

유엔기후변화협약 산림분야 - 논의 동향 및 주요 이슈

국립산림과학원
김래현

1. UNFCCC 논의 동향

✓ LULUCF 인벤토리 vs. KP-LULUCF 탄소계정 개념

4.2 Mineral Products (CRF 2.A).....	149
4.3 Chemical Industry (CRF 2.B).....	162
4.4 Metal Production (CRF 2.C).....	174
4.5 Other Production (CRF 2.D).....	185
4.6 Consumption of Halocarbons and SF ₆ (CRF 2.F).....	186
Appendix_4.....	205
5 SOLVENT AND OTHER PRODUCT USE (CRF 3).....	210
5.1 Overview of the sector.....	210
5.2 Paint application (CRF 3.A), Degreasing and dry cleaning (CRF 3.B) and Chemical products, manufacture and processing (CRF 3.C).....	213
5.3 Other (CRF 3.D).....	215
6 AGRICULTURE (CRF 4).....	218
6.1 Overview of the sector.....	218
6.2 Enteric Fermentation (CRF 4.A).....	223
6.3 Manure Management (CRF 4.B).....	231
6.4 Agricultural Soils (CRF 4.D).....	249
6.5 Field Burning of Agricultural Residues (CRF 4.E).....	250
Appendix_6.....	261
7 LAND USE, LAND-USE CHANGE AND FORESTRY (CRF 5).....	267
7.1 Overview of the sector.....	267
7.2 Forest land (CRF 5.A).....	278
7.3 Cropland (CRF 5.B).....	297
7.4 Grassland (CRF 5.C).....	306
7.5 Wetlands (CRF 5.D).....	312
7.6 Settlements (CRF 5.E).....	320
7.7 Other land (CRF 5.F).....	323
7.8 Non-CO ₂ emissions.....	324
7.9 Harvested Wood Products (CRF 5.G).....	332
Appendix_7a.....	340
Appendix_7b.....	343
Appendix_7c.....	346
Appendix_7d.....	350
Appendix_7e.....	352
Appendix_7f.....	358
Appendix_7g.....	361
Appendix_7h.....	363
Appendix_7i.....	364
Appendix_7j.....	367
Appendix_7k.....	368

8 WASTE (CRF 6).....	376
8.1 Overview of the sector.....	376
8.2 Solid Waste Disposal on Land (CRF 6.A).....	379
8.3 Wastewater Handling (CRF 6.B).....	391
8.4 Waste Incineration (CRF 6.C).....	398
8.5 Composting (CRF 6.D).....	399
Appendix_8a.....	403
Appendix_8b.....	405
Appendix_8c.....	406
9 OTHER (CRF 7).....	408
10 RECALCULATIONS AND IMPROVEMENTS.....	409
10.1 Explanations and justification for recalculations, implications on emission levels and trends including time series' consistency.....	409
10.2 Implications for emission levels.....	415
10.3 Implications for emission trends, including time series' consistency.....	415
10.4 Recalculations, including in response to the review process, and planned improvements to the inventory.....	416
11 KP-LULUCF.....	420
11.1 General information.....	420
11.2 Land related information.....	425
11.3 Activity-specific information.....	427
11.4 Article 3.3.....	434
11.5 Article 3.4.....	439
11.6 Other information.....	441
11.7 Information relating Article 6.....	441
Appendix_11a.....	442
12 INFORMATION ON ACCOUNTING OF KYOTO UNITS.....	444
12.1 Background information.....	444
12.2 Summary of information reported in the SEF tables.....	444
12.3 Discrepancies and notifications.....	444
12.4 Publicly accessible information.....	444
12.5 Calculation of the commitment period reserve (CPR).....	445
12.6 KP-LULUCF accounting.....	445
13 INFORMATION ON CHANGES IN NATIONAL SYSTEM.....	446
14 INFORMATION ON CHANGES IN NATIONAL REGISTRY.....	447
15 INFORMATION ON MINIMISATION OF ADVERSE IMPACTS IN ACCORDANCE WITH ARTICLE 3, PARAGRAPH 14.....	451
REFERENCES.....	455
ANNEXES TO THE NATIONAL INVENTORY REPORT.....	471

1. UNFCCC 논의 동향

1) SBSTA 11(C)

- ✓ LULUCF 통합계정 마련
- ✓ 토지기반 (LULUCF 보고) vs. 활동기반 (KP-LULUCF 보고)
- ✓ LULUCF (선진국) vs. REDD+(개도국)

UNFCCC Categories	KP LULUCF	REDD+
forest land	forest management	forest degradation
		conservation of carbon stocks
		management of forests
		enhancement of C stocks
land converted to forest	afforestation	
forest converted to cropland	deforestation	deforestation
forest converted to grassland		
forest converted to wetlands		
forest converted to settlements		
forest converted to other		

1. UNFCCC 논의 동향

2) ADP 논의 동향

✓ INDC draft text

➤ Option 1

- A quantification of expected emission reductions, including estimates with and without land use, land-use change and forestry
- Approach to accounting for the land-use sector

➤ Option 2 (developing countries)

- Decision 2/CP.17. paragraph 34 and 46, and its annex II, paragraph 3 to 13
 - ※ ex) **NAMA** : assumption, methodologies, sectors and gases, GWP, support needs for implementation, mitigation outcomes etc.

1. UNFCCC 논의 동향

2) ADP 논의 동향

✓ Non-paper

II. Mitigation(commitments/contributions)

- Accounting rules : accounting of the land-use sector

IV. Means of implementation - finance, technology and capacity-building

- Institutional arrangements cooperation and coordination
 - Provisions for inclusion of mechanisms : include/create a REDD-plus mechanism
 - Establish a joint Mitigation and Adaptation Mechanisms for the Integral and Sustainable management of Forest

V. Finance

- Specifics : support to REDD-plus
 - support to the REDD-plus implementation mechanism
 - sources to include public, private, non market
- Institutional arrangements, cooperation and coordination
 - the financial mechanism of the Convention to serve as the financial mechanism of the 2015 Agreement : GCF as main entity
 - window for REDD-plus
 - institutional arrangements for REDD-plus

1. UNFCCC 논의 동향

3) Informal Dialogue 논의 동향

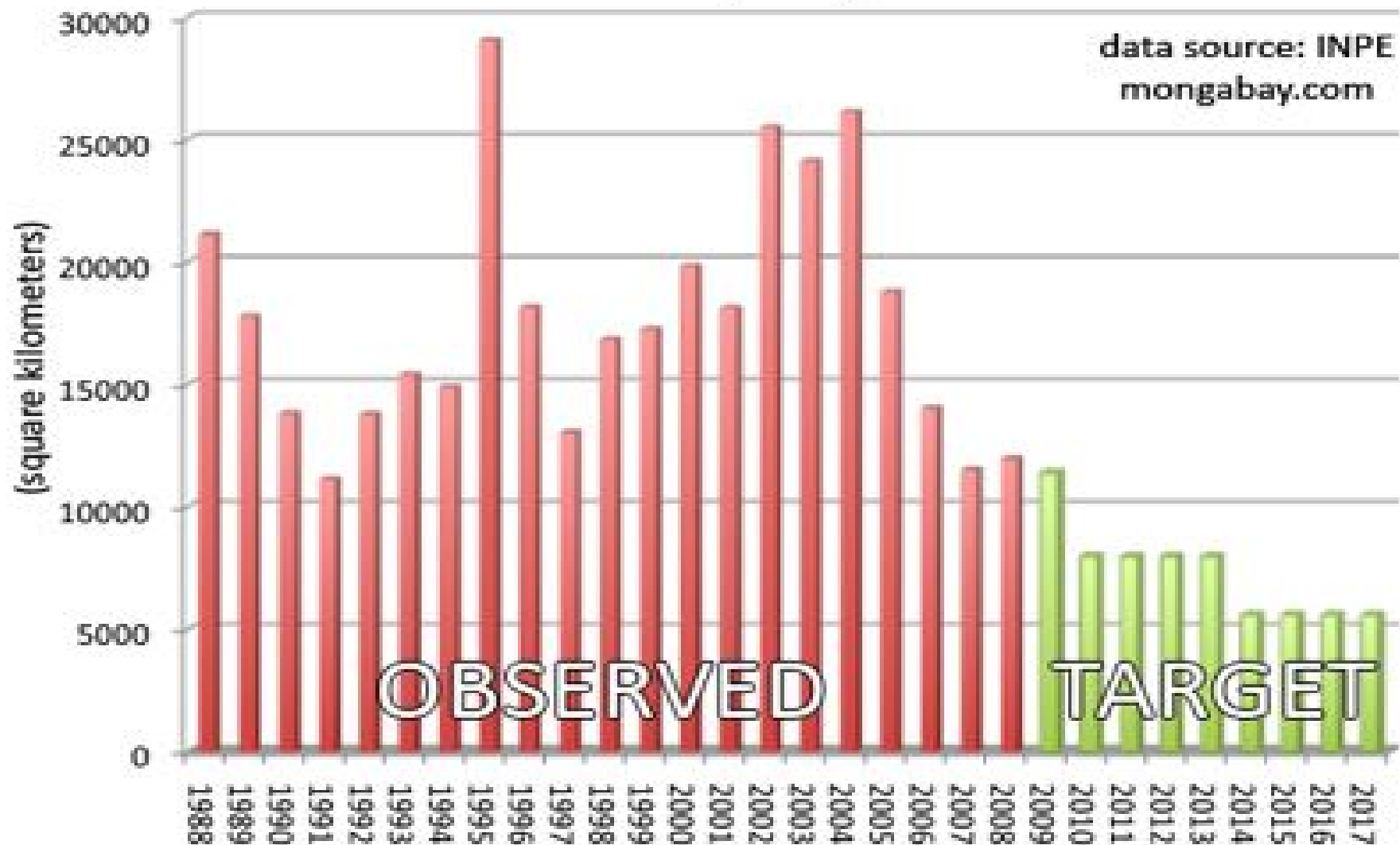
- ✓ **LULUCF부문 포함/비포함 배출감축전망 제출**
 - 합의된 계정 규칙 (**rules before targets**) 부재(CP1/CP2와 동일한 상황)
 - ※ CP1/CP2에는 이를 이유로 국가감축목표에 LULUCF부문 미포함
- ✓ **토지부문 탄소계정 접근방안**
 - 별도 계정 허용(KP 체제와 동일) 여부
 - ※ KP 체제 : **RMU**를 국가 의무감축 이행 실적으로 인정하는 인센티브 역할 수행
- ✓ **LULUCF부문 포함/비포함 배출감축전망 제출**
 - 선진국+브라질 : iNDCs의 투명성 확보를 위하여 기존의 LULUCF부문 탄소계정 관련 자료를 활용한 사전정보제출을 주장
 - ※ 관련 자료 : IPCC GLs, 보고 및 검토 지침, 방법론(e.g. reference level 등)
- ✓ **토지부문 탄소계정 접근방안**
 - 모든 국가들이 ADP에서의 토지부문 계정 논의 필요성과 별도 계정 인정에 동의

2. REDD+ 논의 동향

- ✓ 2014년 6월 브라질이 최초로 산림부문에 대한 REL(reference emission level) 제출
- ✓ SCF는 산림분야 파이낸스와 관련된 이해당사자간 조화 및 조율을 추진하고자, 다음 주제에 대한 회원국 및 기타 이해당사자의 의견을 수렴함.
 - a) 성과기반(result-based) 접근법을 활용한 자원사용/기금 지불 경험
 - b) 다양한 접근법(alternative approach)에 재정적 지원을 제공한 경험
- ✓ 브라질의 산림전용 감소와 오존층 파괴의 둔화(몬트리올의정서의 지속적인 이행 효과)를 통해 관찰할 때, 국제사회의 지속적인 노력은 긍정적인 영향을 가져오고 있는 것으로 평가됨.

2. REDD+ 논의 동향

Deforestation in the Brazilian Amazon Observed 1998-2008; targets 2009-2017



3. COP21 예상 쟁점

- ✓ 토지부문의 관점과 전체 협상의 관점에서 갈등 예상됨.
- ✓ 토지부문 입장
 - 목표 이전에 규칙 설정 요구
 - 모든 국가에 '공통된' 규칙 설정
 - 상당한 협상 기간(3년 이상)이 소요됨.
- ✓ 협상 전반의 입장
 - 공약의 확실성
 - 파리 당사국총회 이전에 목표 설정을 요구할 것
 - 당사국 스스로 토지규칙 설정이 필요, 규칙의 호환성 도모가 어려움.