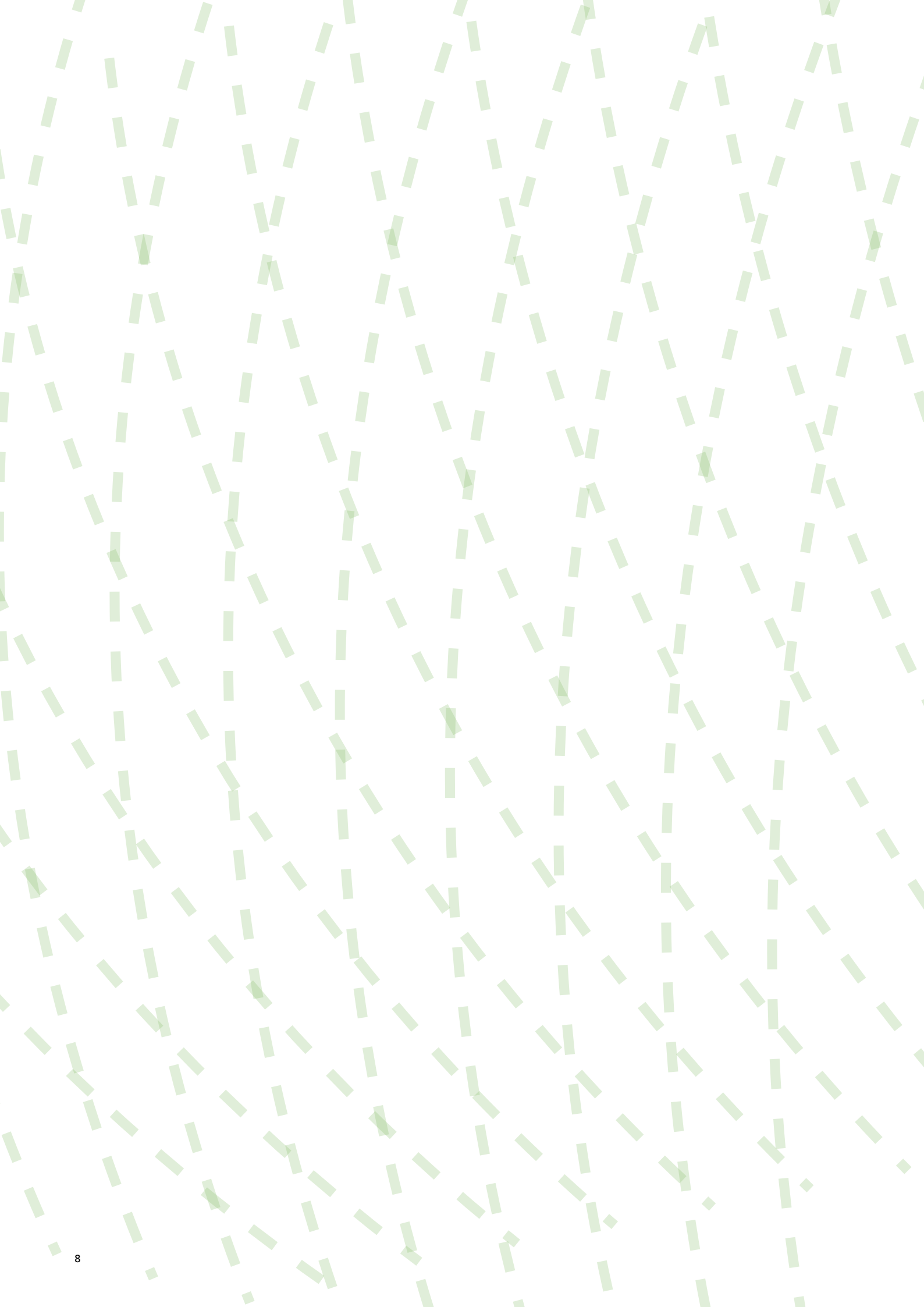
- A problem-oriented (rather than geographically-oriented) approach with a primary focus on development issues;
- Emphasis on the value and societal use and impact of scientific research in terms of critical analysis and contributions to future solutions;
- Encouragement of cooperation and a programmatic, predominantly interdisciplinary approach.

As a consequence of this re-orientation WOTRO will adapt its mode of operation and its structure. WOTRO's activities, funding criteria and the future portfolio of grants have been redesigned to support the above-mentioned strategic priorities. The activities will be structured around three pillars:

- Funding thematic research programmes inspired by international policy agendas, in particular the UN Millennium Development Goals (MDGs);
- Funding frontier research projects focused on the generation of new insights and knowledge on development issues in the broader sense, through open competition;
- Strategic, organisational activities in support of international and national coordination, priority setting and research-stakeholder interaction.

WOTRO's priorities are inextricably linked to the enhancement of synergetic international (North-South) research partnerships through which new sustainable relationships can emerge and the strengthening of scientific capacity can be ensured. WOTRO aims to enhance the societal use of results by safeguarding the preconditions for knowledge transfer and stakeholder interaction in the research.

WOTRO has the ambition to play a pivotal role in the international and national arenas of science and of development. It will do so by using its budget strategically, by aiming for leverage and by cooperating with major partners in the Netherlands, Europe and the South. WOTRO receives core funding from NWO and the Netherlands Ministry of Foreign Affairs, Directorate General for International Cooperation (DGIS). It has a role to play in closing the gap between the focus on innovative science and the focus on scientific knowledge and expertise that are relevant for alleviating problems in international development.



Introduction

In this document, WOTRO presents its strategic vision on its position and niche in the Netherlands knowledge system and the activities to be undertaken to fulfil its ambitions. As WOTRO is part of the Netherlands Organisation for Scientific Research (NWO), its strategy plan forms part of the NWO strategy plan for the period 2007-2010 (*Science Valued!*).

The new WOTRO strategy is the result of in-depth consultation and discussion with the major stakeholders: the Dutch government, notably the Netherlands Ministry of Foreign Affairs; the Dutch scientific community with an interest and expertise in development research and their international partners; and non-governmental organisations in the field of development cooperation, sustainable development and poverty alleviation. This strategy can be viewed as WOTRO's response to international and national developments in both the science and policy fields, taking into account its potential in a rapidly internationalizing arena of research funding.

The developments and trends underlying the strategic decisions will be briefly described below, followed by lessons learned and experiences gained from past strategy periods. Next, WOTRO's niche in the international and national fields of research funding will be delineated vis-à-vis other major players and partners. From the perspective of this niche, the strategic objectives for the coming period are formulated, followed by a detailed plan to deliver these through a set of activities, instruments and organisational restructuring. Finally, in the financial paragraph the required budget is presented and explained while the expected results are summarized in an overview of planned deliverables.



Trends and experiences

Scientific research, development cooperation and research policy are intrinsically international endeavours. As an independent research funding organisation at the cross-roads of these fields, WOTRO needs to consider and respond to developments in all three areas.

Trends in research

- A growing field of **interdisciplinary science** has been aiming to broaden the scope of research and provided an integrated understanding (rather than further increasing scientific specialisation). The objective is to link theories and knowledge from different research fields and disciplines, especially with regard to complex phenomena and processes. This is where major breakthroughs are to be expected but the process of interdisciplinary research remains difficult and challenging. There are obstacles to overcome, including differences in scientific paradigms and research cultures. Encouragement and special support is therefore needed.
- In recent years the debate on the ‘knowledge society’ and the need for innovation, have led to the view that scientific research is a prerequisite for economic development. It has also become clear that research results must be used more effectively, for societies to benefit from them. This utilisation of research results needs to be promoted actively, and this can be done through an **interactive model** of research and application. This is especially important for research in development. Modern science and scientists are often inspired by the challenges and problems confronting societies across the globe, such as disease, the destruction of the natural environment, conflict and poverty. Fortunately, research in tropical and developing countries is increasingly linked to research in western countries and vice versa. International comparisons are important tools to understanding complex phenomena and linking knowledge that exists elsewhere to local issues. The validity of these comparisons depends on the extent to which they are based on context-sensitive research.
- Research activities linked to development issues have become **scattered** while national funds for development research have been insufficient. Due to diminishing core-funding of universities and to their strategic choices, the expertise for development research is facing the danger of either becoming marginalized or tuned to the more ‘trendy’ subjects financed by private funding organisations.

Trends in development cooperation

- International political discussion and negotiations have resulted in broadly agreed policy targets to combat poverty and promote sustainable development: the Millennium Development Goals (**MDGs**), to be met by 2015.¹ However, only in some cases², has the policy agenda been translated into research agendas that outline the major knowledge gaps that must be bridged to meet these common objectives.
- The importance of **evidence-based policy** in the field of development has been recognized internationally. Scientific research is an important tool to this end. It has also been shown that simply

¹ UN Millennium Development Goals: www.un.org/millenniumgoals/.

² World Summit on Health Research: www.who.int/rpc/summit/en/.

'translating' western-oriented research results into local applications is insufficient to contribute effectively to the needs of developing countries.³ Therefore, many donor countries, including the Netherlands, have identified development-oriented research as a prerequisite for evidence-based policy.

- The Netherlands Ministry of Foreign Affairs (DGIS) desires to contribute to realising the MDGs, and is focusing on Africa. The DGIS has committed itself to donor-coordination with other countries and considers interaction with international and national partners and intermediary organisations in the public and private sector as essential.⁴
- In 2005, DGIS decided to include research in all of its thematic policies (directorates).⁴ Therefore, the department is reinforcing its links with the (Dutch) scientific community. To this end, it has already created the 'IS Academy' for the exchange of knowledge between students, policymakers, scientists and others involved in international development.⁵

Research policy

- The recent debate on the **knowledge society** has led to the view that scientific research is a prerequisite for sustainable societal and economic development anywhere.⁶ Recent figures show that the Netherlands (still) has world class science at its disposal. However, research results should be used more effectively and application should be improved. Use and application should be transformed into products, services or evidence-based policies. This is particularly true for research on development issues.
- Research policies in the Netherlands are influenced by the **European Research Area** (ERA), the concept underlying the EU 7th Framework Programme (FP 7). The ERA's focus is on research that benefits European economies. This means that the ERA has an agenda that makes little allowance for development-oriented research. There is a risk that the gap between public funds for 'western' research on the one hand and development-oriented research on the other, will grow wider.
- In the Netherlands as elsewhere, research policies increasingly emphasise the economic value of scientific research. In recent years, most new (ad-hoc) investments in the Dutch research system have been focused on priorities for Dutch economic competitiveness. This is a further reason for universities to shift their internal research priorities.
- In 2007-2010, NWO will concentrate its funding activities on three priorities: science-driven research and individual talent; creation of critical mass; and society-driven research in partnership with Ministries and the private sector. Encouraging interdisciplinary research is high on the agenda. The reduction of administrative loads on the research field is addressed in the new strategy, as well

3 'Mobilizing knowledge to achieve the millennium development goals', Advisory Report by the RAWOO, July 2005, Publication No. 27.

4 Development Cooperation: www.minbuza.nl, pages Development Cooperation/Dutch Aid Policy/Research for Development and Development Cooperation/Dutch Aid Policy/Major Policy Reports/Mutual interests, mutual responsibilities – Dutch Development Co-operation en route to 2015.

5 The 'Internationale Samenwerking academie' (International Cooperation Academy): 'Dossier IS-academie' (in Dutch) on the Research page of www.minbuza.nl under Ontwikkelingssamenwerking (Development Cooperation).

6 Here, WOTRO will follow the NWO definition of 'innovation': "the development of new products, services, processes, structures or social and cultural notions on the basis of scientific knowledge," referring to both application of new knowledge or the combination of existing scientific knowledge.

as increased internal efficiency (e.g. through increasing the average grant size) and a substantial increase in the budget.

Current priorities in funding development research

These developments show that there is an urgent need to safeguard (public and private) investments in development research and expertise, in the Netherlands, Europe and the countries concerned. Critical mass must be created within North-South partnerships of scientific excellence. These partnerships must be sustainable, linked to stakeholders and policies, and enable an interactive model of knowledge development. Problem-oriented, interdisciplinary cooperation must be encouraged, facilitated and financed.

Experiences from past strategies

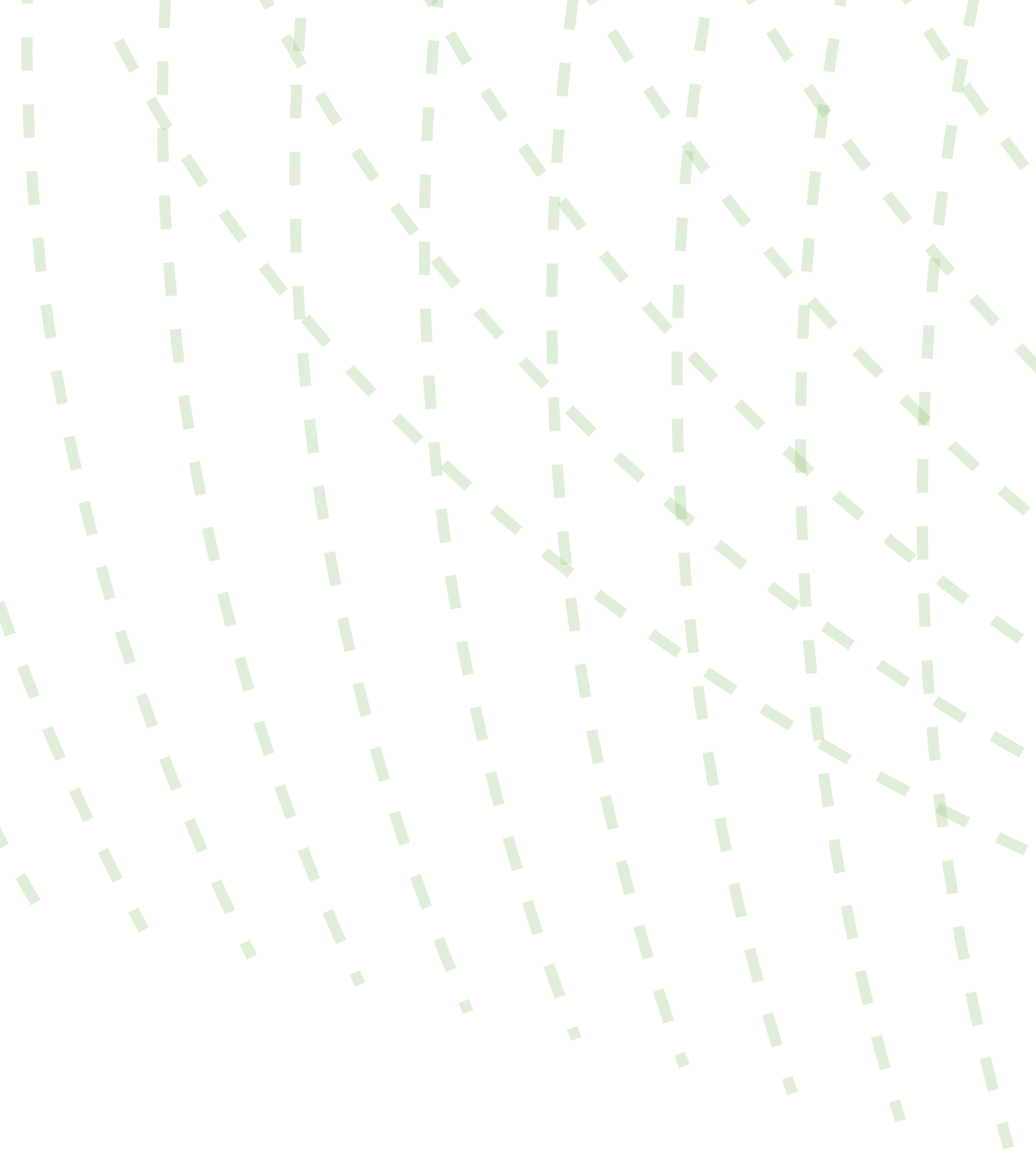
WOTRO can build on 40 years of experience in funding research in developing countries. This has led to a commitment to:

- transparent procedures to mobilise excellent scientists for development research and to develop a portfolio of high quality research projects;
- the generation of leverage through the effective combination of our own funding with funding from strategic partners, both within (NWO science divisions) and outside the NWO;
- effective selection procedures measuring scientific excellence in the development of theory and methodology;
- efficiency in the evaluation and selection of interdisciplinary research projects and the professional management of programmes and projects according to national accounting rules;
- the adjustment of the monitoring and evaluation framework, so that the social and scientific outcome and impact of funded research can be better measured.

Experience has also taught us that a focus on scientific advancement and excellence alone is not enough to obtain results in terms of development impact. Therefore, special attention will be given to ways of **increasing the societal use and impact of research** and notably to the framework of supported research projects, including:

- the linkage of research questions to international research agendas inspired by or derived from policy agendas;
- the nature of international (North-South) partnerships: projects and subjects should be of interest to both parties while working together and sharing knowledge;
- the need for an integrated approach to knowledge development, with attention to the different steps involved, including basic, translational and applied research;
- the involvement of non-academic stakeholders in all phases of and after the projects;
- the importance of integrating research and local capacity building;
- counteracting brain-drain;
- the sustainability of funding and the need for 'non-political' research funding.

Finally, the scope and scale of research projects appear to be important factors for their actual impact. In addition to funding basic science ('upstream knowledge development'), close attention is to be paid to the subsequent steps towards innovation and application.



Vision and niche

Vision

WOTRO wishes to contribute to a world in which independent, excellent science is available to the benefit of all societies and where development issues such as poverty and sustainable development are effectively targeted with evidence-based policies and interventions. It would be a world in which:

- Increased interaction between people and institutions in science, government and society leads to effective approaches to challenging knowledge questions;
- Political decision-making will be based on (among others) objective scientific research while sensitive to independent, critical reflection;
- Top experts in both the western and non-western countries cooperate to produce the best knowledge possible and move the boundaries of our understanding, according to international standards for scientific excellence and ethical practice;
- Research endeavours cover all relevant disciplines and include all necessary steps, bridging the (artificial) gap between 'curiosity-driven' or basic science and 'society-driven' or applied science;
- Scientific results are produced within interactive networks including non-academic stakeholders and potential end-users, promoting rapid uptake and application of relevant new insights and innovations, as well as feedback loops in terms of new research questions;
- Funding organisations with different focuses are supportive of each other and work in a more complementary way.

Dutch institutions have a special responsibility as part of a country which plays a major role in both science and development cooperation:

- The Dutch knowledge system is among the most productive in the world, with world class scientists in many fields, including those with direct relevance to development issues;
- Dutch research groups are very active in international cooperation, both within Europe and beyond, including many developing countries;
- The Dutch government is among the major donors of development aid in the world, with a strong non-governmental sector.

WOTRO's niche

WOTRO is in a unique position to play a distinct role as an organiser, catalyst and facilitator at the interface of the Dutch government, the knowledge system and the development arena where independent institutions have their own focus and responsibilities.

- Universities in the Netherlands have a primary responsibility to educate and train young, talented scientists in all fields of science (including the social sciences and humanities) and nurture independent scientific research. Whereas at an institutional level Dutch universities support the MDGs, at the level of research groups priorities and expertise on development issues are not well coordinated. On average the Dutch universities allocate an estimated 70 million Euros of their core funding to development related research.
- NWO, with its disciplinary science divisions, has a primary responsibility to support scientific excellence in scientific talent, research and infrastructure in all disciplines. Increasingly, NWO divisions also fund (monodisciplinary) research in the South and participate in interdisciplinary research programmes in

cooperation with external partners. Yet, most funded research focuses on research in the Netherlands and temperate systems or western societies. In 2007-2010, the NWO intends to invest over 900 million euros in Dutch science, of which 250 million in jointly-funded interdisciplinary thematic programmes with ministries and other external partners.

- The Dutch government formulates and finances the international cooperation policy, including a research policy with a budget of 130 million Euros (2004 figures). It mostly concerns applied research, with 23 million allocated to basic and translational research. With a majority of funds flowing through international organisations and institutes (CGIAR, World Bank), only part of the support reaches Dutch research groups. The recently established initiative of the IS Academy aims to strengthen the (yet limited) interaction and mutual understanding between the Ministry of Foreign Affairs and selected parts of the academic community in the Netherlands. Together, Dutch embassies invest a significant amount in development-related research projects even though individual budgets are limited.
- Recently, the Dutch Policy Review Network (DPRN) has been established organising workshops for scientists and policy makers to discuss development issues in regional meetings⁷.
- With a budget of 60 million Euros, the Netherlands Universities Foundation for International Cooperation (NUFFIC) has a primary responsibility for international exchange of students and young researchers, and individual research capacity development in developing countries⁸.
- Non-governmental organisations (e.g. ICCO, Oxfam-NOVIB, Médecins sans Frontières, World Wildlife Fund) in the Netherlands have a major role in designing, funding and executing interventions aimed at development issues. Increasingly research is recognised as an important basis for policies and activities, yet the links with the academic community are relatively limited. In the coming years, budgets for research may yield up to 5 % of the total budget available in these organisations.
- At the international level many (very) large players are active in the field of development research. The EU Framework Programme – International Cooperation (INCO) part – offers opportunities for international research cooperation, including for development research. Furthermore, the United Nations (Global Environment Facility, World Health Organization), Group of Consultative International Agricultural Research institutes, and Worldbank spend substantial sums on capacity building, and knowledge and research for development. Finally, also private funds (e.g. The Bill & Melinda Gates Foundation, The Ford Foundation, The Rockefeller Foundation, The Volkswagen Foundation) invest large sums in development research and capacity development in the South.
- Last, but certainly not least, research organisations in the South and the governments that support them have a primary responsibility to encourage and support their scientists and develop the expertise necessary to address local issues and absorb and apply relevant knowledge to the benefit of their society. International cooperation with strong science countries and knowledge transfer are often key elements of the research strategy, with funds available for the participation of national scientists.

7 Development Policy Review Network: www.dprn.nl

8 NUFFIC: www.nuffic.nl, under Development Cooperation.

In this field, WOTRO can organise interaction with and access to scientific expertise across the entire science field and different institutions. As part of an independent, national research funding organisation, WOTRO is well positioned to connect the supply of scientific research to the demand for research, while safeguarding both excellence and relevance, across scientific disciplines and independent of government policy. Moreover, WOTRO can provide direct incentives to the research community and facilitate international and national cooperation and coordination of research activities. Within NWO, WOTRO will ensure - through its own activities and strategic cooperation with NWO science divisions - that a significant part of the scientific research funded in national competitions has relevance for development issues.

With an envisaged annual budget of 30 million Euros (2007-2010), WOTRO's impact depends to a large extent on synergy and cooperation with its strategic partners in the fields of development and research funding.



4

Objectives

Given WOTRO's mission, vision and niche, as well as recent developments, WOTRO has formulated three overall objectives for the next strategy period:

- I. **Increased excellent scientific research with relevance for development;**
- II. **Increased use of scientific research in development practice and policy;**
- III. **Synergy created through partnerships and policy.**

The strategic objectives are further detailed below.

Although the terms multidisciplinary and interdisciplinary are often used interchangeably, there are differences in meaning. Whereas multidisciplinary highlights the use of approaches from different disciplines, these can be seen as working in parallel. By contrast, interdisciplinary includes the effort to integrate findings by developing a common goal and mechanism in the research. In this report interdisciplinary is referred to for two reasons: 1) the complex societal issues to be dealt with demand the integration of knowledge from a range of disciplines; and 2) new insights and breakthroughs in science are more likely to occur when scientists from different disciplines interact.

I Increased excellent scientific research with relevance for development

- Support innovative, international research at the frontiers of science according to international standards for scientific excellence and ethical practice;
- Mobilise top researchers in all relevant disciplines, in the Netherlands and the South, and bring them together in partnerships for problem-oriented scientific research on societal issues of local and global concern in the South;
- Encourage innovative, interdisciplinary approaches in development research.

Rationale

Scientific excellence in research is a prerequisite for adequate solutions in any field of development. Innovative research at the frontiers of our understanding open new directions in which possible solutions can be found. In the long run only the best research will be sustainable through its ability to compete internationally for funding. Furthermore, when scientific quality and soundness cannot be guaranteed, ethical dilemmas emerge with respect to the expected negative implications of failure and unverified knowledge. Following international best-practice, research quality is to be assessed independent of any interest.

II Increased use of scientific research in development practice and policy

- Encourage the potential impact of funded research projects through safeguarding the boundary conditions and context in which the research is executed;
- Support the mutual transfer of knowledge and expertise in North-South research partnerships;
- Support the formation of interactive networks of scientists and stakeholders focused on common interests;
- Support the uptake, translation and application of relevant research results with stakeholders from outside the traditional scientific communities in the countries or regions concerned.

Rationale

There is a clear demand for knowledge on development issues, at the international level, in poor and middle income countries coping with development problems, and in the Netherlands, one of the major donors in the development arena. Special measures are needed to link the dynamics of science to societal priorities and maximise the chances for impact.

WOTRO acknowledges that scientific research is a creative, often open-ended process where outcome and impact is difficult to predict, let alone steer. Nevertheless, societal use of research results can be maximised by safeguarding the boundary conditions, scope and context of the research projects including the interaction with relevant stakeholders.

III Synergy created through partnerships and networks

- At the level of research projects: support the creation of critical mass through increasing the scale of funded research projects;
- At the level of individual scientists and policy makers: develop and support relevant networking activities in line with the strategic focus of WOTRO;
- At the level of research programmes: combine or pool funding from different sources and partners with shared interests, aiming at larger scale and impact;
- At the level of institutions: enhance networking of relevant players in the science and development arenas, both national and international.

Rationale

Apart from excellence and proper boundary conditions, research needs a critical mass to have a real impact within the international research arena as well as on development policy. When funds are limited and/or fragmented (as is the case for development research) investing critical mass is crucial and can be obtained by partnering, not only between projects but also between Dutch research groups as well as Dutch and international research groups, both from developing countries and the EU. Therefore, WOTRO will apply a programmatic network approach, funding combined research projects only when they are integrated into a larger national or international network.

WOTRO will encourage exclusively partnerships between different research groups from the Netherlands and research groups from the South. Where possible, WOTRO will match Dutch expertise on development with expertise found in other NWO divisions, especially those focused on the Medical Sciences (ZonMW), Social Sciences (MaGW), Humanities (GW), and Earth and Life Sciences (ALW). In addition, WOTRO will encourage partnerships between Dutch research groups and European research groups.

As an independent funding organisation, WOTRO will facilitate and broker initiatives between international funding organisations and the Dutch science-for-development community. Additionally, WOTRO will support platforms and networks contributing to the coordination and embedding of Dutch research in the international arena.

Delivery plan 2007-2010

With the new, problem-oriented mission WOTRO will need to adapt its mode of operation, while building on valuable experiences and proven practice from the previous strategy periods. The strategic objectives described above will be targeted simultaneously along three action lines and tailor-made (funding) instruments. In support of this new mode of operation, some organisational restructuring will be implemented.

Action lines

The strategic objectives will be met predominantly through (co-)funding of excellent, collaborative research projects executed by independent North-South research partnerships. Here, WOTRO will carefully consider the context in which the research takes place by safeguarding the boundary conditions for both scientific excellence and societal relevance.

The three action lines, each targeting multiple strategic objectives simultaneously, along which WOTRO will organise its (funding) activities in the next strategy period are:

1. **Open competition for innovative, medium-sized research projects**
 - a. Research focused on development issues across a wide spectrum
 - b. Research focused on research agendas related to the MDGs
2. **Thematic research programmes in cooperation with strategic partners**
3. **Strategic support activities in line with the WOTRO strategy and focus.**

To shape the above-mentioned action lines, WOTRO can build on experience with different (funding) instruments in which the research question is approached within the context of the system it is part of and where reciprocal strengthening of fundamental and applied research is encouraged. Instruments can be geared to specific aims and include different conditions.⁹ Basically, WOTRO has three types of instruments:

- Integrated Programmes (Box 1)
- Joint Thematic Programmes (Box 2)
- Strategic support activities (Box 3)

1. Open competition for medium-sized research projects

WOTRO will issue regular open calls for international, medium-sized research projects (Integrated Programmes - see below under Instruments) focusing on challenging new ideas and/or critical evaluation of existing views on development issues. By organizing an open competition for research proposals, with peer review and high quality, interdisciplinary advisory committees, WOTRO aims to support excellent scientific research with relevance for development. In contrast to the calls in the thematic line, these open calls will be without restriction (given a focus on development issues). Research may be mono or interdisciplinary, yet needs to be designed in such a way that projects effectively address the research problem. International, North-South cooperation is a prerequisite for

⁹ Conditions for instruments will include: cooperation with local (developing country) scientists and thus utilisation and strengthening of local research capacity; embedding in the local research system; involvement of other stakeholders, i.e. in programme committees; communication with policymakers and public or private end-users throughout the research process; sustainable partnerships between research groups involved.

any project, as well as involvement of stakeholders from outside the traditional scientific communities who demonstrate interest in the research and its results. Following international best practice, this kind of frontier research emerges from competitions based on scientific excellence criteria. Further details are provided below under Integrated Programmes.

- a. Research focused on development issues across a wide spectrum
This competition will be open to all proposals that focus on one or more development issues.
- b. Research focused on research agendas related to the MDGs
Part of the competition will call for proposals that focus specifically on research questions related to the MDGs, both in terms of contributing to solutions and critical evaluation of these goals. Here, research should fit the WOTRO thematic framework that is derived from MDGs and related research agendas (see below under Thematic research programmes).

Expected results:

- challenging, out-of-the-box insights in the complex problems related to development issues in general, and the MDGs in particular, and possible new directions for solutions;
- critical evaluation of existing development issues and policies;
- scientific knowledge to the benefit of informed decision making and new development policies;
- high quality, long-term international (North-South) research partnerships focused on local or regional research questions in relation to development issues;
- local capacity development in development research and scientific approaches;
- strengthening of the Dutch scientific community based on quality selection and selective investment.

Boundary conditions for success:

- presence of sufficient high quality scientific capacity on a broad range of topics in the Netherlands and the country of research;
- interest by Dutch top scientists and their international partners to engage in research for development;
- effective evaluation and selection procedures for frontier research in international, interdisciplinary research projects.

2. Thematic research programmes in cooperation with strategic partners

For the thematic action line, WOTRO will develop and participate in multiple, co-funded Joint Programmes (see below), all with (partial) relevance for the above-mentioned themes. For the Joint Programmes WOTRO will seek active cooperation with other funding partners, including Ministries, the NWO science divisions, and non-governmental organisations. The Joint Programmes will issue targeted calls within predefined thematic areas.

Here, WOTRO will focus on a thematic framework which is based on internationally recognised research agendas related to the MDGs. Where these agendas have not (yet) been formulated, WOTRO has organised the translation into relevant research agendas, taking into account the strengths in the Dutch research community, considered in an international context.

The WOTRO thematic framework involves the following focal areas and their interactions:

- Poverty and Hunger
- Global Health
- Sustainable Environment
- Global Relationships

A full description of the thematic framework is given in Annex B.

Expected results:

- new insights in the complex problems related to the MDGs and new directions for possible solutions;
- critical evaluation of existing solutions and policies targeting the MDGs;
- scientific knowledge to the benefit of informed decision making and evidence based-based policies;
- high quality, long-term international (North-South) research partnerships focused on research questions in relation to the MDGs;
- local capacity development and knowledge transfer on MDG-related science fields;
- re-focusing of the Dutch scientific community on MDG-related research questions;
- creation of critical mass in interdisciplinary cooperation on society-driven issues.

Boundary conditions for success:

- strategic cooperation with the NWO science divisions on common interests, aiming for leverage with support funds by the NWO Governing Board;
- strategic cooperation with external partners aiming for effective and transparent combining of funding;
- true problem-orientation, equal partnership in and local embedding of funded research projects;
- effective evaluation and selection procedures for international, interdisciplinary research projects;
- adequate monitoring and evaluation processes to measure outcome and impact of the funded projects and partnerships.

3. Strategic support activities in line with the WOTRO strategy and focus.

In general support of the new strategy, WOTRO will complement its core activities in research funding with a minor action line aimed at creating the boundary conditions for effective, synergetic (inter)national partnerships and the (local) utilisation of research results. To this extent WOTRO will either initiate or develop or support organisational, networking and knowledge sharing activities at different levels, from research project to (inter)national organisations. In view of the minor budget line available, activities developed or supported in this action line will be focused on the WOTRO strategic objectives and scope. The actual implementation of research results will remain outside the scope of WOTRO; however, WOTRO will seek partnership with other organisations to encourage the uptake and use of relevant research results, where possible.

Expected results:

- an environment enabling sustainable in-depth but flexible North-South research networks;
- a tracking system for expertise (for research programming, review and evaluation).

Boundary conditions for success:

- a good ICT support system;
- a light and effective workshop procedure.

Box 1

Integrated programmes

Innovative research will be enhanced by offering opportunities for bottom-up initiatives in open competition. These can either deal with research questions concerning development issues in a broad sense ('curiosity-driven') or with questions that fit within the four WOTRO themes and thus are of relevance for the MDGs. Subsidies will be made available for 'integrated programmes'.

The 'integrated programme' format consists of:

- Regular open call for proposals;
- Subsidies for small to medium-sized programmes (k€ 600 - 800);
- Combination and integration of multiple individual projects with a minimum size of two individuals, notably twinning of a Dutch and DC researcher;
- Support for obligatory joint research development and execution by Dutch and DC research groups and involvement of the relevant (local, regional, international) 'stakeholders';
- Support for knowledge sharing activities ultimately aimed at fostering knowledge utilisation.

Integrated programmes are especially designed to target research questions in an interdisciplinary way by combining projects and researchers with different disciplinary backgrounds in one integrative approach. The format fosters international partnerships and contributes to strengthening the local system of innovation, notably the local research capacity.

Some examples

In a programme studying actors and factors that drive land use change near the tropical rain forest in the Philippines two methodological approaches of integrating natural and social sciences were compared, notably models on land use change comprising physical factors and social factors. The study was a joint approach by researchers with different scientific backgrounds (social/ anthropological and geographical sciences). As a result of the study a modelling tool was made publicly available which is being used in different countries. Results of case studies were locally applied among others through the involvement of nature conservancy agencies and NGOs.

In another programme the modelling tool is being used in research focusing on the resilience of the Amazon. This study aims at investigating sustainable land-use alternatives to contribute to sustainable development pathways aimed at alleviating poverty. Two Dutch institutions and two Brazilian institutes are collaborating in a multi-year partnership. The research is executed by three Brazilian PhD students, one Brazilian post-doc and one Dutch post-doc. The research combines expertise from ecology, hydrology, land use and climate.

Other issues addressed in recent years involved a variety of topics and ranged from e.g. studying illegal and legal (labour) migration issues in Asia, to food quality and international business chains of fish, vegetables and tropical fruit in Kenya, China and Costa Rica, and to micro-nutrient supplementation and child health and development in Tanzania.

Box 2

Large Joint programmes

Large, joint programmes are developed in collaboration with third parties and are focused on a specific theme of research. There are two main ways for WOTRO to engage in joint thematic programmes in the field of the MDG-inspired WOTRO-themes:

- (i) WOTRO will take care of embedding MDG-related themes within collaborative programmes with NWO-divisions and other partners on broad themes prioritised by NWO (e.g. 'Conflict, Functions, Dynamics and Cross-level Influences', 'Sustainable Earth');
- (ii) WOTRO will develop programme initiatives with different interested parties, such as NWO-divisions, ministries, NGOs, industry, international organisations or others (e.g. on health systems with ZonMw, VWS and NGOs in the health sector).

The joint programme format comprises:

- Defining joint themes of interest with (internal and external partners) and installing a joint committee (including non-research stakeholders);
- Writing a fact sheet and ensuring financial contributions of partner organisations;
- Preparation of a programme description outlining the thematic framework and focus, the aim of the programme, the type of call(s) to be issued, the fringe activities on networking and knowledge utilisation;
- A management structure involving representatives of the financing organisations in a steering committee, and a programme committee for quality control;
- A pre-set time span for the programme of generally 5 years;
- A budget befitting the specific aim of the programme (type of research to be financed, impact desired, guaranteeing a reasonable rate of awarding);
- Specific calls for proposals or commissioning of targeted projects.

These thematic programmes can have different main aims, e.g.

- To strengthen or enhance temporarily a specific domain or exciting developments at borders of disciplines;
- To guarantee cooperation on important research areas where expertise is 'dispersed' over universities and research schools and (international) collaboration is scarce;
- To encourage structural cooperation between specific scientific fields and different 'stakeholders';
- To contribute to strengthening the international position of a specific research field.

The aims of programme, together with the available programme budget, determine the type of calls issued. These can range from a call for medium-sized research proposals (the 'integrated programme' format) to a call for large proposals aimed at establishing broad international (virtual) centres for specific topics, such as centre subsidies ('starting subsidies'), Smart-Mix initiatives or National Research Initiatives¹⁰.

10 A description of Smart-mix and National Research Initiatives: in 'Science valued!' the NWO strategy plan 2007-2010, and www.smartmix.nl.



Box 2

WOTRO will take care of introducing the preconditions and criteria of relevance for the specific aims of WOTRO concerning social use of results and strengthening the system of innovation in the developing countries involved.

Some examples

WOTRO collaborated in different thematic programmes that were developed jointly with NWO-divisions. Some examples are: 'Future of the Religious Past' and 'Shifts in Governance' (Humanities, Social Sciences and WOTRO).

Another type of joint approach concerns WOTRO programmes that were organically matched by activities of other parties. In these cases the benefits were organisational (scale and scope) and intellectual, not financial. Examples are a WOTRO biodiversity programme joining forces with programmes of the Tropenbos Foundation or the joining of the national NACCAP health programme to the European Commission European and Developing Countries Clinical Trials Partnership (EDCTP).

An example of a broad joint programme with external partners is the East Kalimantan Programme. It is funded by WOTRO, the NWO division of Earth and Life Sciences, the General Board of NWO, the Royal Academy of Arts and Sciences (KNAW), the Indonesian Ministry for Science and Technology, and German counterparts. In this programme 6 institutions in Indonesia and 8 institutions in the Netherlands jointly work on integrated Coastal Zone research in Indonesia. The programme builds on experience in previous joint efforts, is crucial for the sustaining of coastal zone research expertise in the Netherlands, and aims to grow into an EU-ASEAN consortium with EU-funding.

Box 3

Strategic support activities

In support of the strategic objectives and to complement the core activities aimed at funding cooperative research projects, WOTRO will:

- facilitate contacts and knowledge exchange at different phases in the research programming, both at the level of the research groups, and the level of the research funding bodies (WOTRO's partners);
- support and collaborate on (inter)national activities aimed at networking / platform functions;
- (co-)organise activities aimed at facilitation of knowledge exchange and transfer, to policy, practice and the wider public.

These activities will partly be undertaken jointly with partner organisations or organisations that have specific expertise in the fields involved.

Some examples

National level

- Bridging the science – policy interface: organising and supporting regular and/or structural interaction between policy makers and scientists in relevant fields, in cooperation with the Dutch Policy Review Network (DPRN);
- Joint priority setting: organising and supporting regular and/or structural interaction between different policy organs and national organisations on topics of shared interest, in cooperation with the Netherlands Development Assistance Research Council (RAWOO);
- Joint research programming: organising of ad hoc activities (e.g. workshops) between relevant funding bodies on areas of common priority;
- Knowledge sharing: linking research programmes and development organisations to facilitate uptake of research results;
- Raising public awareness: organising activities aimed at raising awareness with the general public of the contribution of scientific research to development issues.

International level

- European cooperation in development research funding: initiating of and participating in pan-European initiatives (e.g. ERA-net and other networks) that enable cooperation and coordination between national funding programmes;
- International research programming: linking international (global) research programmes and research agendas to national (or European) research funding programmes in support of development research;
- North-South cooperation: linking relevant (inter)national organisations and the South in support of joint agenda-setting and the uptake of research results;
- Increase involvement of WOTRO-funded researchers in the Netherlands and the South in reflection on activities of WOTRO (and others) and collaborate in new or existing platform and networking activities aimed at alumni researchers.

Individual talent and capacity development

Any research thrives on talented individuals. In WOTRO's view young individual research talent in research for development can make use of multiple existing opportunities, either as part of a larger constellation within the WOTRO funding schemes or, individually, through the NWO talent schemes or open (mono disciplinary) competitions.

Opportunities for individual researchers are the following:

- Within the small programmes granted in WOTRO's annual open calls for 'integrated programmes' or on projects granted as a result of calls of large thematic programmes;
- NWO support for individual talent (e.g. Vernieuwingsimpuls, Rubicon¹¹) as well as open calls of the disciplinary science divisions of NWO; calls are open to researchers of all nationalities provided the research is performed at a Dutch research institution or university;
- The IS Academy trajectories⁵ of DGIS with a number of Dutch research institutions;
- Fellowships for researchers from developing countries from NUFFIC and others (universities, IFS);
- WOTRO and NUFFIC will explore ways to create synergy between the research-funding focus of WOTRO and the education / capacity-building focus of NUFFIC.

Organisational restructuring

To prepare for the new challenges, WOTRO will carefully consider, in close communication with its primary financiers, its governance and operational structure as well as its position of WOTRO within NWO. To be considered are: legal entity and embedding within the NWO organisation; composition of the Board and advisory structures such as the Policy Advisory Committee and Programme Committees; organisation of the bureau (back office).

The new strategy requires a governance model and mode of operation that ensures effective cooperation with, expertise from and (more) direct engagement of the major partners of WOTRO, notably:

- the Dutch scientific community;
- the NWO science divisions;
- non-academic stakeholders such as non-governmental organisations and private sector;
- representatives from international scientific partners, most importantly the research community in the South.

11 'Vernieuwingsimpuls' or 'Innovational Research Incentives Scheme' and Rubicon: www.nwo.nl, under Subsidy Guide.

Financial strategy

Budget

The new strategy requires a significant increase in the WOTRO budget. Over the entire strategy period an estimated total amount of 150 million Euros (5 yr) or an average annual budget of 30 million Euro is needed in order to attain the strategic objectives.

The budget will be distributed over the three action lines with a strong accent on funding actual research projects:

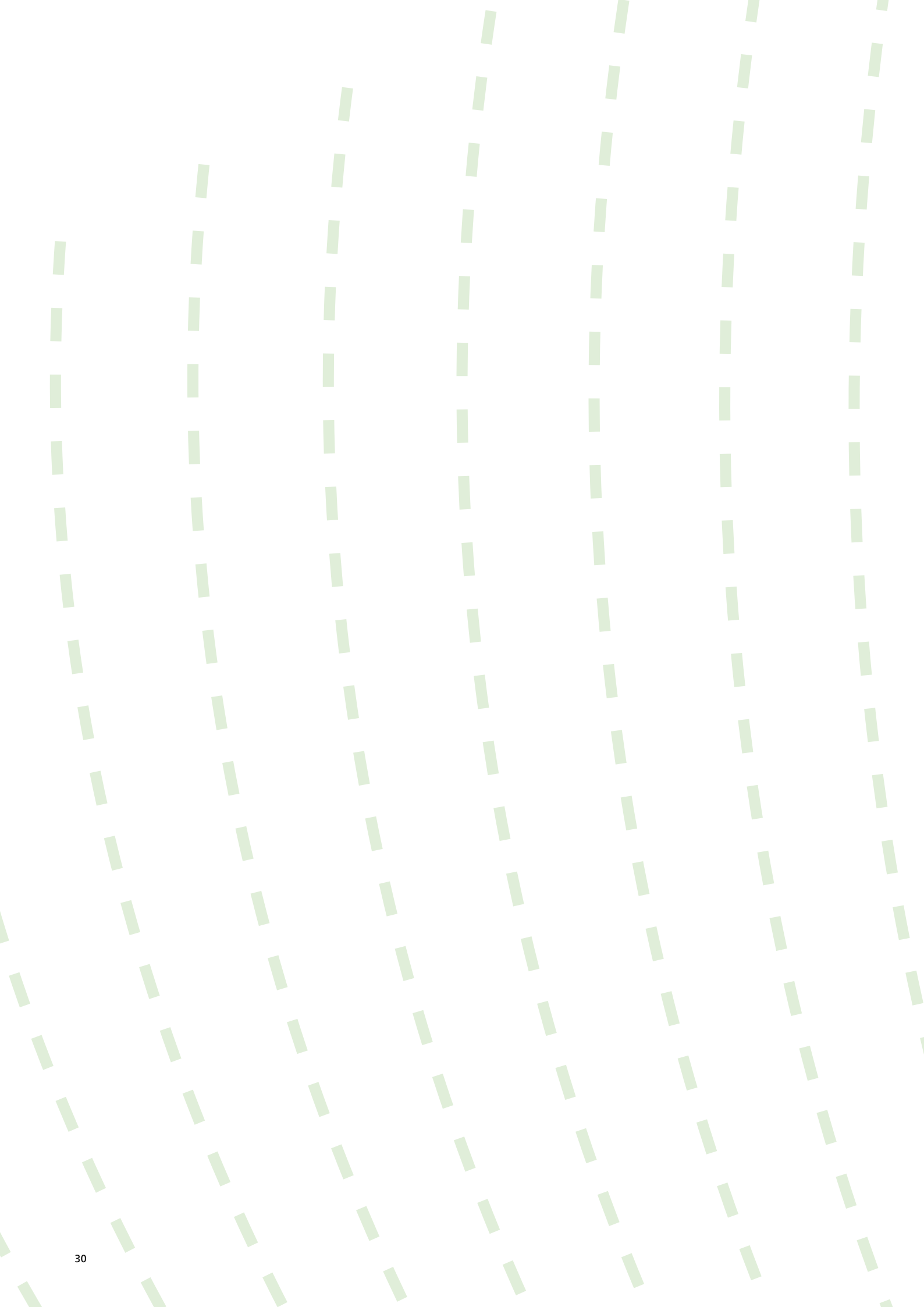
- I. Open competition 50 %
- II. Thematic Joint Research Programmes 40 %
- III. Strategic support activities 4 %
- Operation (overhead) costs estimated at 6 %

Tentative budget	%	Annual core budget	Annual acquisition *	Total 2007-2011 (5 yr)
Action lines				
I. Open competition – Integrated Programmes	50	7.5 M€	pm	37.5 M€
a. <i>Development issues across a wide spectrum</i>	25			
b. <i>Inspired by MDGs</i>	25			
II. Thematic joint programmes	40	6 M€	15 M€	30 M€ (+75)*
III. Strategic support activities	4	0.6 M€	pm	3 M€
Operations	6	0.9 M€		4.5 M€
TOTAL budget	100	15 M€	15 M€	75M€ (+75)*

* Aim: 15 MEuro external funds annually (75 MEuro / 5 yr).

Acquisition

WOTRO will seek in total 75 million Euro of core-funding (average 15 million Euro per year) for its new strategy with the NWO and the Ministry of Foreign Affairs. The core-budget will be used to fund the open competition action line and provide the basis for the large thematic cooperation programmes. In addition, WOTRO aims to attract another 75 million Euros (average 15 million Euro per year) of additional funding by acting as coordinator and executing agency for collaborative thematic programmes.



Brief overview of past strategy period (2002-2005)

Overview of activities

Following an external review of the preceding decade, WOTRO formulated its first strategy plan in 2001 for the period 2002-2005. WOTRO's activities in this period focused primarily on strengthening scientific excellence and research capacity in tropical research, both in The Netherlands and developing countries. Typically, funded research was executed by young Ph.D. or post-doctorate researchers from the Netherlands or developing countries.

- **Open competition.** The open competition concentrated on relatively small, research projects executed by a single Ph.D. student or post-doc, funded through an annual open call for projects by Dutch researchers and a parallel call aimed at young researchers in developing countries. To complement the individual projects, a start was made with an annual call for medium sized, interdisciplinary research programmes (Integrated Programmes).
- **Thematic Research.** WOTRO developed and participated in several large research programmes in cooperation with the NWO science divisions and external partners, guided by four predefined scientific themes: Sustainable Environment; Culture & Identity; Health; Poverty, Labour & Social Security.
- **Capacity Strengthening.** The capacity building strategy focused on supporting individual scientific talent in developing countries with co-supervision by senior scientists from The Netherlands and the home country. To complement the actual research activities, support was provided to small scale activities, e.g. career support for (WOTRO supported) young scientists; formation of North-South research partnerships; encouraging knowledge transfer and the local benefit of research results.
- **Preferred partnership.** WOTRO executed two large programmes fully funded by the Ministry of Foreign Affairs: the IDPAD programme focusing on social sciences research on development in India and NACCAP, a Dutch-African partnership programme aimed at developing both new clinical interventions against HIV/Aids, malaria and tuberculosis and the required local research capacity in Africa.¹²
- **Internationalisation.** A start was made with the internationalisation of WOTRO's funding activities, resulting in a steep increase in the participation of foreign scientists in peer review and grant selection, including from developing countries. WOTRO participated in the development of a European call for internationally co-funded, transnational research on biodiversity. On behalf of NWO, WOTRO was actively involved in development of the EDCTP, a major European programme to combine national efforts to develop new drugs and vaccines against poverty related diseases in Africa.¹³ With support by the Ministry of Foreign Affairs, WOTRO initiated SHARED, a web-based tool to link scientists in health research in developing countries in support of South-South and North-South cooperation.¹⁴

12 IDPAD: Indo-Dutch Partnership for Alternatives in Development (5th Phase, 6 M€); NACCAP: Netherlands-African Partnership for Capacity Strengthening and Clinical Internationals Against Poverty Related Diseases (20 M€).

13 European and Developing Countries Clinical Trials Partnership; cooperation of EU and 15 European states aimed at coordinating and linking national research programmes. www.edctp.org

14 SHARED: Scientists for Health and Research for Development. www.shared-global.org ; www.sharingpoint.net

Results

Innovative science

In 2002-2005 WOTRO invested a total of 19 M€ in research projects and medium-sized programmes rated to be of high scientific quality in (inter)national peer-review. Due to a stringent competition and selection on scientific innovation and originality, most of the WOTRO-funded research in this period can be classified as high-risk, exploratory research focusing on obtaining new insights, theory building and scientific innovation. Supported projects lead to important new insights in various complex problems, among others the relationship between (mal)nutrition and malaria, conflicting land use in semiarid ecosystems, or fighting weeds in tropical crop plantations. To date over 1000 scientific publications have been published on issues in tropical and developing countries, including articles in world leading journals such as Nature, Science, Cell, The Lancet and books published by leading publishers.

Encouraging interdisciplinary cooperation and critical mass

A total of 12 M€ was invested in the participation in several large, interdisciplinary research programmes in cooperation with other funding organisations. Here, WOTRO acted as the catalyst for, or safeguard of interdisciplinary approaches, North-South synergy and capacity strengthening. The thematic programmes have led to (re)focusing of research at universities, long-term cooperation, and in some cases critical mass for interdisciplinary research in various fields of research, including infectious diseases, biodiversity, religion, governance, coastal zone research. At the organisational level, WOTRO gained valuable experience with funding medium to large, international research consortia focusing on complex, interdisciplinary research problems. From an investment point of view, this strategy can be considered highly successful as almost all joint programmes yielded a return of investment in tropical and developing countries of 100-200%.

Strengthening of scientific capacity

The training and development of talented young researchers was a deliberate focus of the WOTRO policy in the past strategy period. Nearly 60 talented scientists from developing countries obtained a Ph.D. degree on WOTRO funding, of which (at least) three with honours (cum laude). Of these 12 (20 %) obtained a subsequent WOTRO-funded post-doc project. Based on an enquiry among WOTRO-alumni shortly after concluding their project, over 90 % returned to their home country of which 75% continued their research career. WOTRO's activities have thus led to the strengthening of the leading scientific institutes in different developing countries in Africa, Asia and Latin America. In the Netherlands, 70 young Dutch researchers obtained a Ph.D., of which (at least) three with honours. Of these, 13 (20 %) obtained a subsequent post-doc grant with WOTRO. Of all WOTRO-alumni, more than a dozen have reached a position as full professor in the period 2002-2005. As such, WOTRO is proud to have funded the (early) careers of some of the leading researchers in The Netherlands.

Societal relevance, dissemination and local ownership

Although the emphasis was on scientific advancement, WOTRO's activities in the past strategy period have produced many partnerships between scientists and societal actors and multiple (mostly small-scale) initiatives to transfer knowledge and research results to local stakeholders or end users. Without systematic monitoring and evaluation, the actual societal impact of these initiatives is, however, often time lagged and difficult to measure. Yet, with many scientists, WOTRO has gained valuable experience in encouraging, and creating the boundary conditions for, effective knowledge

sharing and the societal embedding of scientific research in developing countries. In this coming strategy period with a specific focus on tackling development issues in a local setting, WOTRO aims to build on this experience

Overall, WOTRO's activities were favourably evaluated in two external reviews.¹⁵

Facts and figures WOTRO Strategy 2002-2005

Investments		
	Expenditure	Newly awarded initiatives*
■ Ph.D. and post-doc projects by Dutch researchers	11.5 M€	50 projects
■ Ph.D. and post-doc projects by DC researchers	3.5 M€	80 fellowships
■ Integrated programmes	3.5 M€	10 medium programmes
■ Joint Thematic Programmes	12 M€	13 large programmes
■ Small grants in support of DC capacity strengthening	0.5 M€	53 initiatives
Acquisition and leverage		
■ Management of external funding		8 M€
Output		
■ Person years in research personnel**		350 **
■ Researchers in Netherlands with Ph.D. degree		70
■ Researchers in developing countries with Ph.D. degree		60
■ Scientific publications (including high level journals such as Nature, Science, Lancet)		> 1000

* The number indicates the newly awarded initiatives in the period concerned. In addition, part of the budget was spent on ongoing projects and programmes started before 2002.

** This concerns researchers employed as PhD or post-doc at Dutch universities and excludes the researchers who received a DC fellowship.

15 Commissioned by the Ministry of Foreign Affairs in 2003 and 2005 as part of accounting rules for the subsidy for the strategy period 2002-2006.



Description of the WOTRO themes 2007-2010¹⁶

The WOTRO themes: perspectives for research

WOTRO desires to contribute to the realisation of the Millennium Development Goals. The research agenda of WOTRO for the coming years has been inspired by the MDGs and four themes have been identified among them: poverty and hunger, global health and health systems, sustainable environment and global relationships. These will be briefly introduced below, and some key areas of research (sub-themes) will be described. Three broader perspectives are important for all research that WOTRO stimulates. These are the global context, an interdisciplinary approach and equity.

Global context

Poverty and hunger, health, a sustainable environment and global relationships are strongly inter-related. Globalization and global-local interactions link the various themes. Globalization can be understood as the complex interconnectedness of the world through the increased mobility of people and the increased speed of circulation of goods and ideas. Or, more specifically, as the time-space compression brought about by new information and communication technologies. Globalization is an uneven process which excludes certain regions in the world and groups and categories of people within those regions. It leads not only to integration, but to separation and fragmentation as well.

Interdisciplinary approach

Complex dynamics link developments in the fields of ecology, nutrition technology, economy and society. Interdisciplinary and long-term research can lead to a better understanding of the interactions between the origin and impact of problems and the effectiveness of policies for sustainable development. WOTRO invites researchers to collaborate in opening up new avenues of research into the most pressing global problems and their local effects.¹⁶

Equity

Equity¹⁷ or the equality of opportunity (within and across countries) is essential for sustainable development and poverty reduction. The effects of policies and interventions are not the same for different segments of populations. Therefore, research aimed at developing policies can only be adequate if it takes the issue of equity into account, both at the level of the implementation of policies (e.g. concerning health, or management of resources, property rights and trade) as well as in more 'upstream' research generating new insights that lead to new policies and innovative tools.

A. Poverty and Hunger¹⁸

The poor in developing countries are exposed to a great variety of risks such as diseases, unreliable rainfall, volatility in prices and civil war. Lack of power increases their exposure to these risks. At the same time it hampers their capacity to improve their situation. They are caught in what is called a poverty trap. Poverty is exacerbated by poorly functioning systems of governance and ill-designed policies.

¹⁶ To be linked to the NWO themes on Sustainable Earth, Cultural Dynamics, Health and Conflict.

¹⁷ On equity, see e.g. World Development Report 2006: Equity and Development. (Author: World Bank)

¹⁸ References used are presented in Annex C.

More interdisciplinary, collaborative and long-term research can help to create a better understanding of the origin and impact of poverty as well as the effectiveness of poverty reduction strategies. Within the theme of Poverty and Hunger WOTRO has identified three key areas for further research under this theme: 1) agricultural and institutional innovations; 2) disaster and displacement; 3) critical assessments of policies and interventions. WOTRO considers it crucial that local conditions and solutions for coping with poverty are studied in relation to large-scale and global processes. WOTRO encourages studies concerning rural and urban poor, including the most vulnerable groups among them, such as women, children and the ageing, minority ethnic groups, migrants and other displaced people.

Agricultural and institutional innovations

Increases in agricultural production can have a positive influence on fighting hunger and improving environmental and economic stability. This positive influence, however, is not automatic. The Green Revolution of the 1970s, for instance, concentrated on the production of large yields of major cereal crops (maize, wheat, rice) with less attention to balanced diets, or the nutritional quality of grain. The current livestock revolution is leading to a doubling in demand of crops for fodder. The availability of technology is not the only decisive factor in the choice of agricultural production systems. Farmer's decisions to maximise carbohydrate crops are related to labour availability. When labour is lacking (because of alternative options for workers such as migration or schooling) and when access to markets is limited, labour-extensive crops will be favoured and malnutrition may also be a result.

Malnutrition among poor populations can be fought in the first place by diversification in crop production (and dietary diversification) and, in the second place, by the improved nutritional quality of produce (e.g. improved protein contents of staple carbohydrates such as protein rich maize and cassava, or the 'biofortification' of the micronutrient content in tubers and grains). The necessary agricultural diversification (the combination of animal, trees and variety of crops) will go together with new labour options and the diversification of livelihoods in general. At the same time, climate change threatens existing production modes and selection of new varieties and crops, vegetables and fodder forms a key adaptive strategy to increasing environmental stresses.

Biotechnology and farmer-driven biotechnology research is recognised as a potential tool for crop and livestock improvement. It can include for example research into marker assisted breeding and genetically modified organisms (GMOs). Tailoring to the needs of small farmers, for instance by including key GMO traits in locally-adapted varieties of crops important to smallholder producers, is an important task for scientific researchers and donors, not in the least because multinationals - that also invest in biotechnological research and can afford the necessary testing and patenting - attend to focus on crops that return a large profit margin.

Often the institutions necessary for implementing new technologies are insufficient or have collapsed. Attention to institutions and policies appears to be at least as important as the technical information needed to increase productivity. This includes issues of organisation, knowledge, access, purchasing power, input provision, marketing etc., where institutions are needed that incorporate the poor. Research should not only focus on problems, but also on the necessary conditions for improvement, for instance by reflecting on failures and successes, and by addressing overall trends and expectations (such as the feminisation of agriculture) in a specific setting. Particular emphasis should be placed on the functioning of integrated crop-livestock farming systems, including the extended and complex

rural livelihoods of smallholder producers, rather than focusing solely on individual components of the systems.

Displacement and disaster

In situations of man-made and natural disasters the poor are affected more than others. War, conflict, development-induced displacement and disasters lead to national and trans-national displacement and to impoverishment, malnutrition and livelihood crises that are difficult to overcome, even over a few generations. Understanding the precise mechanisms at work and identifying potential remedies is a matter of urgency. This may be linked to work on post-conflict reconstruction.

Further research is needed to measure the effects on rural and urban livelihoods, especially in terms of poverty and nutrition. This requires a more fine-grained analysis of local, social and gender-specific constructions of vulnerability. A next step is to reduce risk-exposure to disaster and related vulnerabilities through a more systematic and pro-active approach that transcends conventional relief responses.

Both rural-urban and rural-rural migration have become profitable and sometimes indispensable coping strategies. However, integration into new communities can be problematic. In the case of rural migration, contracts between landowners and migrants are often short term, leading to tenure insecurity and soil mining practices. This creates tensions between old and new inhabitants that can easily be exploited by politicians. Science can contribute to a better understanding of the causes, roles and effects of migration. It can also help to develop to design of sustainable farming systems, including options for agricultural diversification and soil improvement.

Urban migration also often leads to insecure contract labour and to tensions between different social, ethnic and religious groups. Urban impoverishment and hunger are increasing and research is necessary to target the most vulnerable groups and find solutions that will improve the living conditions of the poor and decrease (potential) conflicts. Migration also offers new opportunities. To exploit them, more understanding is needed of the viability of the rural-urban chain and its effects on social mobility and development of rural areas. Important questions are: whether mobility has led to multi-local livelihood networks?; if so, how does this affect rural and urban development?; what are the income flows to and fro between rural and urban areas, and between countries?; and what implications do these aspects have for rural development?

Policies and interventions

A solution for poverty and hunger depends to a large extent on the policies of both donor and recipient countries. Very often however, increasing poverty and malnutrition indicators can be directly linked to inappropriate policies. WOTRO encourages research featuring a critical perspective on the effectiveness of policies and interventions as well as reflecting on the issue of development itself. Policies and interventions are part and parcel of existing power constellations. The latter therefore need to be addressed, including the analysis of failing or 'fading' states. A solution to poverty and hunger depends to a large extent on policies of both donor and recipient countries. Scientific and policy programmes in tropical developing countries that are initiated or run by donors often function in a context of self-created artificial conditions that may not be sustainable after the programmes end. Our understanding of these artificial conditions, however, is still inadequate. On the other hand, in their attempt to survive, people adopt coping strategies that can be successful

or not, or only successful in the short-term. In order to support long-term coping strategies, discourage damaging forms and support promising local initiatives, we need a better understanding of the choices for coping with poverty and of processes of adaptation.

The effective targeting of poverty reduction strategies requires identifying the poor. Household surveys produce reliable estimates of poverty at the provincial level, but they are of limited use in targeting at lower levels. Recently, the combination of different data sources has made it possible to analyse more details at lower levels. This has created a virtual industry of "poverty mapping" in which Dutch research plays a central role. A similar trend is beginning to emerge in the field of vulnerability analysis. More adequate methodologies, application of the results to targeting, and spatial analyses of inequality, vulnerability and poverty are needed. A promising avenue is the incorporation of risk, vulnerability and poverty dynamics and considering the nature of the intervention and the characteristics of the poor.

Donors and NGOs are themselves increasingly expected to "prove" the effectiveness of their work to their stakeholders. Recently there has been an enormous improvement of quasi-experimental methods for assessing the impact of social policy. Although they allow the gradual accumulation of knowledge of what works and what does not, such methods are at present designed to evaluate highly specific "projects". A serious research effort is required to extend the methods to make them suitable for evaluating heterogeneous interventions.

B. Global Health and Health Systems¹⁸

Health systems¹⁹ are globally connected, and national health systems (in European and developing countries) will not only affect their own societies. They can also impact on the health of citizens in other countries because of the volume of people and goods moving across the globe. This is true both for the spread of infectious diseases and for the availability and the quality of health care personnel and medicines. In all cases, the quality of national health systems and international policies are of great importance for global health.

Since World War II, public health has been a domain for target-oriented global actions, including efforts to eradicate diseases, immunise the world's children, and halt the spread of HIV. In spite of successes, health outcomes prove difficult to establish and health gains are not often achieved. In general terms this is due to a lack of means and to power-imbalances. More specifically, weak health systems form one of the most striking barriers to better health in developing countries. They are often responsible for the failure to implement interventions in a sustainable way. New tools like diagnostics, vaccines and medicines can contribute to improving the quality of health systems. If, however, the social, economic and political constraints of health systems are not also addressed, it can be expected that in the developing countries new technological innovations alone will not be sufficient to establish the equal distribution of good health systems. The grand challenge in the field of global health is to develop a coordinated scientific methodology to help establish high quality and sustainable health systems that are tailor-made for local circumstances and flexible to global influences at the same time.

¹⁹ In this text 'health systems' refers to all services, functions (including tools) and resources in a geographic area, whose primary purpose is to affect the health of a population.

WOTRO encourages studies aimed at improving the quality of health systems of developing countries, with approaches from different perspectives, e.g. research into equal access to health programmes, research into the availability of applicable tools and assets, finances and personnel, and research into the relationship between global and national or regional health related policies. Preferably, studies will comprise all three perspectives in an integrated way.

Innovative approaches to improve access

Global strategies have been developed for addressing the Millennium Development Goals aimed at reducing child mortality, improving maternal health and combating HIV/Aids, malaria and other diseases. These strategies are implemented by health systems in a broad sense (i.e. not only including the public health system, but also private providers, community-based initiatives, actors in education and other sectors). However, vulnerable populations may not always have access to these interventions for a variety of reasons, including economic constraints, the limited availability and quality of required services, and socio-cultural barriers that are sometimes aggravated by conflict situations. Moreover, the quality of health programmes may be insufficient at various levels (health policy, organisation and management, and implementation). At the same time, supply driven public health programmes do not sufficiently acknowledge that people all over the world self-medicate common diseases by buying drugs over the counter from formal and informal vendors. In addition, the growing resistance of malaria and tuberculosis, as well as the availability in developing countries of resources for the treatment of HIV urge us, even more than before, to develop treatment programmes that are based on evidence, and use innovative approaches (e.g. that integrate disease specific approaches and are inter-sectoral). While extensive research has been conducted to describe social, cultural and economic barriers to and constraints on the effectiveness of health strategies, this has not led to sufficiently improved access to or performance of health systems. Therefore, research should move beyond description to analysis and intervention. WOTRO wishes to stimulate research that builds on existing knowledge, and leads to innovative approaches to improve the quality of health services as well as access to them.

Innovative and applicable tools and assets

The sustainable implementation of health programmes may also call for new or adjusted tools. Interventions exist for most health problems, including those that especially burden developing countries. But for some there still is a lack of affordable, culturally acceptable and safely applicable (behavioural and technical) interventions, strategies, diagnostics or other assets. For example, new diagnostics (low cost, easy to use) are needed for peripheral and community-based health services. Other diagnostics should be developed for use in district or reference laboratories (e.g. resistance testing). New drugs or treatment strategies may contribute to improved treatment outcomes, e.g. by allowing shorter treatment courses or by circumventing the development of resistant strains. To fight (vector-borne) infectious diseases, alternative methods to improve essential hygiene strategies, or vector-control strategies are required. In addition, new assets (delivery strategies, health promotion strategies, and vaccination strategies in conflict situations) may contribute to the improvement of (childhood) vaccination programmes. There are still no safe and effective vaccines for diseases like malaria, HIV, tuberculosis and other infectious diseases, notably those that affect children in their first years of life. New scientific approaches (genomics, systems biology) that are applied to the study of more western-oriented diseases must also be available for studying these so-called neglected diseases in order not to widen the science gap any further. The search for new scientific approaches (genomics, systems biology) will be encouraged. WOTRO pays special attention to the application of these approaches in finding solutions to health problems that specifically affect developing countries.

Global context

In the search for the implementation of new and existing interventions and better access to them, the global context of health policies and systems should not be underestimated. For example, the large-scale international trade of goods and increase in personal travel has resulted in new or enlarged human health risks that may not be limited to developing countries. And global processes, policies and strategies (e.g. ageing, the pricing system of medicines and vertical global health programmes) are increasingly influencing national health systems in developing countries. This means that health improvements in developing countries cannot be achieved without understanding the relationship between global policies (including pricing policies) and national or regional policies, between traditional and western health care, and between public and private health care systems. That is why WOTRO considers research addressing these relationships important.

C. Sustainable Environment¹⁸

Natural resources are the basis of the livelihoods of billions of people, providing invaluable goods and functions. As demonstrated in the Millennium Ecosystems Assessment (MA, 2005) many resources and ecosystem services are currently under threat leading to the decline of biodiversity, species extinctions, deforestation, desertification, loss of fertile soils, declining water tables, lack of safe drinking water and nutrient loading and climate change. The growing cost of the degradation of ecosystem services is a direct barrier to achieving the MDGs. Attempts to counteract environmental degradation are hampered by increasing population pressures, ignorance of systemic dynamics, and lack of capital, education, appropriate technology and poorly functioning legal systems and institutions.

Many regions facing poverty overlap with areas of high biodiversity and/or areas vulnerable to environmental risks and degradation. The migration of impoverished inhabitants leads to urbanisation and slums, creating new sets of problems, for example in solid waste collection and processing, air pollution, and the provision of safe drinking water and domestic energy. The underlying processes of environmental degradation and associated problems involve complex interacting of ecological, economic, hydrological, demographic, social and institutional dynamics. In many regions, existing resources such as land, water, pasture and trees are deemed insufficient to feed a growing, more demanding population, while an increasing demand for energy in newly-emerging economies contributes to global environmental change. The growing scarcity of resources may lead to increasing degradation and even violent conflict. Elsewhere, private and state institutions are starting to develop new and more sustainable resource management practices.

The Sustainable Environment theme comprises four key areas for addressing these interactions: i) management and conservation of ecosystems; ii) valuing resources and ecosystem services; iii) environmental governance; and iv) interactions between spatial, temporal and organisational domains. They are inspired by several international agendas. These four areas imply complementary approaches from different disciplinary perspectives. Natural science approaches serve to identify and assess the most relevant geological, geographical, physical, biological and ecological processes operating within ecosystems, explaining the natural complexity and dynamics of these systems. Secondly, the analysis of the societal processes that lead to unsustainability, and the identification of institutional and economic options for solutions will help us to understand the human dimension. And thirdly, complex systems studies are needed to understand the interplay between natural and human processes.

Management and conservation of ecosystems

The past decades have seen extensive population extinctions, fragmentation and quality loss of natural habitats, resulting in the decline of biodiversity and associated ecosystem services. Many new research tools have allowed us to examine in more detail where and how conservation and management of natural and agricultural areas should and could be successful. These tools have helped to describe how invasive species, global warming, the logging of forests, impairment of hydrological systems (dams, irrigation), emerging infectious diseases and soil erosion are threatening the functioning of agricultural and natural ecosystems. But how do ecosystems change, which factors are the most critical, and what are the time scales, the discontinuities and thresholds for loss and recovery of ecosystems? These questions remain largely unanswered.

Modern research tools are still too much used in isolation. Integrative analysis should be used, in consultation with the stakeholders in the field, to set priorities for the equitable, efficient and stable conservation and management of specific ecosystems. Such conservation and management modes require social change. To make that possible, the social factors affecting the management of ecosystems should be identified and explained in their wider causal context, e.g. population growth and market developments. Under what conditions, for instance, are poor people able to invest in sustainable land use? Setting priorities and contextualisation both require insights from different disciplines, such as systems theory, communication science, the earth sciences, ecology, anthropology and economics.

Valuing resources and ecosystem services

Many of the services that natural and semi-natural ecosystems provide to society are not valued on markets. There is a strong trend promoted by international institutions and Northern institutions (governmental, commercial and civil society partners) to convert and value ecosystems against private, market-oriented use. However, this may be at the expense of common goods and the poor, as in the case of scarce water resources, for example. The assessment of the 'total economic value' of ecosystems is important, irrespective of whether a regulatory or an economic path ('payment for environmental services') is chosen to protect this value. For example, can we rise above the current arbitrariness of concepts and techniques that emphasise Western concepts of value and price and start investigating their commensurability with local and indigenous valuations of ecosystem services? Can we clarify the way in which property rights and non-remunerative obligations to society are legally constructed under a variety of conditions? Or, can we take ecosystem valuation out of its economic isolation and value relevant ecosystem services jointly with affected populations, stakeholders and policy makers and development practitioners. The issue of intellectual property rights, both at the level of local populations and of international companies' research institutions and the appropriation of genetic resources are of comparative relevance here.

Environmental governance

A focus on governance implies attention for the ways in which local communities and supra-local entities, in cross-level interactions, manage the environment, especially in areas where poverty and vulnerable environments coexist. Institutions (i.e. social rules and the organisations that embody them) are the key to sustainability and the livelihoods of all who depend on the environment. In many cases supra-local institutions are increasingly intervening in local forms of resource management and environmental governance, thereby disenfranchising the local poor. The role of the state in these dynamics deserves special attention, especially in cases where the state is assumed to protect and enforce supra-local and long-term interests (e.g. in joint management arrangements). 'Institutions for resilience' (i.e. for the mitigation and the recovery from shock events such as natural disasters)

are part of this theme, as are institutions for the long-term survival of protected areas ('people and parks') especially where these are set in context of widespread poverty, competing claims and conflict. Here too an interdisciplinary approach is warranted. It can shed more light on the relevant societal and ecological parameters and processes that are, or should be, the object of governance processes. Attention should be given to the role of political instability and violent conflict, which are in essence also – disfunctional - forms of governance.

Interactions between spatial, temporal and organisational domains

Ecological and societal processes take place at various spatial and social levels. To understand and manage environmental sustainability it is of crucial importance to grasp the variety of 'vertical' and 'horizontal' linkages across the levels and domains of human (communities, nations, continents etc.) and natural (natural resources, populations, ecosystems, biomes etc.) organisation. This can be achieved either by using multi-scale models or by way of approaches that encompass all relevant linkages across the domains. The linkages from local actors and natural systems up to the supra-local levels of actors and systems, such as national and global politics and climate change, are especially interesting.

A methodological problem is posed by the fact that the natural system scale is usually the relevant level of analysis for natural processes, whereas the relevant units for the analysis of social processes are often of a different nature (e.g. composed of multiple actors and administrative boundaries). WOTRO is especially interested in research that explores the interplay between the natural and social systems.

D. Global Relationships¹⁸

Many scientists still hold to the view that developments in the West are central to global developments. Global relationships, however, concern phenomena that transcend national boundaries, they need to be addressed in a comparative framework. The proposed Global Relationships view recognises that global developments do not only originate from the West. Constructive research must be based on people and developments located in specific, if multiple, locations. It builds on an in-depth knowledge of such particular settings and their histories, while acknowledging the importance of trans-national relations and globalized flows. This perspective from the bottom up has to be complemented by a perspective from the top down. Naturally, the rise and fall of states and trans-national networks are of great importance for understanding changes at the global and local levels. Through interactions with outside forces and new global trends, local, social and cultural capital is produced, new forms of income, skills and work are constructed, and changes in cultural and religious identities take place. The Global Relationships research theme is organised around these two ideas, reflecting a vision of globalization and development that looks at specific as well as generalised flows.

Development and globalization: a bottom-up approach

The effect of the increase in trans-national relations, in the mobility of people and in the speed of circulation of goods and ideas is not always positive. These processes also have their downsides.

Trans-national relations often build on the nation state. Mobility is not only highly selective, but it may well include forms of forced mobility and produces forms of immobility, unequal access and increasing inequality. Globalization is often seen as the dismantling of the barriers of protection around nations and states. But nationalist backlashes are common when it fails to prevent or even favours the free flow of threats to human security, from unregulated migration to drugs and terrorists.

WOTRO invites researchers to look at local manifestations of global developments in areas where these manifestations appear in terms of inequality, lifestyles, cultures and identity formation, social cohesion and social conflict, economic opportunity and survival strategies. It is important to note that local manifestations of events that occur world-wide (e.g. bird-flu, Carbon Dioxide emission, etc.) are being brought about by specific forms of 'agency' - acting that is carried out within social groups, categories and institutions that are actively pursuing their culturally constituted 'projects' rather than passively reacting, just in order to survive. The following more specific topics are examples of such research areas.

Conflict, Security, and Identity Politics

After the Cold War, identity issues became highly relevant for development each time a conflict along national, ethnic or religious lines undermined the political and cultural context of stability and 'good governance'. The 1990s and the early 21st century saw an increased volume of migration – both trans-national and domestic. This has created a deeper understanding of the fact that local processes are embedded in trans-national and global processes. What is 'local' is no longer confined to a particular place but is a construct of trans-national and global relationships. This realisation creates space for an extremely relevant research agenda inspired by the Millennium Development Goal addressing the objective of a global partnership for development. Because when it comes to development, we need more nuanced, empirically grounded analyses of cultural processes. Identity issues therefore deserve renewed research interest. They can be re-conceptualised in terms of larger societal and trans-national issues than before, and contextualised by broader development concerns.

Cosmopolitanism and Development

For over fifty years national and international organisations have been investing large amounts in combating poverty and in international development. Now, however, we can see that the results are often disappointing. One of the reasons for this is the size of the gap between the thinking of international organisations where a cosmopolitan elite shapes the poverty alleviation debate, and the thinking of those on the receiving end of the aid. Better insight into the thinking of the elite – who are represented by ministries, international organisations such as the World Bank and by multinationals – could contribute towards reducing this gap between agents and aid recipients. What processes determine the development of the manners of thinking and decision-making within international institutions? How does the struggle against poverty stand up to their values? What links international civil servants to their countries and communities of origin, and how do these links function or change over time, and with what consequences for poverty alleviation? And how is the science regarding poverty alleviation structured?

These questions show that the international development society itself is an interesting area for bottom-up research.

Such research should not focus on the elite. Cosmopolitans working at low levels in the national systems perform a multitude of roles especially in brokering between the global and local domains

(from the humble village “public letter writer” upwards). Understanding how cosmopolitan orientations are formed locally, how skills are acquired, and what purposes brokerage serves, would lead to important insights. It could explain why some development strategies work and others do not, or where low-level cosmopolitans are strategic in addressing (or prolonging) certain key inequalities (such as the emergent digital divide, or the emancipation of women).

Access to new global trends: a top-down approach

One of the most striking new features of the global era is global access to financial capital and information. It concerns almost all countries in the world, rich and poor. The parts of the economy that are internationally integrated through supply chains and networks, have to compete internationally. They are governed by global financial performance and accounting standards. On the other hand, international access to information ‘connects’ parts of societies to global information and knowledge networks, by means of new digital information infrastructures. This raises new questions linked to individual rights and national barriers to information. At the same time, large parts of the economy and of society remain deprived of such international access to capital and information. The emerging duality in economic structure and information access appears to be a common feature of this new global integration. Research into such growing gaps fills important needs in the understanding of global relationships.

Global access to markets

International trade is usually considered a prime engine of growth. However, lack of infrastructure, high risk and prohibitive transaction costs as well as restrictive trade policies limit market access either from the supply and/or the demand side. Under globalization, market entry for producers from developing countries is increasingly challenged by new barriers related to quality grades and safety standards that create selectiveness and reinforce exclusion. Regional trade cooperation between developing countries is also seriously hindered by tariff walls and Sanitary and Phytosanitary regulations. Local producers and consumers in developing countries rely on a wide set of different and often coexisting exchange arrangements - ranging from barter to futures – that are embedded in complex social networks of culture, trust and agency.

Global access to supply chains and delivery networks

Participation in (inter)national markets is increasingly governed through vertically structured supply chains and horizontally organised clusters and networks. Markets are conceptualised as a competitive arena of integrated companies and net chains, where complementarities between public and private agents and competition between public and private grades and standards determine the competitive advantage. Dynamic interfaces between supply chains and networks are strongly influenced by trust and loyalty, requiring legal frameworks to guarantee contract enforcement. Innovative research regarding the role of markets and exchange configurations for enhancing the MDGs could focus attention on three key areas:

- Public policies for overcoming access constraints and selective engagement in market exchange (infrastructure provision, legal framework, market intelligence, property rights, training, etc) and their implications for inclusive poverty alleviation pathways.
- Institutional arrangements that ‘make markets work for the poor’, paying particular attention to the role of contracts, insurance and information for asset building and bargaining power.

- Strategies for linking producers and consumers, through local, regional and (inter)national exchange networks that reduce transaction costs and risk and enhance trust and social cohesion.

Global access to capital, insurance and information

The development of specific micro-finance tools for the more informal and less internationally integrated parts of the economy also appears to be of interest to local banks and other saving corporations, even those from rich, ageing, developed countries. Research into the growing gap between access to international financial markets and local financing needs would fill an important research and applied research need. In addition, attention should be paid to international risk insurance, which, apart from direct international trade and transport related activities, appears to be largely absent from international markets. This holds both for international commodities markets, where many developing countries depend heavily on raw materials exports for foreign exchange earnings, as well as for natural disaster risks. Similarly, research appears to be needed more than ever into the global aspects of open access to information versus the filtering and manipulation of information, on the digital divide, the rules and regulations with respect to intellectual property, the influence of global media, and their relationship to democracy and human rights.



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List of acronyms

ALW	NWO research division Earth and Life Sciences
ASEAN	Association of Southeast Asian Nations
CGIAR	Consultative Group on International Agricultural Research
DC	Developing Country
DGIS	Directorate General for International Cooperation of the Netherlands Ministry of Foreign Affairs
DPRN	Dutch Policy Review Network
EDCTP	European and Developing Countries Clinical Trials Partnership
ERA	European Research Area
EU	European Union
FP 7	EU 7th Framework Programme
GW	NWO research division Humanities
IDPAD	Indo-Dutch Partnership for Alternatives in Development
IFS	International Foundation for Science
INCO	International Cooperation part of the EU Framework Programme
KNAW	Royal Academy of Arts and Sciences
MaGW	NWO research division Social Sciences
MDGs	United Nations' Millennium Development Goals
NACCAP	Netherlands-African Partnership for Capacity Development and Clinical Interventions Against Poverty-Related Diseases
NGOs	Non-Governmental Organisations
NWO	Netherlands Organisation for Scientific Research
NUFFIC	Netherlands Organisation for International Cooperation in Higher Education
RAWOO	Netherlands Development Assistance Research Council
SHARED	Scientists for Health and Research for Development
UN	United Nations
VWS	Dutch Ministry of Health, Welfare and Sport
WHO	World Health Organization
WOTRO	Foundation for the Advancement of Tropical Research
ZonMW	Netherlands Organisation for Health Research and Development



Published by
Netherlands Organisation for Scientific
Research (NWO)
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Postal address
P.O. Box 93120
2509 AC Den Haag
T: +31 70 344 0763
F: +31 70 381 9874
wotro@nwo.nl
www.nwo.nl/wotro



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