# INTERGOVERNMENTAL PANEL ON Climate change

## THIRTY-SECOND SESSION OF THE IPCC Busan, 11-14 October 2010

IPCC-XXXII/Doc. 11 (14.IX.2010) Agenda Item: 4.2 ENGLISH ONLY

## THE IPCC FIFTH ASSESSMENT REPORT (AR5)

## **Progress Report of Working Group II**

(Submitted by the Co-Chairs of Working Group II)



#### **PROGRESS REPORT**

IPCC Working Group II Contribution to the Fifth Assessment Report (AR5)

(Submitted by the Co-Chairs of Working Group II)

#### 1. Milestones since IPCC-XXXI (Bali, Indonesia • 26-29 October 2009)

#### **Coordination Highlights**

The Working Group II Technical Support Unit (WGII TSU) took the lead on designing the IPCC-wide AR5 nominations system, and worked closely with sister TSUs and the IPCC Secretariat to refine requirements. On-line mechanisms were also developed to facilitate review of submitted applications. Immediately after endorsement of the working group outlines at IPCC-XXXI, the distributed node architecture was tested and deployed to facilitate the Call for AR5 Nominations, issued to IPCC Focal Points and Observer Organizations representatives via the IPCC Secretariat on 15 January 2010.

Working Group II has worked closely with the Secretariat and Working Groups I and III to plan and execute a series of calendar year (CY) 2010 Expert Meetings and to schedule and organize the CY2011 slate agreed by Governments as important to the WGII AR5 development cycle. Refer to <a href="http://ipcc-wg2.gov/meetings/EMs/index.html">http://ipcc-wg2.gov/meetings/EMs/index.html</a> for brief descriptions of the WGII-relevant meetings, and the meeting reports for those conducted to date. All posted expert meetings are joint endeavors, involving close coordination with sister TSUs. Note that descriptions of the Cross-Working Group Meeting on Consistent Evaluation of Uncertainties and Risks (Jasper Ridge, California, USA • 6-7 July 2010) and TGICA-16 (Boulder, Colorado, USA • 4-6 August 2010) are provided under separate cover.

#### WGII AR5 Writing Team Selection

The Call to serve as Coordinating Lead Authors / Lead Authors / Review Editors (CLA/LA/REs) for the WGII contribution to the AR5 resulted in 1,217 total nominations. To facilitate writing team selections by the WGII Bureau, the web-based tool captured a subset of the fields collected by the nominations system – that is, complete name, citizenship, World Meteorological Organization (WMO) region, whether the expert was a Government nominee, and whether nominated for either of the other two Working Groups. Individual CVs were accessible via this site, as were archives of the raw data of all collected fields. Respected scientists and researchers were consulted as needed to provide evaluations of chapter candidates, especially as regards young scientists new to the IPCC process and scientists with whom the WGII Bureau might not have been familiar. Working Groups I and III were engaged early in the selection process to resolve situations where candidate authors were nominated for multiple AR5 volumes<sup>1</sup>, and to ascertain optimal placement for the benefit of the IPCC as a whole rather than competing for talent. Intent of these deliberations was to enhance cross-working group perspective and integration via sometimes non-traditional placements. Coordination was especially important for the regional (Part B) component of the WGII AR5.

Principles governing WGII Bureau work included: (i) appropriate expertise to address effectively the Plenary Approved Outline (PAO, see <http://ipcc-wg2.gov/AR5/ar5-outline.html>); (ii) representation of the full range of scientific opinion; (iii) no repeat CLA pairs from the Fourth Assessment Report (AR4), in pursuit of fresh insights; (iv) at least 40% developing country / economy-in-transition (DC/EIT) representation; (v) improved gender balance; (vi) target of 50% not directly involved in the AR4 cycle in a substantive role; (vii) target of 20% 'young' scientist involvement (i.e., having obtained highest degree within the past 10 years) to ensure experienced authors for future assessments; and (viii) identification of senior scientists for RE slots.

<sup>&</sup>lt;sup>1</sup> The WGII AR5 nominations database indicates that 384 of the 1,217 nominees were nominated for other AR5 volumes, as follows: WGI (183), WGIII (248), and both WGI and WGIII (47).

Recommended writing team memberships were presented to the full IPCC Bureau at its 41<sup>st</sup> Session (Geneva, Switzerland • 19-20 May 2010). Appointment memos were issued on 26 May 2010, with responses requested by 7 June. Gaps were filled to the extent practicable in time for the joint WGI/WGII/WGIII author team release on 23 June 2010. The WGII TSU is actively working to help its volunteer authors solidify funding arrangements, on an as needed basis. Much of this work was accomplished prior to CLA/LA/REs accepting appointments, although this work is ongoing.

As of release of this status report, the WGII Bureau has yet to determine how best to cope with the loss of the Chapter 18 CLA (Steve Schneider) and Chapter 3 RE (Igor Shiklomanov). These slots remain vacant, as the WGII Bureau determines the best possible scientists to provide needed expertise.

## WGII AR5 Meetings

The WGII TSU has secured hosts for many of its AR5 meetings, including all four approved regional expert meetings and its first two Lead Authors Meetings. The Governments of Japan and the United States of America have graciously offered to host the first two Lead Authors Meetings, respectively. CY2011 highlights – including information on host countries and timing for the regional expert meetings – are provided in Section 4, and map to the proposed budget

included in IPCC-XXXII/Doc.3. Refer to <a href="http://ipcc-wg2.gov/AR5/AR5\_provisional\_schedule.html">http://ipcc-wg2.gov/AR5/AR5\_provisional\_schedule.html</a> for the full WGII AR5 development schedule.

The First Lead Authors Meeting (LAM1) will take place at the Tsukuba International Conference Center (Tsukuba, Japan) from 11-14 January 2011. Discussions with Japanese Government officials were initiated in early 2010, in an effort to achieve efficiencies by dovetailing LAM1 with the Joint WGI/WGII Expert Meeting on Impacts of Ocean Acidification on Marine Biology and Ecosystems (Okinawa, Japan • 17-19 January 2011). An MOU formalizing the arrangement was sent by the WGII Co-Chairs to Mr. Yutaka Matsuzawa (Director, Office for Global Environment Research, Ministry of the Environment Japan) on 19 August 2010. The National Institute for Environmental Studies (NIES) serves as the local host. A password-protected Author Portal was launched on 17 August 2010 to provide an array of tools to CLA/LAs in support of the assessment process, with LAM1 logistics to be posted on this web site by the end of September 2010.

The Second Lead Authors Meeting will take place in San Francisco, California, USA, from 12-16 December 2011. The U.S. Department of State has already offered assistance with visas and other logistical matters, but exact details (including venue) are not available at this time.

## 2. WGII AR5 Writing Teams

Refer to <http://www.ipcc-wg2.gov/AR5/AR5\_authors.php> for a dynamically updated table of writing team members. The web version provides name, role, and affiliation, and a posted PDF also provides information regarding the entity – be it Government or organization – supporting involvement in the WGII AR5 assessment cycle (see <http://www.ipcc-wg2.gov/AR5/WGII-AR5\_Authors.pdf>). An abridged version of the PDF is attached as Annex A, and provides name, role, and supporting entity<sup>2</sup> for each writing team member.

<sup>&</sup>lt;sup>2</sup> "Supporting Entity" is based on the citizenship tag in the WGII AR5 nominations database, as submitted by IPCC Focal Points, Observer Organization representatives, and WGII Bureau members. In cases where an organization is listed, citizenship is used as the default for the statistics presented in Section 3. The WGII TSU has contacted affected Focal Points in all instances where a non-Focal Point nomination might have financial repercussions, and the 'Supporting Entity' column in Annex A reflects the WGII TSU good faith effort to take into account individual author circumstances while giving credit to the parties providing financial support. This column is sometimes at odds with the 'Country of Residence' field collected by the AR5 nominations tool. DC/EIT scientists apply to the IPCC Secretariat for IPCC Trust Fund support.

## 3. WGII AR5 Writing Team Statistics

The call for WGII AR5 nominations resulted in 1,217 applications – 1,208 at time of appointment letter issuance, with nine additional applications solicited by the WGII Bureau in response to regrets or withdrawals.

A total of 79 Governments submitted nominations, and 92 nationalities were represented in the candidate pool. The following table shows nominations distribution within the six WMO regions and by region type.<sup>3</sup>

WGII AR5 Nominations Pool: Regional Breakout					
WMO Region	Absolute	Percentage			
I – Africa	98	8%			
II – Asia	251	20%			
III – South America	70	6%			
IV – North America,	327	27%			
Central America, and					
the Caribbean					
V – South-West	85	7%			
Pacific					
VI – Europe	386	32%			
TOTAL	1,217				
Region Type					
Developing Countries	450	37%			
Economies-in-	17	1%			
Transition					
Industrialized	750	62%			
Countries					
TOTAL	1,217				

The WGII Bureau pursued two CLAs per chapter (usually one DC/EIT and one developed country representative). Chapter 24 deviated from this approach, as the subject matter is too broad and the regional make-up required such. Further, the WGII Bureau acted under general guidance of six LAs per chapter and two REs – though LA selections sometimes strayed from this goal depending on chapter PAO requirements. Most WGII Bureau members assigned themselves RE roles for potentially controversial chapters, thus adding a third RE on several chapters.

DC/EIT and gender balance concerns were considered across both parts of the WGII volume – and not necessarily within each of the 30 chapters comprising it – as the WGII Bureau evaluated the chapter-specific pool of nominations from which to render decisions. Of 1,217 applications comprising the WGII AR5 candidate pool, 467 (38%) were DC/EIT nominees and 299 (25%) female nominees. The WGII Bureau surpassed both these percentages and the targets delineated in the "WGII AR5 Writing Team Selection" subsection on page 1.

A total of 309 scientists comprise the writing teams listed in Annex A. The candidate pool of 1,217 nominees yielded 60 CLAs, 184 LAs, and 65 REs – representing 72 unique nationalities. Of the selected individuals, 259 (84%) are IPCC Focal Point nominees, with the balance of 50 originating from Observer Organization representatives or WGII Bureau members themselves.

<sup>&</sup>lt;sup>3</sup> Refer to <http://www.wmo.int/pages/members/index\_en.html> for the countries comprising each region and to <http://www.oecd.org/document/53/0,3343,en\_2649\_34361\_2346101\_1\_1\_1\_1\_00.html> for a listing of EIT countries used as to generate statistics for this table.

The following table provides the distribution of writing team selections within the six WMO regions and by region type (see footnote 3). It also captures the numbers of females, DC/EIT, and 'new' scientists<sup>4</sup> on the teams, in addressing aforementioned targets. The PAO does contain chapter topics never broached before (e.g., open oceans), places additional emphasis on adaptation (four chapters), and integrates issues that had not traditionally been within the scope of Working Group II (e.g., economics of adaptation). As such, new communities were recruited and engaged.

WGII AR5 Writing Bre	g Teams: Ro akout	egional
WMO Region	Absolute	Percentage
I – Africa	36	12%
II – Asia	42	14%
III – South America	19	6%
IV – North America, Central America, and the Caribbean	85	27%
V – South-West Pacific	32	10%
VI – Europe	95	31%
TOTAL	309	
Region Type		
Developing Countries	116	38%
Economies-in-	10	3%
Transition		
Industrialized Countries	183	59%
TOTAL	309	
ADE Exment Solection		
AR5 Expert Selection	00	070/
Female	83	27%
	126	41%
DC/EIT 'New'	168	54%

As recognized by the IPCC Bureau in an earlier rendition (via BUR-XLI/Doc.12), the numbers in the preceding table reflect favorably when compared to comparable statistics developed for the WGII AR4.

The WGII TSU also compiled a statistic on 'young' scientists by culling the data from CVs submitted as part of the nominations upload. This label was applied if the selected individual had obtained his/her highest degree within the past 10 years (i.e., in CY2001 or later). This screen reveals that the WGII Bureau has involved 71 'young' scientists in the AR5 cycle, ensuring the involvement and training of the next generation of climate assessment experts and surpassing the WGII Bureau target of 20% (i.e., 23%).

Given the sheer size of the WGII AR5 (two parts consisting of 30 chapters), the WGII Bureau acknowledges the imperative to keep writing teams small enough to make Lead Author Meetings and production/logistics manageable; however, this concern is countered by the need to entrain a

<sup>&</sup>lt;sup>4</sup> 'New' connotes an expert not engaged in the previous assessment cycle in a substantive CLA/LA/RE role (AR4 vs. AR5), and not involved with the IPCC Special Reports currently under development. The AR4 comparison was compiled using the UK MetOffice AR4 database; the current WGII database reveals 36 authors from the IPCC Special Report on "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation" also serving on WGII AR5 writing teams. In many cases, writing team members classified as 'new' do have a history with the IPCC – as Contributing Authors or Expert Reviewers on the Working Group II contribution to the AR4; as CLA/LA/REs on either of the other two Working Group contributions to the AR4 or its Synthesis Report; or as writing team members on previous Special Reports or IPCC assessments, such as the Third Assessment Report (TAR). TAR and previous Special Report comparisons were enabled via the database maintained by the U.S.hosted TSU through CY2002.

comprehensive breadth of perspective and expertise. Very hard choices were made to limit the CLA/LA/RE to a total of 309 individuals. The WGII Bureau will actively encourage the recruitment of Contributing Authors to ensure adequate regional coverage.

## 4. 2011 Work Plan and Budget Repercussions

Changes to the WGII AR5 work plan that are reflected in the 2011 IPCC Trust Fund Programme and Budget (IPCC-XXXII/Doc.3) include:

- Moving the CY2010 Ocean Acidification expert meeting to CY2011, to dovetail with the First Lead Authors Meeting which also will also be held in Japan
- Moving the CY2010 Human Settlements expert meeting to CY2011, which had been postponed due to the volcanic eruption at Eyjafjalla Glacier in southern Iceland restricting air traffic
- Increasing the number of trips for the four WGII Regional Expert Meetings from 50 to 100.

The following list captures the complement of WGII AR5 meetings to take place in CY2011 (with location and dates provided; see <www.ipcc-wg2.gov> for review periods and more detail):

11-14 January 2011 WGII AR5 First Lead Authors Meeting – Tsukuba, Japan

17-19 January 2011 WGII/WGIII Expert Meeting on Impacts of Ocean Acidification on Marine Biology and Ecosystems – Okinawa, Japan

16-18 March 2011 Southeast Asia Regional Expert Meeting – Dhaka, Bangladesh

22-24 March 2011 WGII/WGIII Expert Meeting on Human Settlement, Water, Energy and Transport Infrastructure -Mitigation and Adaptation Strategies – Calcutta, India

April 2011 (exact dates TBD) Small Island Developing States Regional Expert Meeting – Grenada (TBC)

14-16 April 2011 South and Central America Regional Expert Meeting – São José dos Campos, Brazil

20-21 June 2011 (TBC) WGI/WGII/WGIII Expert Meeting on Geoengineering – Peru (exact location TBD)

22-24 June 2011 WGII/WGIII Expert Meeting on Economic Analysis, Costing Methods, and Ethics – Peru (exact location TBD)

9-11 August 2011 Least Developed Countries and Africa Regional Expert Meeting – Accra, Ghana

12-16 December 2011 Second Lead Authors Meeting - San Francisco, CA, USA

IPCC Working Group II Contribution to The Fifth Assessment Report (AR5): Climate Change 2013: Impacts, Adaptation, and Vulnerability

## Annex A. Coordinating Lead Authors, Lead Authors, and Review Editors

## PART A: GLOBAL AND SECTORAL ASPECTS

Context for the AR5		-	
Chapter	Role	Name	Supporting Entity
Ch. 1:	CLA	Avelino G. Suarez	Cuba
Point of departure	CLA	Gary Yohe	United States of America
	LA	Marco Bindi	Italy
	LA	Cecilia Conde	Mexico
	LA	William Hare	Germany
	LA	Rupa Mukerji	India
	LA	Michael Prather	United States of America
	LA	Asuncion Lera St.Clair	Norway
	RE	Hervé Le Treut	France
	RE	Jean Palutikof	Australia
Ch. 2:	CLA	Roger Jones	Australia
Foundations for	CLA	Anand Patwardhan	India
decisionmaking	LA	Stewart Cohen	Canada
	LA	Suraje Dessai	United Kingdom of Great Britain & Northern Ireland
	LA	Annamaria Lammel	France
	LA	Robert Lempert	United States of America
	LA	Monirul Mirza	Canada
	LA	Hans von Storch	Germany
	RE	Rosina Bierbaum	United States of America
	RE	Nicholas King	South Africa

# Context for the AR5

\* Additional members may be added by the WGII Bureau for teams without the full complement of Lead Authors and Review Editors.

\*\*See footnote 2 on page 2 for a definition of 'Supporting Entity'.

Chapter	Role	Name	Supporting Entity
Ch. 3:	CLA	Blanca Jimenez	Mexico
Freshwater	CLA	Taikan Oki	Japan
resources	LA	Nigel Arnell	United Kingdom of Great Britain & Northern Ireland
	LA	Gerardo Benito	Spain
	LA	J. Graham Cogley	Canada
	LA	Petra Doell	Germany
	LA	Tong Jiang	China
	LA	Shadrack S. Mwakalila	United Republic of Tanzania
	RE	Pavel Kabat	Netherlands
Ch. 4:	CLA	Robert Scholes	South Africa
Terrestrial and	CLA	Josef Settele	Germany
inland water systems	LA	Richard Betts	United Kingdom of Great Britain & Northern Ireland
	LA	Stuart Bunn	Australia
	LA	Paul Leadley	France
	LA	Daniel Nepstad	United States of America
	LA	Jonathan Overpeck	United States of America
	LA	Miguel Angel Taboada	Argentina
	RE	Andreas Fischlin	Switzerland
	RE	José Moreno	Spain
	RE	Terry L. Root	United States of America
Ch. 5:	CLA	lñigo J. Losada	Spain
Coastal systems and	CLA	Poh Poh Wong	Singapore
low-lying areas	LA	Jean-Pierre Gattuso	France
	LA	Abdellatif Khattabi	Morocco
	LA	Susanne Moser	United States of America
	LA	Yoshiki Saito	Japan
	LA	Asbury Sallenger	United States of America
	LA	Anond Snidvongs	Thailand
	RE	Robert Nicholls	United Kingdom of Great Britain & Northern Ireland
	RE	Filipe Santos	Portugal

Natural and Managed Resources and Systems, and Their Uses (con't)				
Chapter	Role	Name	Supporting Entity	
Ch. 6:	CLA	David Karl	United States of America	
Ocean systems	CLA	Hans-O. Pörtner	Germany	
	LA	Phil Boyd	New Zealand	
	LA	Salvador Lluch-Cota	Mexico	
	LA	Yukihiro Nojiri	Japan	
	LA	Daniela Schmidt	United Kingdom of Great Britain & Northern Ireland	
	LA	Peter Zavialov	Russian Federation	
	RE	Kenneth Drinkwater	Norway	
	RE	Alexander Polonsky	Ukraine	
Ch. 7:	CLA	John R Porter	Denmark	
Food production	CLA	Liyong Xie	China	
systems and food security	LA	Andrew Challinor	United Kingdom of Great Britain & Northern Ireland	
	LA	Kevern Cochrane	FAO	
	LA	Mark Howden	Australia	
	LA	Muhammad Mohsin Iqbal	Pakistan	
	LA	David Lobell	United States of America	
	LA	María Isabel Travasso	Argentina	
	RE	Pramod Aggarwal	India	
	RE	Kaija Hakala	Finland	

## Natural and Managed Resources and Systems, and Their Uses (con't)

#### Human Settlements, Industry, and Infrastructure

Human Settlements, In Chapter	Role	Name	Supporting Entity
Ch. 8:	CLA	Aromar Revi	India
Urban areas	CLA	David Satterthwaite	United Kingdom of Great Britain & Northern Ireland
	LA	Fernando Aragon	Mexico
	LA	Jan Corfee-Morlot	USA / OECD
	LA	Robert B. R. Kiunsi	United Republic of Tanzania
	LA	Mark Pelling	United Kingdom of Great Britain & Northern Ireland
	LA	Debra Roberts	South Africa
	LA	William Solecki	United States of America
	RE	John Balbus	United States of America
	RE	Omar-Dario Cardona	Colombia
Ch. 9:	CLA	Purnamita Dasgupta	India
Rural areas	CLA	John Morton	United Kingdom of Great Britain & Northern Ireland
	LA	David Dodman	Jamaica
	LA	Baris Karapinar	Switzerland
	LA	Francisco Meza	Chile
	LA	Marta Rivera-Ferre	Spain
	LA	Aissa Toure Sarr	Senegal
	LA	Katharine Vincent	South Africa
	RE	Habib Amamou	Tunisia
	RE	Edward Carr	United States of America
Ch. 10:	CLA	Douglas Arent	United States of America
Key economic	CLA	Richard S.J. Tol	Netherlands
sectors and services	LA	Eberhard Faust	Germany
	LA	Joseph P. Hella	Tanzania
	LA	Surender Kumar	India
	LA	Ken Strzepek	UNU / Unites States of America
	LA	Ferenc L. Tóth	IAEA / Hungary
	LA	Denghua Yan	China
	RE	Amjad Abdulla	Maldives
	RE	Haroon Kheshgi	United States of America
	RE	He Xu	China

#### Human Health, Well-Being, and Security

Chapter	Role	Name	Supporting Entity
Ch. 11:	CLA	Rita Colwell	United States of America
Human health	CLA	Alistair Woodward	New Zealand
	LA	Dave Chadee	Trinidad and Tobago
	LA	Yasushi Honda	Japan
	LA	Qiyong Liu	China
	LA	Jane Mukarugwiza Olwoch	South Africa
	LA	Boris Revich	Russian Federation
	LA	Rainer Sauerborn	Sweden
	LA	Kirk Smith	United States of America
	RE	Ulisses Confalonieri	Brazil
	RE	Andrew Haines	United Kingdom of Great Britain & Northern Ireland
Ch. 12: Human security	CLA	Neil Adger	United Kingdom of Great Britain & Northern Ireland
	CLA	Juan Pulhin	Philippines
	LA	Jonathon Barnett	Australia
	LA	Geoff Dabelko	United States of America
	LA	Grete Hovelsrud	Norway
	LA	Rajeswar Jonnalagadda	India
	LA	Marc Levy	United States of America
	LA	Ursula Oswald-Spring	Mexico
	RE	Paulina Aldunce	Chile
	RE	Robin Leichenko	United States of America
Ch. 13:	CLA	Lennart Olsson	Sweden
Livelihoods and poverty	CLA	Maggie Opondo	Kenya
poverty	LA	Arun Agrawal	United States of America
	LA	Siri Eriksen	Norway
	LA	Shiming Ma	China
	LA	Tom Mitchell	United Kingdom of Great Britain & Northern Ireland
	LA	Petra Tschakert	United States of America
	LA	Sumaya Zakieldeen	Sudan
	RE	Etienne Piguet	Switzerland
	RE	Rita Sharma	India

## Adaptation

Chapter	Role	Name	Supporting Entity
Ch. 14:	CLA	Saleemul Huq	Bangladesh
Adaptation needs	CLA	lan Noble	Australia
and options	LA	Yury Anokhin	Russian Federation
	LA	JoAnn Carmin	United States of America
	LA	Dieudonne Goudou	Niger
	LA	Felino Lansigan	Philippines
	LA	Balgis Osman-Elasha	Sudan
	LA	Alicia Villamizar	Venezuela
	RE	Anthony Patt	Austria
	RE	Kuniyoshi Takeuchi	Japan
Ch. 15:	CLA	Nobuo Mimura	Japan
Adaptation planning	CLA	Roger Pulwarty	United States of America
and implementation	LA	Do Minh Duc	Vietnam
	LA	Ibrahim Elshinnawy	Egypt
	LA	Margaret Hiza Redsteer	United States of America
	LA	He-Qing Huang	China
	LA	Johnson Ndi Nkem	Cameroon
	LA	Roberto A. Sanchez Rodriguez	Mexico
	RE	Richard Moss	United States of America
	RE	Walter Vergara	World Bank

#### Adaptation (con't)

Chapter	Role	Name	Supporting Entity
Ch. 16:	CLA	Richard Klein	Sweden
Adaptation	CLA	Guy Midgley	South Africa
opportunities, constraints, and	LA	Mozaharul Alam	Bangladesh
limits	LA	Frans Berkhout	Netherlands
	LA	Kirstin Dow	United States of America
	LA	Yu'e Li	China
	LA	Elena Mateescu	Romania
	LA	Benjamin Preston	United States of America
	LA	Rebecca Shaw	United States of America
	RE	Habiba Gitay	Australia
	RE	James Thurlow	South Africa
Ch. 17:	CLA	Muyeye Chambwera	Zimbabwe
Economics of	CLA CLA	Muyeye Chambwera Geoff Heal	Zimbabwe United States of America
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Economics of	CLA	Geoff Heal	United States of America
Economics of	CLA LA	Geoff Heal Carolina Dubeux	United States of America Brazil
Economics of	CLA LA LA	Geoff Heal Carolina Dubeux Stephane Hallegatte	United States of America Brazil France
Economics of	CLA LA LA LA	Geoff Heal Carolina Dubeux Stephane Hallegatte Liza Leclerc	United States of America Brazil France Canada
Economics of	CLA LA LA LA LA	Geoff Heal Carolina Dubeux Stephane Hallegatte Liza Leclerc Anil Markandya	United States of America Brazil France Canada Spain
Economics of	CLA LA LA LA LA LA	Geoff Heal Carolina Dubeux Stephane Hallegatte Liza Leclerc Anil Markandya Bruce McCarl	United States of America Brazil France Canada Spain United States of America
Economics of	CLA LA LA LA LA LA LA	Geoff Heal Carolina Dubeux Stephane Hallegatte Liza Leclerc Anil Markandya Bruce McCarl Reinhard Mechler	United States of America Brazil France Canada Spain United States of America Austria
Economics of	CLA LA LA LA LA LA LA LA	Geoff Heal Carolina Dubeux Stephane Hallegatte Liza Leclerc Anil Markandya Bruce McCarl Reinhard Mechler James Neumann	United States of America Brazil France Canada Spain United States of America Austria United States of America

Multi-Sector Impacts, Risks, Vulnerabilities, and Opportunities	Iulti-Sector Impacts, Risks, Vulnerabili	ities, and Opportunities	5
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Chapter	Role	ulnerabilities, and Opportunit	Supporting Entity
Ch. 18:	CLA	Wolfgang Cramer	Germany
Detection and	LA	Maximilian Auffhammer	United States of America
attribution of	LA	Christian Huggel	Switzerland
observed impacts	LA	Ulf Molau	Sweden
	LA	Maria Assuncao Silva Dias	Brazil
	LA	Andrew Solow	United States of America
	LA	Dáithí Stone	Canada / South Africa
	LA	Lourdes Tibig	Philippines
	RE	Rik Leemans	Netherlands
	RE	Bernard Seguin	France
	RE	Neville Smith	Australia
Ch. 19:	CLA	Maximiliano Campos	Costa Rica
Emergent risks and	CLA	Michael Oppenheimer	United States of America
key vulnerabilities	LA	Joern Birkmann	Germany
	LA	Wendy B Foden	South Africa
	LA	George Luber	United States of America
	LA	Brian O'Neill	United States of America
	LA	Kiyoshi Takahashi	Japan
	LA	Rachel Warren	United Kingdom of Great Britain & Northern Ireland
	RE	Mike Brklacich	Canada
	RE	Sergey Semenov	Russian Federation
Ch. 20:	CLA	Fatima Denton	Gambia
Climate-resilient	CLA	Thomas Wilbanks	United States of America
pathways: adaptation,	LA	lan Burton	Canada
mitigation, and sustainable develop	LA	Achala Chandani Abeysekara	Sri Lanka
Sustainable develop	LA	Qingzhu Gao	China
	LA	Maria Carmen Lemos	United States of America
	LA	Toshihiko Masui	Japan
	LA	Karen O'Brien	Norway
	LA	Koko Warner	Germany
	RE	Suruchi Bhadwal	India
	RE	Walter Leal	Germany
	RE	Jean-Pascal van Ypersele	Belgium

FART B. REGIONAL ASPECTS			
Chapter	Role	Name	Supporting Entity
Ch. 21:	CLA	Bruce Charles Hewitson	South Africa
Regional context	CLA	Anthony Janetos	United States of America
	LA	Timothy Carter	Finland
	LA	Filippo Giorgi	Italy
	LA	Richard Jones	United Kingdom of Great Britain & Northern Ireland
	LA	Won-Tae Kwon	Republic of Korea
	LA	Linda Mearns	United States of America
	LA	Lisa Schipper	Sweden
	LA	Maarten van Aalst	Netherlands
	RE	Tom Downing	United States of America
	RE	Phil Duffy	United States of America

## PART B: REGIONAL ASPECTS

#### **Regional Chapters**

Chapter	Role	Name	Supporting Entity
Ch. 22:	CLA	Isabelle Niang	Senegal
Africa	CLA	Oliver Ruppel	Namibia
	LA	Mohamed Abdrabo	Egypt
	LA	Ama Essel	Ghana
	LA	Papa Demba Fall	Senegal
	LA	Fatou Ndeye Gaye	Gambia
	LA	Nsalambi Nkongolo	Democratic Republic of the Congo
	LA	Marie-Louise Rakotondrafara	Madagascar
	RE	Pauline Dube	Botswana
	RE	Neil Leary	United States of America

#### **Regional Chapters (con't)**

Chapter Chapters (Co	Role	Name	Supporting Entity
Ch. 23: Europe	CLA	Sari Kovats	United Kingdom of Great Britain & Northern Ireland
	CLA	Riccardo Valentini	Italy
	LA	Laurens Bouwer	Netherlands
	LA	Elena Georgopoulou	Greece
	LA	Daniela Jacob	Germany
	LA	Eric Martin	France
	LA	Mark Rounsevell	United Kingdom of Great Britain & Northern Ireland
	LA	Jean-Francois Soussana	France
	RE	Lucka Kajfez Bogataj	Slovenia
	RE	Roman Corobov	Republic of Moldova
	RE	Joan O. Grimalt	Spain
Ch. 24:	CLA	Yasuaki Hijioka	Japan
Asia	CLA	Erda Lin	China
	CLA	Joy Jacqueline Pereira	Malaysia
	LA	Richard Corlett	Singapore
	LA	Xuefeng Cui	China
	LA	Gregory Insarov	Russian Federation
	LA	Rodel Lasco	Philippines
	LA	Elisabet Lindgren	Sweden
	LA	Akhilesh Surjan	India
	RE	Rosa Perez	Philippines
	RE	Kazuhiko Takeuchi	Japan
Ch. 25:	CLA	Roger Kitching	Australia
Australasia	CLA	Andy Reisinger	New Zealand
	LA	Francis Chiew	Australia
	LA	Lesley Hughes	Australia
	LA	Paul Newton	New Zealand
	LA	Sandra Schuster	Australia
	LA	Andrew Tait	New Zealand
	LA	Penny Whetton	Australia
	RE	Blair Fitzharris	New Zealand
	RE	David Karoly	Australia

## **Regional Chapters (con't)**

Chapter	Role	Name	Supporting Entity
Ch. 26: North America	CLA	Patricia Romero Lankao	Mexico
	CLA	Joel Smith	United States of America
	LA	Noah Diffenbaugh	United States of America
	LA	Carlos Gay-Garcia	Mexico
	LA	Preston Hardison	United States of America
	LA	Patrick Kinney	United States of America
	LA	Paul Kirshen	United States of America
	LA	Paul Kovacs	Canada
	LA	Barry Smit	Canada
	RE	Ana Rosa Moreno	Mexico
	RE	Linda Mortsch	Canada
Ch. 27:	CLA	Graciela Odilia Magrin	Argentina
Central and South America	CLA	Carlos Nobre	Brazil
America	LA	Jean-Phillipe Boulanger	France
	LA	Marcos Buckeridge	Brazil
	LA	Edwin Castellanos	Guatemala
	LA	Germán Poveda	Colombia
	LA	Fabio Scarano	Brazil
	LA	Sebastian Vicuna	Chile
	RE	Leonidas Osvaldo Girardin	Argentina
	RE	Jean Ometto	Brazil
Ch. 28:	CLA	Oleg Anisimov	Russian Federation
Polar Regions	CLA	Joan Nymand Larsen	Iceland
	LA	Anne Hollowed	United States of America
	LA	Nancy Maynard	United States of America
	LA	Pål Prestrud	Norway
	LA	Terry Prowse	Canada
	LA	John Stone	Canada
	RE	Maria Ananicheva	Russian Federation
	RE	Terry Chapin	United States of America

## **Regional Chapters (con't)**

Chapter	Role	Name	Supporting Entity
Ch. 29: Small Islands	CLA	Roger McLean	Australia
	CLA	Leonard Nurse	Barbados
	LA	John Agard	Trinidad and Tobago
	LA	Lino Pascal Briguglio	Malta
	LA	Rolph Payet	Seychelles
	LA	Netatua Pelesikoti	Samoa
	LA	Emma Tompkins	United Kingdom of Great Britain & Northern Ireland
	LA	Arthur Webb	Fiji
	RE	Thomas Spencer	United Kingdom of Great Britain & Northern Ireland
	RE	Kazuya Yasuhara	Japan
Ch. 30:	CLA	Rongshuo Cai	China
Open Oceans	CLA	Ove Hoegh-Guldberg	Australia
	LA	Peter G. Brewer	United States of America
	LA	Victoria J. Fabry	United States of America
	LA	Karim Hilmi	Morocco
	LA	Sukgeun Jung	Republic of Korea
	LA	Svein Sundby	Norway
	RE	Ly Omar	Senegal
	RE	Carol Turley	EC