
# Update on Component 2

April 2018

Wim de Vries and Jean Ometto

Beth Boyer, Clare Howard, Mark Sutton, Oene Oenema, Will Brownlie, Wilfried Winiwarter, David Kanter, Sarah Walker

| **Component 2**<br>Quantification of N flows, threats & benefits<br>*De Vries / Ometto* |
| --- |
| **Activity 2.1**<br>Quantifying N flows, threats and benefits at global and regional scales<br>*De Vries / Boyer* |
| **Activity 2.2**<br>Preparation of global assessment of N fluxes, pathways & impacts<br>*Sutton / Howard* |
| **Activity 2.3**<br>Integrating methods, measures & good practices to address $N_r$ issues<br>*Oenema /Brownlie* |
| **Activity 2.4**<br>Future N storylines & scenarios with management/ mitigation options & CBA<br>*Winiwarter/Kanter* |
| **Activity 2.5**<br>Collation & synthesis of experience & measures adopted by GEF and others<br>*Howard/Walker* |


Progress/work plans per activity

- Tasks
- Working teams
- Deliverables up to April 2018
- Progress vs planning
- Workplan: focus first 2-3 years

# Tasks in A2.1

**Component 2**
**Quantification of N flows, threats & benefits**

$1720k

De Vries / Ometto

**Activity 2.1**
Quantifying N flows, threats and benefits at global and regional scales

$350k

De Vries / Boyer

**Output 2.1**
Quantification and assessment of the global and regional threats from excess and insufficient $N_r$.

$110k network coordination

**Task 2.1.1**
Database of shared input, model outcomes & access to measurements

$0k

Bealey /Ometto

**Task Output 2.1.1**
Database established & populated, common datasets, results & access to sources

Integration with outcomes from Comp. 3

Measurement support from A1.3

**Task 2.1.2**
International support to regional inventories & model application

$110k

Howard /Ometto

**Task Output 2.1.2**
Regional demonstrations supported with inventory expertise and models

**Task 2.1.3**
Combined analysis of *present N flows* and impacts at global and regional scales

$130k

De Vries/Boyer

**Task Output 2.1.3**
Report with data shared on global & regional N flows , threats & benefits

Storylines & Scenarios from A.2.4

**Task 2.1.4**
Quantifying present & *future N threats & benefits* at global and regional scales

$110k

De Vries/Boyer

**Task Output 2.1.4**
Report comparing present situation with future scenarios of benefits and threats

# Tasks in A1.5

**Component 1**
**Tool**s & Methods for the N cycle

$1400K

Van Grinsven/Baron

**Activity 1.5**
Flux-impact path models for assessment, scenarios & strategy evaluation

$390k

De Vries, Winiwarter

Approach to using existing N flux/pathway models for global/regional assessments and visualisation for potential scenarios

Storylines/scenarios from A2.4

| | | | |
|---|---|---|---|
| **Task 1.5.1** Translation of storylines & scenarios into defined **modelling requirements** | $30k | De Vries/ Winiwarter | **Task Output 1.5.1** Proposed approach to implement storylines & scenarios presented for stakeholder feedback |
| **Task 1.5.2** **Review** of component **models, criteria, data needs,** information flow & outputs | $60k | De Vries/ Winiwarter | **Task Output 1.5.2** Document & database on component models, data, info flow & outputs |
| **Task 1.5.3** **Design of model framework** in relation to storylines, measures and indicators | $70k | De Vries/ Winiwarter | **Task Output 1.5.3** Document on criteria & necessary components for integrated N modelling cluster |
| **Task 1.5.4** Application of selected component models in **N model cluster** | $180k | De Vries/ Winiwarter | **Task Output 1.5.4** Demonstrated output for model cluster, linking N flows & effects global & regional |
| **Task 1.5.5** **Application N model cluster** for key scenarios at global/regional scales | $50k | De Vries/ Winiwarter | **Task Output 1.5.5** Report on N flux/pathway modelling approach for global/regional scenarios |

# Status tasks A2.1/1.5

Four major clusters of work

- *Preparation* of an integrated *multi-model evaluation* (Tasks 1.5.1-1.5.3): nearly finished.
- *Development of database* for shared model inputs and outputs with meta-model/data descriptions: (Task 2.1.1): Draft ready
- *Performance* of the integrated *multi-model evaluation* (Tasks 1.5.4,1.5.5, 2.1.3 and 2.1.4): modelling team ready and modelling bids agreed.
- *International model application support* to regions (Task 2.1.2): not yet started

# Deliverables tasks A1.5.1-A1.5.3

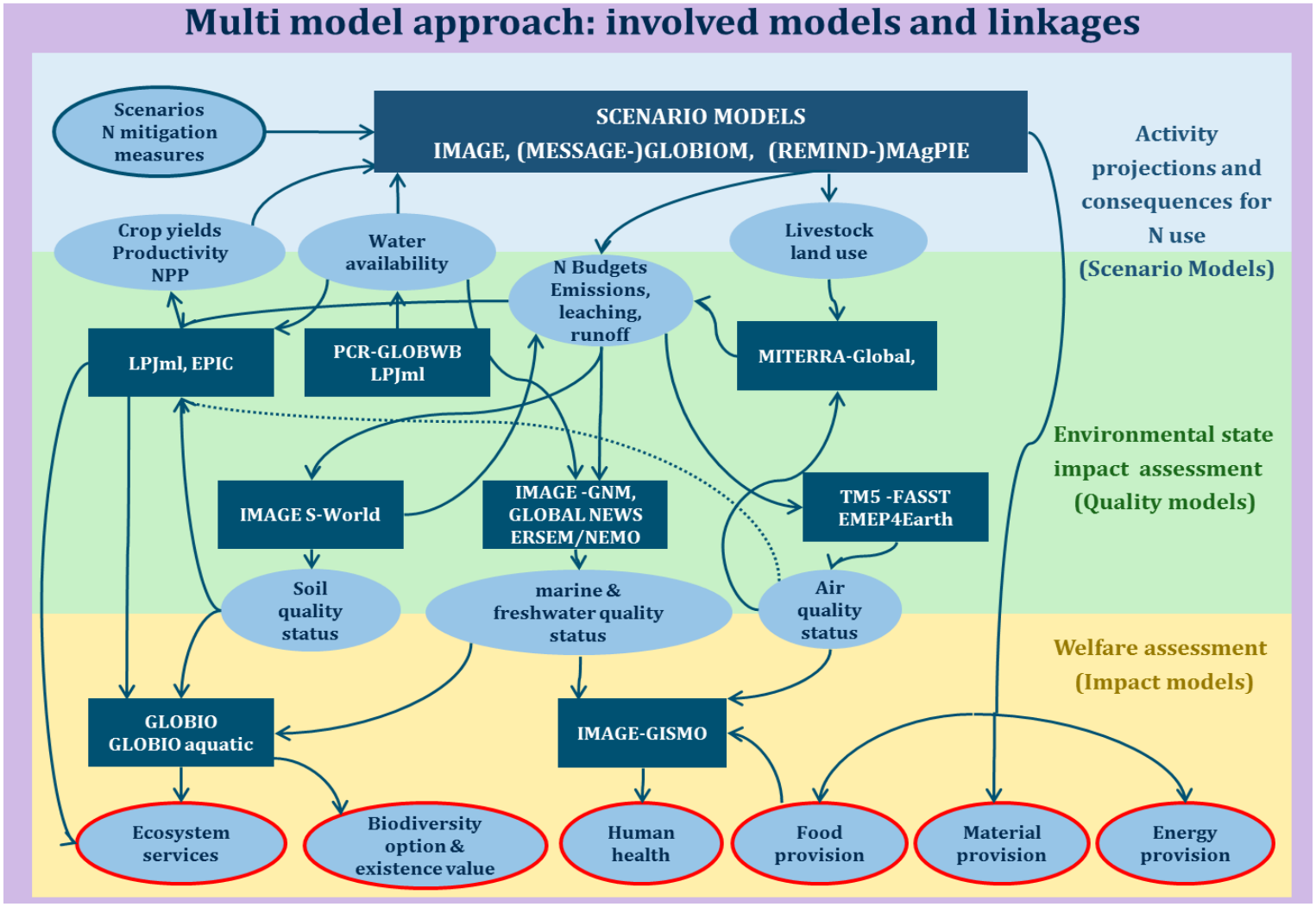
- *Workshop* on modelling approach in Wageningen June 2017.
- *Background document* on global scale integrated N modelling
  - Approach to storylines & scenarios
  - Criteria & necessary model components
  - Needed model linkages
  - Inventory of available global scale N flow and N impact models
- *Work plans*: partners submitted work plans and budgets: evaluations made and contracts starting
- *Modelling protocol*: draft protocol will be discussed in parallel meeting on Wednesday afternoon (Session A1.5/A2.1/A2.4)

# Deliverables tasks A2.1.1/A2.1.2.

- *Database* (A2.1.1): draft database has been developed: will be discussed in parallel meeting on Wednesday afternoon (Session A1.5/A2.1/A2.4)

- *Engagement C3 partners*/stakeholder interaction (Linked to A2.1.2): has started, parallel meeting on link between needs demonstration regions versus potential of modelling

# Multi-model approach
# A 1.5.4/5 and A2.1.3/4



# Modelling team


| # | Model | Contact person/e-mail | Institute |
|---|---|---|---|
| **1** | IMAGE | Lex Bouwman | PBL |
| **2** | PCR-GLOBWB | Lex Bouwman | PBL |
| **3** | MAGPIE | Benjamin Bodirsky | PIK |
| **4** | LPJml | Christoph Muller; | PIK |
| **5** | GAINS | Wilfried Winiwarter | IIASA |
| **6** | GLOBIOM | Peter Havlik/David Leclere | IIASA |
| **7** | EPIC | Juraj Balkovič/Petr Havlík | IIASA |
| **8** | CAPRI | Adrian Leip | JRC |
| **9** | EDGAR | Greet Maenhout | JRC |
| **10** | TM5 | Frank Dentener/Rita van Dingenen | JRC |
| **11** | EMEP4Earth | Massimo Vienno | CEH |
| **12** | MITERRA Global | Jan Peter Lesschen | WUR |
| **13** | GLOBAL NEWS | Carolien Kroeze | WUR |
| **14** | WBM/VIC | Carolien Kroeze | WUR |
| **15** | ERSEM/NEMO | Icarus Allen/Jason Holt | PML, NOC |

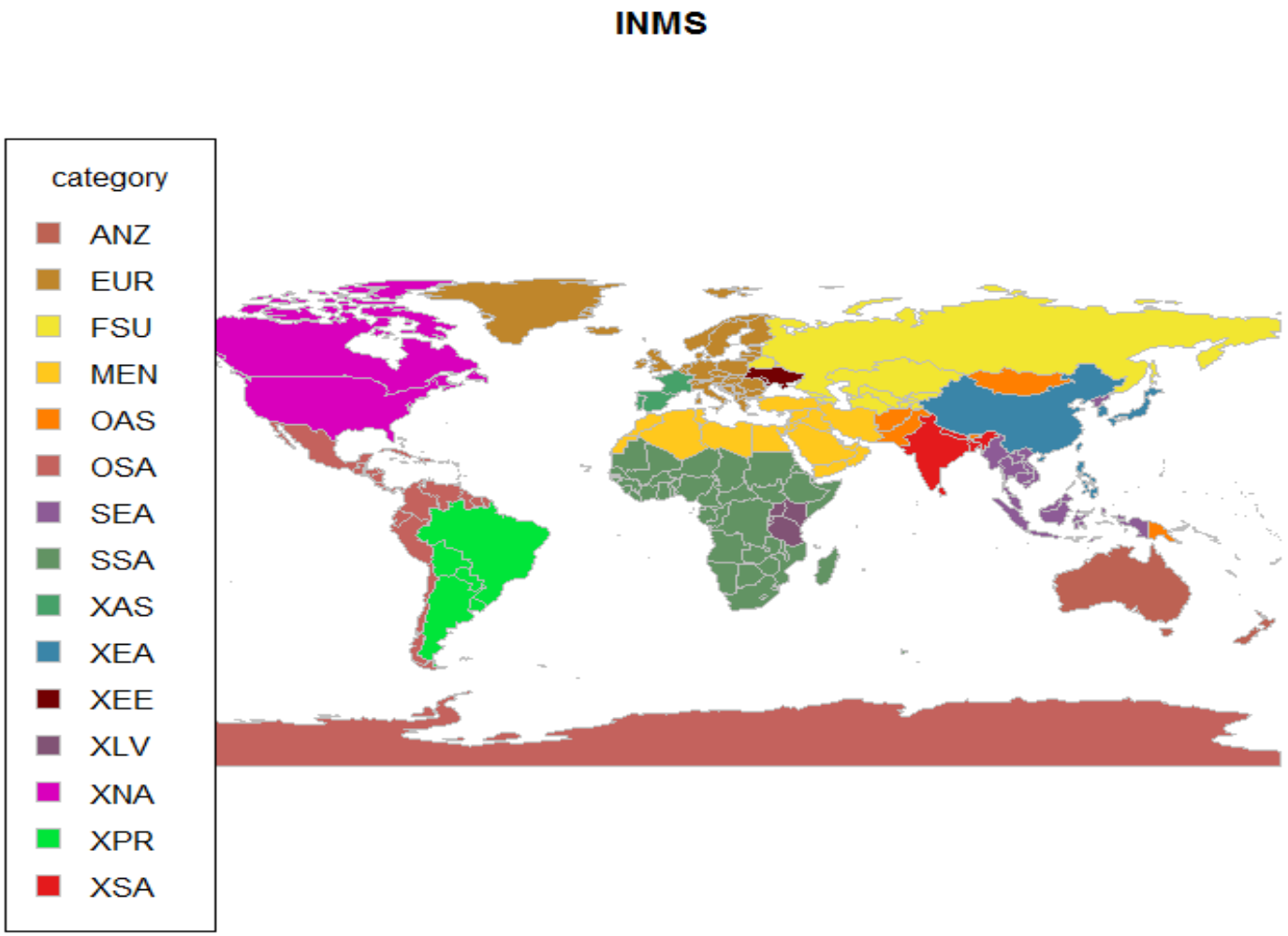
# Meta-model description

- Model aim/Functionality
- Inputs considered: drivers of change
- Outputs considered: e.g. N forms, other elements etc.
- Biophysical representation
- Steady state vs dynamic
- Data needs
- Validity status
- Spatially resolution; Temporal resolution
- Linkage to scenarios/measures
- Operational status, accessibility

# Example of output multi-model approach

| Model outputs | IMAGE | Mag-PIE | GLO-BIOM | MI-TERRA | LPJml | CAPRI | GAINS | ED-GAR | TM5-FAST | EMEP4 Earth | Global NEWS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Drivers of N sources/N fate** | | | | | | | | | | | |
| • Energy emissions | x | | | | | x | x | x | | | |
| • cropping patterns/ crop areas | x | x | x | | | | | | | | |
| • herd size/animal numbers | x | x | x | | | | | | | | |
| • Climate parameters: rainfall, temperature | x | | | | | | | | | | |
| **N sources** | | | | | | | | | | | |
| • N fertilizer and N manure input | x | x | x | | | | | | | | |
| • N deposition/N fixation to non-agricultural systems | x | x | | | | | | | | | |
| • Point N sources | x | x | | | | | | | | | |

# Modelling regions
# A 1.5.4/5 and A2.1.3/4



# Timeline A1.5 in doc

| Activity 1.5 Flux-impact path models for assessment, scenarios & strategy evaluation | 17 | 2018 | | | | 2019 | | | | 2020 | | | | 2021 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 |
| Task 1.5.1 Translation of storylines & scenarios into defined modelling requirements | | R | | | | | | | | | | | | | | |
| Task 1.5.2 Review of component models, criteria, data needs, information flow & outputs | | | | R | | | | | | | | | | | | |
| Task 1.5.3 Design of model framework in relation to storylines, measures and indicators | | | | W | | | | R | | | | | | | | |
| Task 1.5.4 Application of selected component models in N model cluster | | | | | | | | M | | | | R | | | | |
| Task 1.5.5 Demonstration of N model cluster for key scenarios at global/regional scales | | | | | | | | | | | | M | | | | |
| Monitoring and Evaluation | | | | R | | | | R | | | | | | | | |

# Timeline A1.5 updated

| Activity 1.5 Flux-impact path models for assessment, scenarios & strategy evaluation | 17 | 2018 | | | | 2019 | | | | 2020 | | | | 2021 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 |
| Task 1.5.1<br>Translation of storylines & scenarios into defined modelling requirements | W | | R | | | | | | | | | | | | | | |
| Task 1.5.2<br>Review of component models, criteria, data needs, information flow & outputs | W | | | R | | | | | | | | | | | | | |
| Task 1.5.3<br>Design of model framework in relation to storylines, measures and indicators | W | | | M | R | | | | | | | | | | | | |
| Task 1.5.4<br>Application of selected component models in N model cluster | | | | | | | | | R<br>M | | | | ~~R~~ | | | | |
| Task 1.5.5<br>Demonstration of N model cluster for key scenarios at global/regional scales | | | | | | | | | | | | | M | | | M<br>R | |
| Monitoring and Evaluation | | | | | R | | | | R | | | | R | | | | |

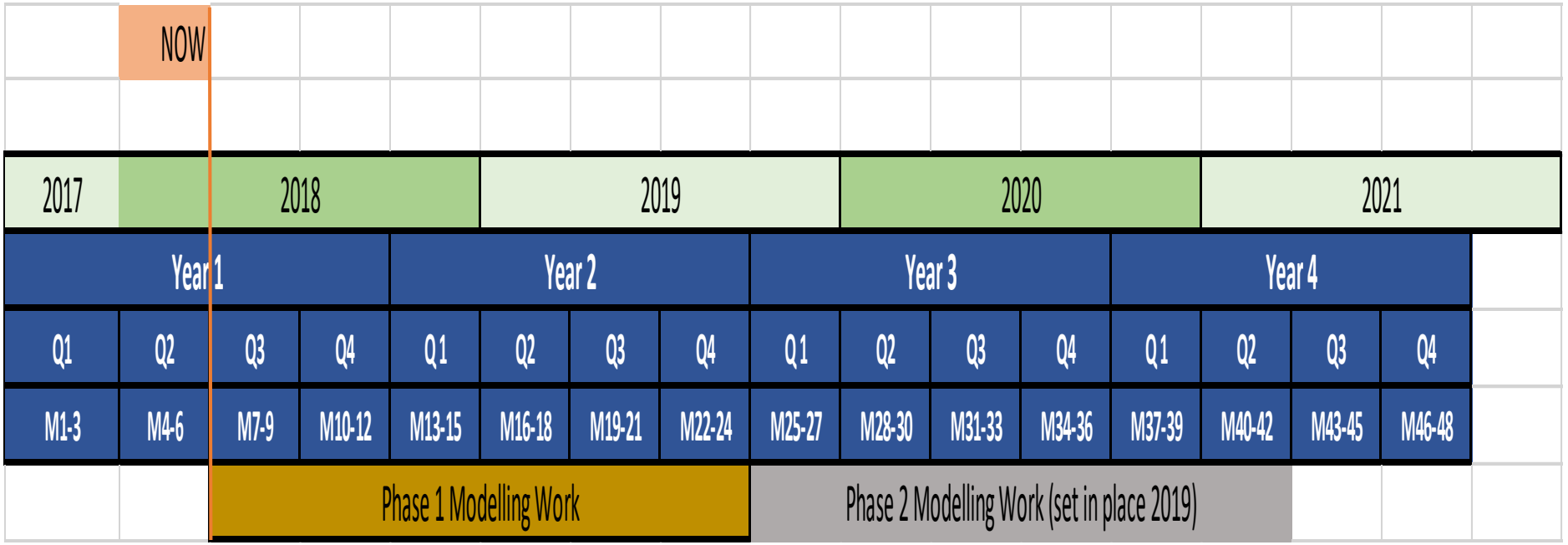
# Timeline A2.1 in doc

| Activity 2.1 Quantifying N flows, threats and benefits at global and regional scales | Year 1 | | | | Year 2 | | | | Year 3 | | | | Year 4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 |
| Task 2.1.1 Database of shared input, model outcomes & access to measurements | | W | | R | | R | | | | | | | | | | |
| Task 2.1.2 International support to regional inventories & model application | | M | | | | R | | | | R | | | | R | | |
| Task 2.1.3 Combined analysis of present N flows and impacts at global and regional scales | | | | | | W | | | | R | | | | R | | |
| Task 2.1.4 Quantifying present & future N threats & benefits at global and regional scales | | M | | | | M | | | | W | | | | M | | |
| Monitoring and Evaluation | | | | | R | | | | R | | | | R | | | W |

# Timeline A2.1 updated

| Activity 2.1 Quantifying N flows, threats and benefits at global and regional scales | Year 1 | | | | Year 2 | | | | Year 3 | | | | Year 4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 |
| Task 2.1.1 Database of shared input, model outcomes & access to measurements | | M R | | | | R | | | | | | | | | | |
| Task 2.1.2 International support to regional inventories & model application | | M | | | | R | | | | R | | | | R | | |
| Task 2.1.3 Combined analysis of present N flows and impacts at global and regional scales | | M | | | | | W | | | R | | | | R | | |
| Task 2.1.4 Quantifying present & future N threats & benefits at global and regional scales | | M | | | | | M | | | W | | | | M | | |
| Monitoring and Evaluation | | | | | R | | | | R | | | | R | | | W |

# Timing of activities and deliverables

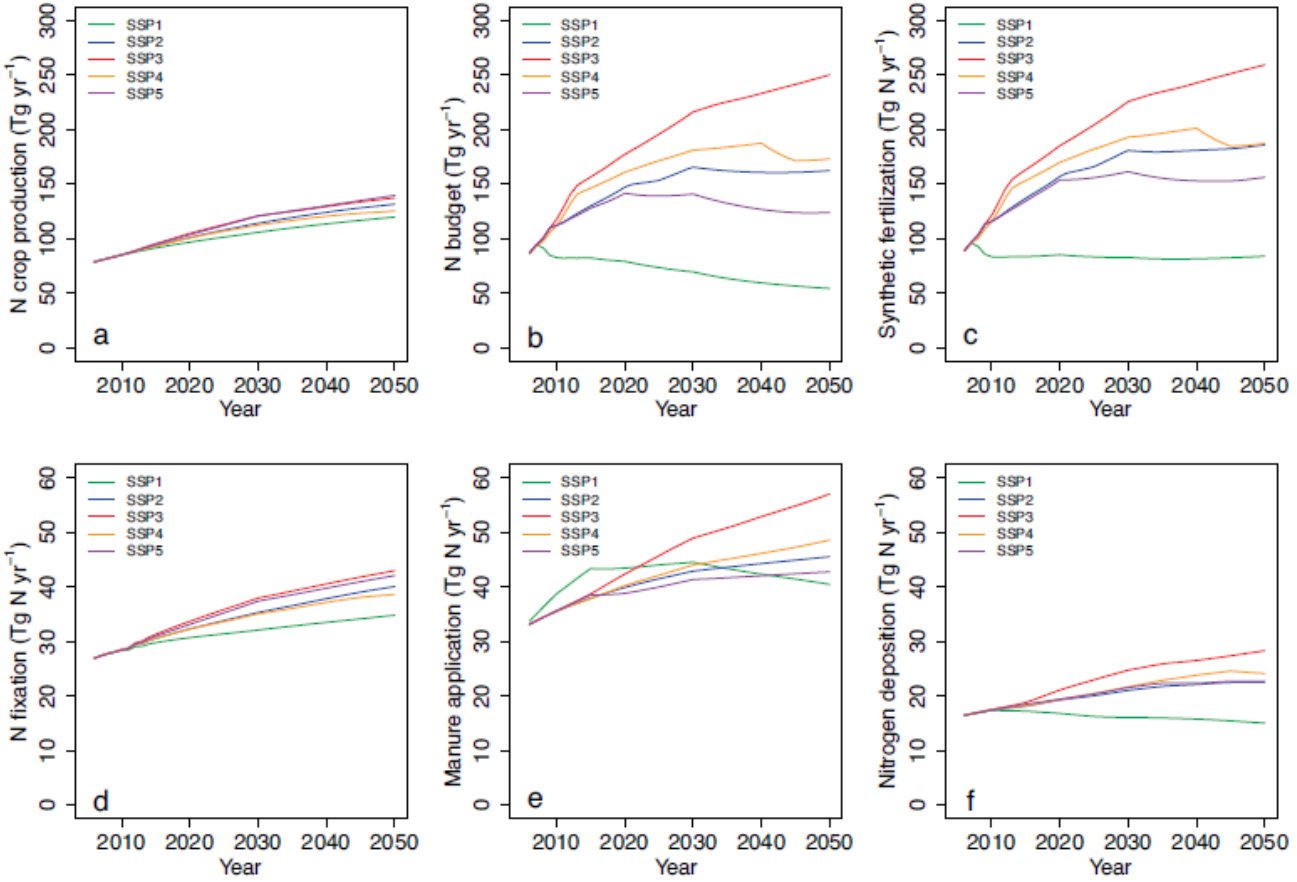



Start INMS: Oct 1, 2017. All month for deliverables count from that date onwards
Formal start modelling work: April 1, 2018

# Workplan A1.5 + A2.1


- Tasks A1.5.1-1.5.3: make *integrated report* with information; Update background document July 2018. Leads: Wim de Vries, Wilfried Winiwarter, Benjamin Bodirsky, Bill Bealey, Lex Bouwman, Beth Boyer..
  - Aim of modelling related to INMS targets
  - Description of relevant models based on defined criteria
  - Identification of N storylines & scenarios for shared use
  - Modelling protocol with agreements on description of model linkages and model inputs and output
  - *Database set up for of shared input and model outcomes (A2.1.1)*
- A1.5.4/A2.1.3: Analysis of present N flows and impacts at (Base year analysis): Delivery Oct. 1 2019 (18 months after April1 2018)
- A1.5.5/A2.1.4: Quantifying present & future N threats & benefits (scenario analysis): April 1 2021 (36 months after April1 2018)

# First modelling results INMS forerunners




Assessing future reactive nitrogen inputs into global croplands based on the shared socioeconomic pathways

J M Mogollón[1,4,5], L Lassaletta[1,2,3], A H W Beusen[1,2], H J M van Grinsven[2], H Westhoek[2] and A F Bouwman[1,2]

# Tasks in A2.2

**Component 2**
**Quantification of N flows, threats & benefits**

$1720k

De Vries/Ometto

**Activity 2.2**
Preparation of global assessment of N fluxes, pathways and impacts assimilating lessons from the regional demonstrations

$560k

All groups

Sutton / Howard

**Output 2.2**
Detailed overview of regional/local N flux and consolidation into a global assessment of N fluxes, pathways, effects and benefits of improved N management

(Network Coordination inc in Tasks)

**Task 2.2.1**
**Preparation of scope & structure** of consolidated global assessment

$80k

All groups

Sutton/Howard

**Task Output 2.2.1**
**Scope & outline structure** of global assessment of N fluxes, pathways & impacts agreed

Integration with outcomes from Comp. 3

Input from C1, C2 & C3

**Task 2.2.2**
Commissioning of **author teams** and preparation of the consolidated overview

$230k

All groups

Sutton/Howard

**Task Output 2.2.2**
Authors appointed and preparation of chapter drafts

**Task 2.2.3**
**Peer review** of chapters in the global assessment & revision

$70k

All groups

Sutton/Howard

**Task Output 2.2.3**
Reviews provided to authors, with documents revised

**Task 2.2.4**
Preparation of **summary docs** & review with workshop

$100k

All groups

Sutton/Howard

**Task Output 2.2.4**
Documents reviewed by GA, SPAG & other stakeholders

Support from C4

**Task 2.2.5**
**Publishing** & distribution of consolidated assessment

$80k

All groups

Sutton/Howard

**Task Output 2.2.5**
Published report with wide public dissemination

# A2.2 International Nitrogen Assessment

**Key synthesis activity of**

- global assessment of N sources, flows and impacts
- solutions, including cost-benefit analysis, examination of barriers and opportunities
- emerging messages from regional activities.

Drawing together outcomes from tools development (C1) and application (C2) and regional demonstration

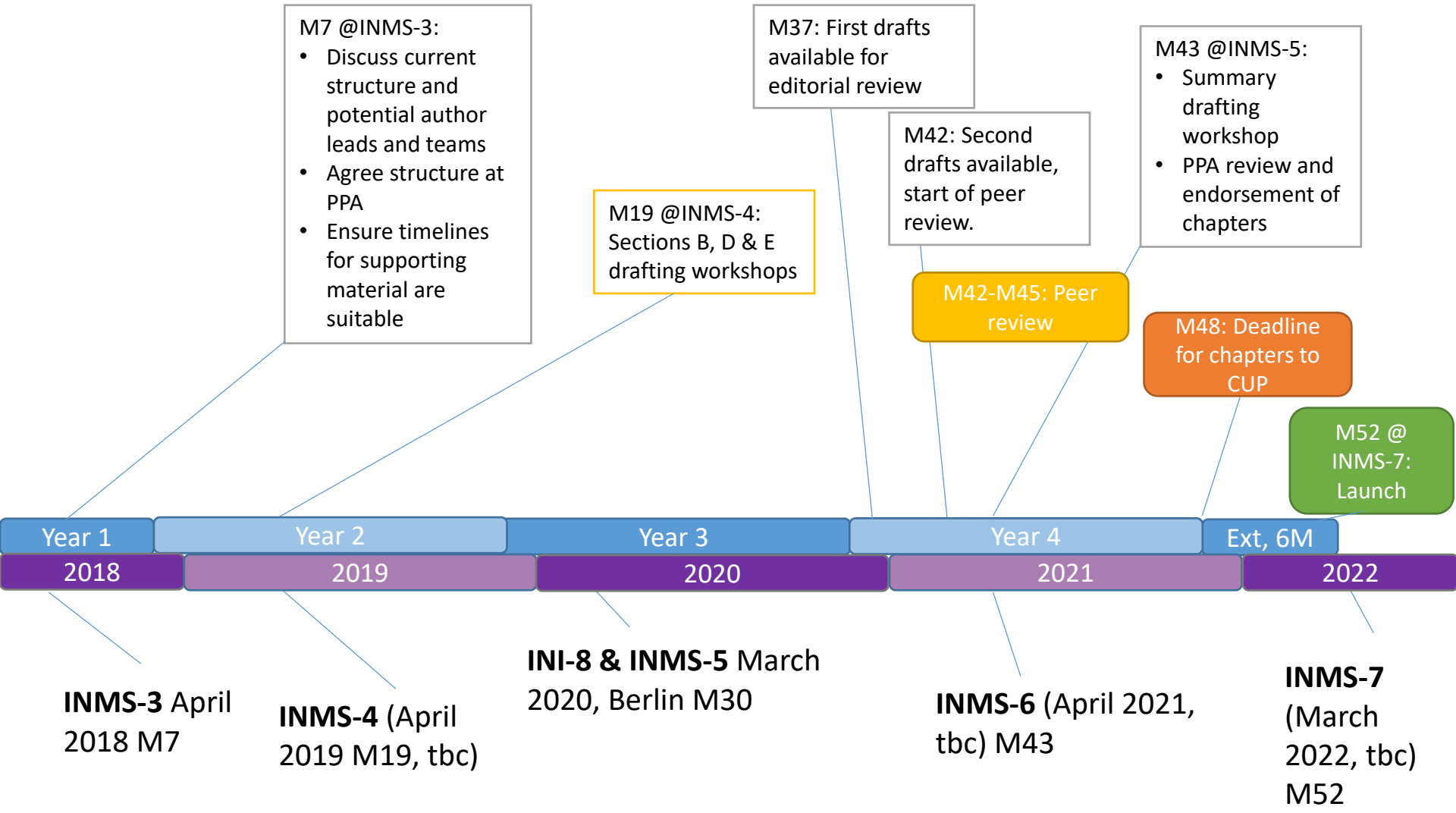
# Progress in A2.2
## International Nitrogen Assessment

PREPARATION OF SCOPE & STRUCTURE of global assessment of N fluxes, pathways & impacts

- Task and Activity leads are within PCU
- Draft scoping document with table of contents
- Author teams will be discussed this week
- No proposed changes to timeline (nor budget)

# A2.2 International Nitrogen Assessment

| Activity 2.2 Preparation of global assessment of N fluxes, pathways and impacts assimilating lessons from the regional demonstrations | Year 1 | | | | Year 2 | | | | Year 3 | | | | Year 4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q 1 | Q 2 | Q 3 | Q 4 | Q 1 | Q 2 | Q 3 | Q 4 | Q 1 | Q 2 | Q 3 | Q 4 | Q 1 | Q 2 | Q 3 | Q 4 |
| Task 2.2.1 Preparation of scope & structure of consolidated global assessment | | W R | | | | | | | | | | | | | | |
| Task 2.2.2 Commissioning of author teams and preparation of the consolidated overview | | M | | | | W | | | W | W | | | | | | |
| Task 2.2.3 Peer review of chapters in the global assessment & revision | | | | | | | | | M | | | | | | | |
| Task 2.2.4 Preparation of summary docs & review with workshop | | | | | | | | | | | | | W | | | |
| Task 2.2.5 Publishing & distribution of consolidated assessment | | | | | | | | | | | | | | | | R W |
| Monitoring and Evaluation | | | | | R | | | | R | | | | R | | | R |


M7 @INMS-3:
• Discuss current structure and potential author leads and teams
• Agree structure at PPA
• Ensure timelines for supporting material are suitable
M19 @INMS-4: Sections B, D & E drafting workshops
M37: First drafts available for editorial review
M42: Second drafts available, start of peer review.
M43 @INMS-5:
• Summary drafting workshop
• PPA review and endorsement of chapters
M42-M45: Peer review
M48: Deadline for chapters to CUP
M52 @ INMS-7: Launch
Year 1
Year 2
Year 3
Year 4
Ext, 6M
2018
2019
2020
2021
2022
INMS-3 April 2018 M7
INMS-4 (April 2019 M19, tbc)
INI-8 & INMS-5 March 2020, Berlin M30
INMS-6 (April 2021, tbc) M43
INMS-7 (March 2022, tbc) M52

# Tasks in A2.3


**Component 2 Quantification of N flows, threats & benefits**

$1720k

De Vries / Ometto

**Activity 2.3**
Integrating methods, measures & good practices to address issues of excess & insufficient $N_r$

$270k

STOAG

**Output 2.3**
Consolidation of methods and good practices to address issues of excess and insufficient $N_r$

Oenema / Brownlie

$40k network coordination

Existing docs on N methods and practices inc GEF/UNEP GNC project database plus lessons from C3

| | | | | |
|---|---|---|---|---|
| **Task 2.3.1** Preparation of documents on state of the art for N good practices (N form, N effects etc) | $40k | STOAG | Oenema /Brownlie | **Task Output 2.3.1** Background documents produced & available for workshop input |
| **Task 2.3.2** Workshop to link methods & good practices for N effects (food, water, air, climate etc) | $50k | STOAG | Oenema /Brownlie | **Task Output 2.3.2** Basis for developing guidance linking N forms & issues, high-lighting most promising options |
| **Task 2.3.3** Publishing of revised papers and preparation of synthetic guidance document | $60k | STOAG | Oenema /Brownlie | **Task Output 2.3.3** Workshop report, with guidance doc synthesized for wide review |
| **Task 2.3.4** Peer and Stakeholder review of Synthetic N guidance document | $20k | STOAG | Oenema /Brownlie | **Task Output 2.3.4** Text of consolidated guidance document finalized |
| **Task 2.3.5** Publishing of synthesis doc & updating of practice database | $60k | STOAG | Howard /Bealey | **Task Output 2.3.5** Consolidated methods/practice report & database published |

# Progress in A2.3

## Good N management practices

- Task 2.3.1: Relevant best practices guidance documents have been collected and are awaiting full review.

- Task 2.3.2: A workshop is being prepared to be held during spring/summer 2018, possibly together with FAO

- Task 2.3.5: The structural framework for the online ‘practice database’ has been completed.
- Spreadsheet structure for collecting data for the ‘practices database’ is well underway, but need testing and review.

# Timeline A2.3 pro-doc

| Activity 2.3 Integrating methods, measures & good practices to address issues of excess & insufficient Nr | Year 1 | | | | Year 2 | | | | Year 3 | | | | Year 4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 |
| Task 2.3.1 Preparation of documents on state of the art for N good practices (N form, N effects etc) | | W | | R | | | | | | | | | | | | |
| Task 2.3.2 Workshop to link methods & good practices for N effects (food, water, air, climate etc) | | | | | | W | R | | | | | | | | | |
| Task 2.3.3 Publishing of revised papers and preparation of synthetic guidance document | | | | | | | | | | R | | | | | | |
| Task 2.3.4 Peer and Stakeholder review of Synthetic N guidance document | | | | | | | | | | | | W | | | | |
| Task 2.3.5 Publishing of synthesis doc & updating of practice database | | | | | | | | | | | | | | | | R |
| Monitoring and Evaluation | | | | | R | | | | R | | | | R | | | R |

# Timeline A2.3 Updated

| Activity 2.3 Integrating methods, measures & good practices to address issues of excess & insufficient Nr | Year 1 | | | | Year 2 | | | | Year 3 | | | | Year 4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 |
| Task 2.3.1 Preparation of documents on state of the art for N good practices (N form, N effects etc) | | M | | R | | | | | | | | | | | | |
| Task 2.3.2 Workshop to link methods & good practices for N effects (food, water, air, climate etc) | | | | W | | | R | | | | | | | | | |
| Task 2.3.3 Publishing of revised papers and preparation of synthetic guidance document | | | | | | | | | | R | | | | | | |
| Task 2.3.4 Peer and Stakeholder review of Synthetic N guidance document | | | | | | | | | | | | W | | | | |
| Task 2.3.5 Publishing of synthesis doc & updating of practice database | | | | | | | | | | | | | | | | R |
| Monitoring and Evaluation | | | | | R | | | | R | | | | R | | | R |

# Tasks in A2.4

**Component 2**
**Quantification of N flows, threats & benefits**

$1720k

De Vries /Ometto

**Activity 2.4**
Exploration of future N storylines & scenarios with management/ mitigation options & cost-benefit analysis

$190k

Winiwarer / Kanter

PANS

**Output 2.4**
Definition of programmes & policy options for improved $N_r$ management at local/regional/global levels, supported by cost-benefit analysis to underpin options for the Green Economy

$40k network coordination

Existing docs on policy options (inc OECD analysis), future scenarios and CBA (from C1)

**Task 2.4.1**
Review of existing N policies for different countries & regions

$50k

Bonnis /Kanter

**Task Output 2.4.1**
Report with database as input to workshop on N policies, storylines & scenarios

**Task 2.4.2**
Review of existing storylines and scenarios relevant for N

$30k

Winiwarter /Kanter

**Task Output 2.4.2**
Doc. as input to workshop on N policies & scenarios

**Task 2.4.3**
Workshop on N storylines & scenarios for shared use across the project

$50k

Winiwarter / Kanter

**Task Output 2.4.3**
Published strategy for N storylines and scenarios

**Task 2.4.4**
Synthesis of future programmes and policy options supported by cost benefit analysis.

$20k

Kanter / Winiwarter

**Task Output 2.4.4**
Report on N policy options & their possible contribution to the Green Economy.

# Progress in A2.4

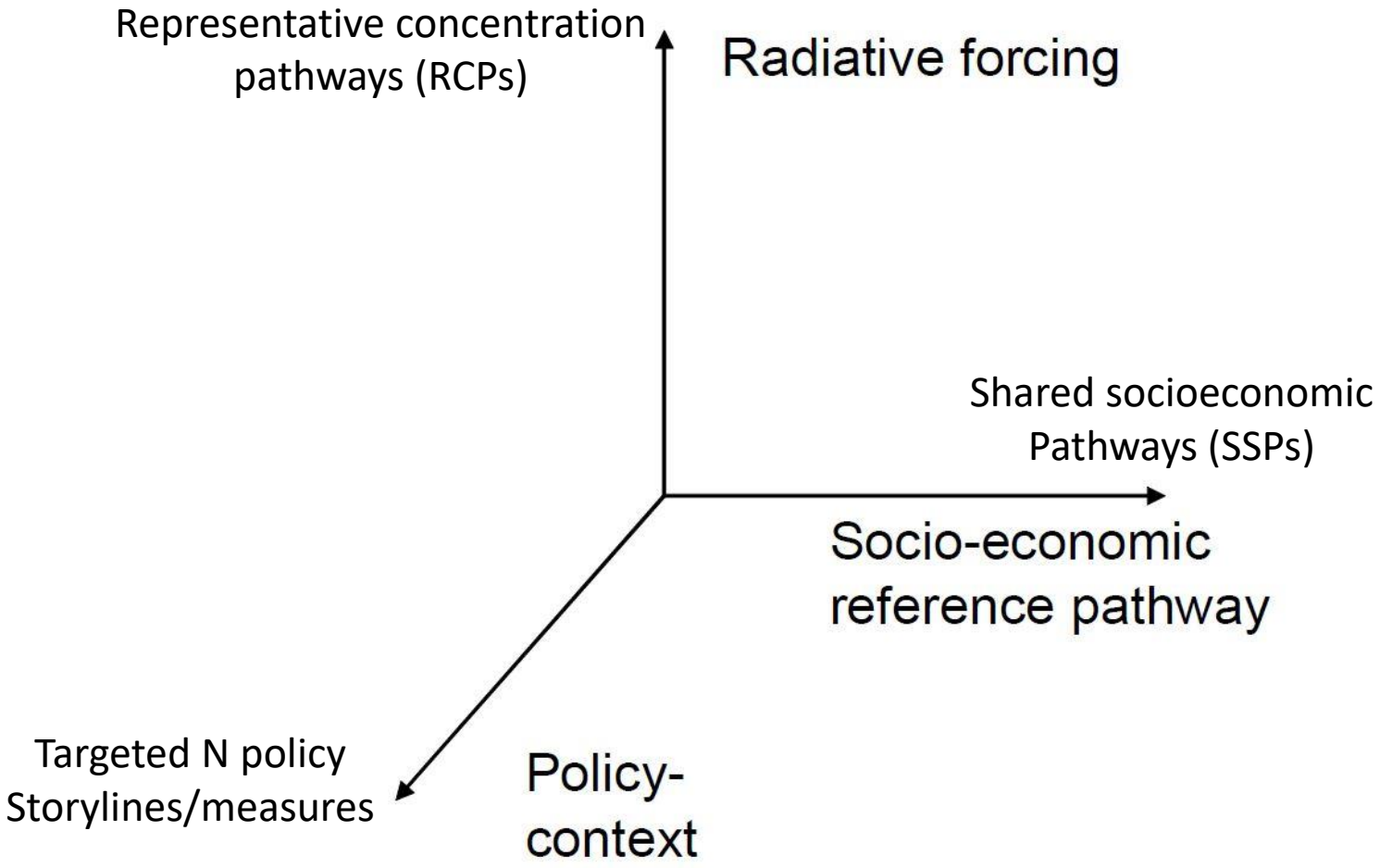
## Future N storylines & scenarios

- Task 2.4.1: Collection and evaluation of existing N related policies from INMS regions and OECD countries: Update OECD nitrogen policy questionnaire.
- Task 2.4.2: Agreed to link “INMS scenarios” to existing SSP-RCP scenarios, supplemented with “N storylines”: discussed in Workshop and exchanged with EPNF.
- Task 2.4.3.: Workshop on N storylines & scenarios in January 2018 in New York: first agreements made on SSP-RCP scenarios as a basis for extension with N policy story lines

Further discussed in parallel meeting on Wednesday afternoon (Session A1.5/A2.1/A2.4)

# Progress in A2.4

## Exploration of future N storylines & scenarios




Source: Van Vuuren et al (2017)

# Possible SSP-RCP-N policy scenarios?

| Scenario name | SSP Scenario | RCP scenario | **Additional N policy storylines** |
|---|---|---|---|
| Sustainability | SSP1 | RCP4.5 | Not included |
| Fossil fueled development | SSP5 | RCP8.5 | Intermediate ambition level |
| Fragmentation | SSP3 | RCP6.0 | Low ambition level |
| Mitigation | SSP1 | RCP2.6 | High ambition level |
| Business as usual | SSP2 | RCP6.5 | High ambition level |

Suggestions based on New York meeting
For discussion in parallel A1.5/A2/1/A2.4 session

# Timeline A2.4 pro-doc

| Activity 2.4 Exploration of future N storylines & scenarios with management/ mitigation options & cost-benefit analysis | Year 1 | | | | Year 2 | | | | Year 3 | | | | Year 4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 |
| Task 2.4.1 Review of existing N policies for different countries & regions | | M | | R | M | | | | | | | | | | | |
| Task 2.4.2 Review of existing storylines and scenarios relevant for N | | M | | R | M | | | | | | | | | | | |
| Task 2.4.3 Workshop on N storylines & scenarios for shared use across the project | | | | | | | W | R | | | | | | | | |
| Task 2.4.4 Synthesis of future programmes and policy options supported by cost benefit analysis | | | | | | | | | M | | | | R | | | |
| Monitoring and Evaluation | | | | | R | | | | R | | | | R | | | R |

# Timeline A2.4 updated

| Activity 2.4 Exploration of future N storylines & scenarios with management/ mitigation options & cost-benefit analysis | Year 1 | | | | Year 2 | | | | Year 3 | | | | Year 4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 |
| Task 2.4.1 Review of existing N policies for different countries & regions | W | M | | R | M | | | | | | | | | | | |
| Task 2.4.2 Review of existing storylines and scenarios relevant for N | W | M | | R | M | | | | | | | | | | | |
| Task 2.4.3 Workshop on N storylines & scenarios for shared use across the project | W | | | | | | W | R | | | | | | | | |
| Task 2.4.4 Synthesis of future programmes and policy options supported by cost benefit analysis | | | | | | | | | M | | | | R | | | |
| Monitoring and Evaluation | | | | | R | | | | R | | | | R | | | R |

**Component 2**
**Quantification of N flows, threats & benefits**

$1720k

De Vries /Ometto

# Tasks in A2.5


**Activity 2.5**
Collation & synthesis of knowledge, experience & measures adopted by GEF and others on excess & insufficient $N_r$.

$170k

PANS

Walker/Howard

**Output 2.5**
Compendium summarizing the state of knowledge, experience and measures adopted by GEF (and others) gained from addressing the issues of excess and insufficient $N_r$.

$35k network coordination

**Task 2.5.1**
Review of N measures adopted by GEF and incorporation into database

$45k

PANS

Walker/Howard

**Task Output 2.5.1**
Database and summary document on GEF N measures

**Task 2.5.2**
Review of N measures adopted by others inc. from INMS demo regions & inc in database

$40k

PANS

Walker/Howard

**Task Output 2.5.2**
Database and summary document on N measures adopted by others

**Task 2.5.3**
Preparation of compendium of knowledge on N measures

$50k

PANS

Walker/Howard

**Task Output 2.5.3**
Synthesis supported by data-base on N measures as contrib. to global assessment

# Update on A2.5

- Original proposed co-lead for A2.5 at OECD was not possible due to contractual issues (at OECD)
- OECD still able to engage through co-finance
- Sara Walker and Clare Howard (interim co-lead) have started discussions on a framework for the development of the database on case studies
- Framework will be presented and discussed in session on Wednesday, in collaboration with C3 – to allow engagement of C3 demo region
- Although late starting, it is still possible to produce first stage database and summary report in September.

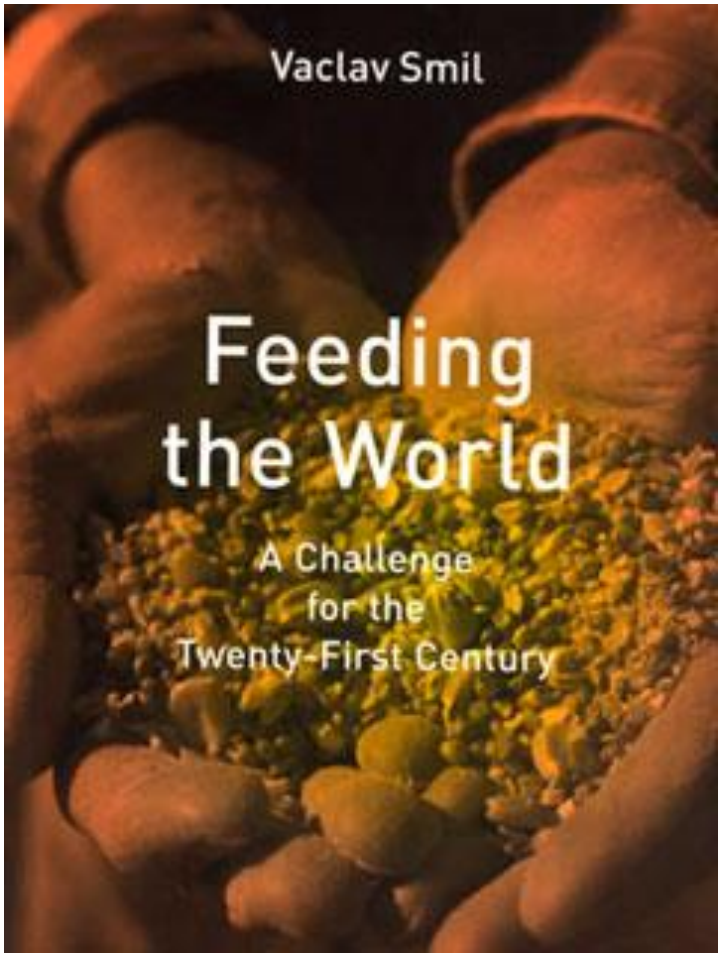
# Timeline A2.5 pro-doc

| Activity 2.5 Collation & synthesis of knowledge, experience & measures adopted by GEF and others on excess & insufficient Nr | Year 1 | | | | Year 2 | | | | Year 3 | | | | Year 4 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 | Q 1 | Q2 | Q3 | Q4 |
| Task 2.5.1 Review of N measures adopted by GEF and incorporation into database | | M | | R | | | | | | | | | | | | |
| Task 2.5.2 Review of N measures adopted by others inc from INMS demo regions & inc in database | | | | | M | | R | | | | | | | | | |
| Task 2.5.3 Preparation of compendium of knowledge on N actions implemented by GEF & others | | | | R | M | | | | R | | | | | | | R |
| Monitoring and Evaluation | | | | | R | | | | R | | | | R | | | R |

# Summary/attention points


- Teams formed and work plans written for A2.1/ A1.5, A2.3 and A2.4
- Deliverables for A2.1/A1.5 and A2.4 ahead of schedule
- Need for tuning A2.3 and A2.5 and interaction between A2.3 and A2.4 ,linked with modelling
- Important to have contracts soon, especially for the modelling teams
- Important to focus on tasks and not administrative overheads

# Questions?


Vaclav Smil
Feeding the World
A Challenge for the Twenty-First Century