

Chapter Summary of the International Nitrogen Assessment (INA), June 2021

Chapter	Editors		Chapter	Coordinating Lead Authors		Chapter Information	
	Name	Institution		Name	Institution	Estimated Page Length	Track 1 or Track 2
Introduction: From pollution problems to the nitrogen opportunity			Introduction: From pollution problems to the nitrogen opportunity	Mark Sutton	UKCEH	10	2
				Clare Howard	UKCEH		
Part A: The global nitrogen challenge: problem definition	Clare Howard	UKCEH	Part A: The global nitrogen challenge: problem definition				
	Jean Ometto	Earth System Science Centre/National Institute For Space Research					
Chapter 2: Nitrogen, environment and sustainable development			Chapter 2: Nitrogen, environment and sustainable development	Jean Ometto	Earth System Science Centre/National Institute For Space Research	20	1
					Vincent Aduramigba		
Chapter 3: Nitrogen and food security			Chapter 3: Nitrogen and food security	Tapan Adhya	KIIT University	25	1
				Oene Oenema	Alterra Wageningen University and Research Centre		
Chapter 4: Nitrogen in current national and international policies			Chapter 4: Nitrogen in current national and international policies	David Kanter	New York University	20	1
		Ramesh Ramachandran	National Centre for Sustainable Coastal Management, Government of India				
Chapter 5: Towards a holistic response to the global nitrogen challenge	Chapter 5: Towards a holistic response to the global nitrogen challenge	Mark Sutton	UKCEH	15	1		
		David Kanter	New York University				
		N. Raghuram	Guru Gobind Singh Indraprastha University				
Part B: Foundations for Assessing the Nitrogen Cycle	Hans van Grinsven	PBL Netherlands Environmental Assessment Agency	Part B: Foundations for Assessing the Nitrogen Cycle				
	Jill Baron	Colorado State University					
Chapter 6: Approaches and challenges to assess nitrogen impacts			Chapter 6: Approaches and challenges to assess nitrogen impacts	Hideaki Shibata	International Long Term Ecological Research Network (ILTER) & Field Science Center for Northern Biosphere, Hokkaido University	25	1
					Jill Baron		
Chapter 7: Performance indicators for the global nitrogen cycle			Chapter 7: Performance indicators for the global nitrogen cycle	Wilfried Winiwarter	International Institute for Applied Systems Analysis	20	1
				Kentaro Hayashi	Institute for Agro-Environmental Sciences, NARO		
Chapter 8: Approaches and challenges to assess nitrogen pressures and distribution			Chapter 8: Approaches and challenges to assess nitrogen pressures and distribution	Kevin Hicks	Stockholm Environment Institute, University of York	20	1
		Bill Bealey	UKCEH				
Chapter 9: Approaches and challenges to value nitrogen benefits and threats	Chapter 9: Approaches and challenges to value nitrogen benefits and threats	Hans van Grinsven	PBL Netherlands Environmental Assessment Agency	20	1		
		Roy Brouwer	University of Waterloo				
		Baojing Gu	Zhejiang University				
Part C: Global integrated assessment across the nitrogen cycle	Wim de Vries	Alterra Wageningen University and Research Centre	Part C: Global integrated assessment across the nitrogen cycle				
	Mark Sutton	UKCEH					
Chapter 10: Assessment of global scale total nitrogen budgets			Chapter 10: Assessment of global scale total nitrogen budgets	Benjamin Bodirsky	Potsdam Institute for Climate Impact Research	30	1
					David Leclere		
Chapter 11: WATER: Flows on impacts of nitrogen on freshwater, coastal and marine systems			Chapter 11: WATER: Flows on impacts of nitrogen on freshwater, coastal and marine systems	Arthur Beusen	PBL Netherlands Environmental Assessment Agency	25	1
				Elizabeth Boyer	Penn State University		
Chapter 12: AIR: Emissions and air quality impacts of nitrogen on human health and crops	Chapter 12: AIR: Emissions and air quality impacts of nitrogen on human health and crops	Massimo Vieno	UKCEH	25	1		
		Rita van Dingenen	European Commission				

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Part C Continued: Global integrated assessment across the nitrogen cycle	Wim de Vries	Alterra Wageningen University and Research Centre	Part C Continued: Global integrated assessment across the nitrogen cycle				
	Mark Sutton	UKCEH					
Chapter 13: GREENHOUSE: Impacts of anthropogenic nitrogen use on global warming potential and radiative balance, and role of nitrogen for stratospheric ozone depletion			Chapter 13: GREENHOUSE: Impacts of anthropogenic nitrogen use on global warming potential and radiative balance, and role of nitrogen for stratospheric ozone depletion	Wim de Vries	Alterra Wageningen University and Research Centre	25	1
			Hanqin Tian	Auburn University			
Chapter 14: ECOSYSTEMS: Inputs of nitrogen to terrestrial and aquatic ecosystems and the impacts on biodiversity			Chapter 14: ECOSYSTEMS: Inputs of nitrogen to terrestrial and aquatic ecosystems and the impacts on biodiversity	Jan Janse	PBL Netherlands Environmental Assessment Agency	25	1
			Enzai Du or Hans Paerl	BNU or UNC			
Chapter 15: SOILS: Inputs, outputs and impacts of nitrogen for agricultural land and relationships with non-agricultural land			Chapter 15: SOILS: Inputs, outputs and impacts of nitrogen for agricultural land and relationships with non-agricultural land	Jinfeng Chang	Zhejiang University	25	1
			Lex Bouwman	PBL Netherlands Environmental Assessment Agency			
Chapter 16: Costs and benefits of nitrogen at global and regional scales, will now sit within Part E, with order to be confirmed. Subsequent chapters will be re-numbered in due course once chapter order has been finalised.							
Part D: Nitrogen challenges and opportunities for key world regions	N. Raghuram	Guru Gobind Singh Indraprastha University	Part D: Nitrogen challenges and opportunities for key world regions				
	Vincent Aduramigba	Obafemi Awolowo University					
Chapter 17: Approach, Synthesis and Lessons and from the Regional Nitrogen Assessments			Chapter 17: Approach, Synthesis and Lessons from the Regional Nitrogen Assessments	Dave Hooper	Western Washington University	20	2
			Cargele Masso	International Institute of Tropical Agriculture			
			Luis Lassaletta	Universidad Politécnica de Madrid			
Chapter 18: Assessment of nitrogen flows, impacts and solutions in East Asia			Chapter 18: Assessment of nitrogen flows, impacts and solutions in East Asia	Xiaoyuan Yan	Institute of Soil Science, Chinese Academy of Sciences	25	1
			Kentaro Hayashi	Institute for Agro-Environmental Sciences, NARO			
Chapter 19: Assessment of nitrogen flows, impacts and solutions in South Asia			Chapter 19: Assessment of nitrogen flows, impacts and solutions in South Asia	Tapan Adhya	KIIT University	25	1
			N. Raghuram	Guru Gobind Singh Indraprastha University			
			Sumana Bhattacharya	IORA Ecological Solutions Pvt. Ltd			
Chapter 20: Assessment of nitrogen flows, impacts and solutions in Africa			Chapter 20: Assessment of nitrogen flows, impacts and solutions in Africa	Himanshu Pathak	ICAR-National Rice Research Institute	25	1
			Cargele Masso	International Institute of Tropical Agriculture			
			Mekonnen Giweta	International Institute of Tropical Agriculture			
Chapter 21: Assessment of nitrogen flows, impacts and solutions in Latin America			Chapter 21: Assessment of nitrogen flows, impacts and solutions in Latin America	Jean Ometto	Earth System Science Centre/National Institute For Space Research	25	1
			Felipe Pacheco	Earth System Science Centre/National Institute For Space Research			
Chapter 22: Assessment of nitrogen flows, impacts and solutions in West Europe			Chapter 22: Assessment of nitrogen flows, impacts and solutions in West Europe	Josette Garnier	French National Centre for Scientific Research	25	1
			Alberto Sanz Cobeña	Technical University of Madrid			
Chapter 23: Assessment of nitrogen flows, impacts and solutions in East Europe			Chapter 23: Assessment of nitrogen flows, impacts and solutions in East Europe	Sergiy Medinets	Odesa National I. I. Mechnikov University	25	1
			Lydia Moklyachuk	Soil Protection Institute of Ukraine			
Chapter 24: Assessment of nitrogen flows, impacts and solutions in North America			Chapter 24: Assessment of nitrogen flows, impacts and solutions in North America	Jill Baron	Colorado State University	25	1
			Dave Hooper	Western Washington University			
			Robert Sabo	US EPA			

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Part E: Grasping the future challenge	David Kanter	New York University	Part E: Grasping the future challenge						
	Kentaro Hayashi	Institute for Agro-Environmental Sciences, NARO							
Chapter 25: Key actions for better nitrogen management (link A2.3)			Chapter 25: Key actions for better nitrogen management (link A2.3)	Will Brownlie	UKCEH	25	1		
			Tariq Aziz	University of Faisalabad, Pakistan					
			Mark Sutton	UKCEH					
Chapter 26: Addressing the barriers to better nitrogen management			Chapter 26: Addressing the barriers to better nitrogen management	Cláudia Cordovil	Instituto Superior de Agronomia Tapada da Ajuda	20	1		
				Hens Runhaar	Copernicus Institute of Sustainable Development, Utrecht University				
Chapter 27: Synthesis of possible futures for the global nitrogen cycle			Chapter 27: Synthesis of possible futures for the global nitrogen cycle	Shilpa Rao Skirbekk	Norwegian Institute for Public Health	30	2		
				Wilfried Winiwarter	International Institute for Applied Systems Analysis				
				Wim de Vries	Alterra Wageningen University and Research Centre				
Chapter 28: Goals and Pathways: How to Halve Nitrogen Waste by 2030?			Chapter 28: Goals and Pathways: How to Halve Nitrogen Waste by 2030?	Mark Sutton	UKCEH	20	2		
				David Kanter	New York University				
Chapter 29: Evaluation of policy options and instruments for better nitrogen management	Chapter 29: Evaluation of policy options and instruments for better nitrogen management	David Kanter	New York University	20	2				
		Morten Graversgaard	Aarhus University						
Chapter 30: Nitrogen and public communication (link A4.1, A4.2, link to SDGs)	Chapter 30: Nitrogen and public communication (link A4.1, A4.2, link to SDGs)	Clare Howard	UKCEH	20	2				
		TBC	TBC						
Chapter 16: Costs and benefits of nitrogen at global and regional scales	Chapter 16: Costs and benefits of nitrogen at global and regional scales	Baojing Gu	Zhejiang University	15	2				
	*Order to be confirmed within Part E	Hans van Grinsven	PBL Netherlands Environmental Assessment Agency						

