

# Technical challenges for REDD+ and some recent advances on MRV

Welcome!  
Opening remarks

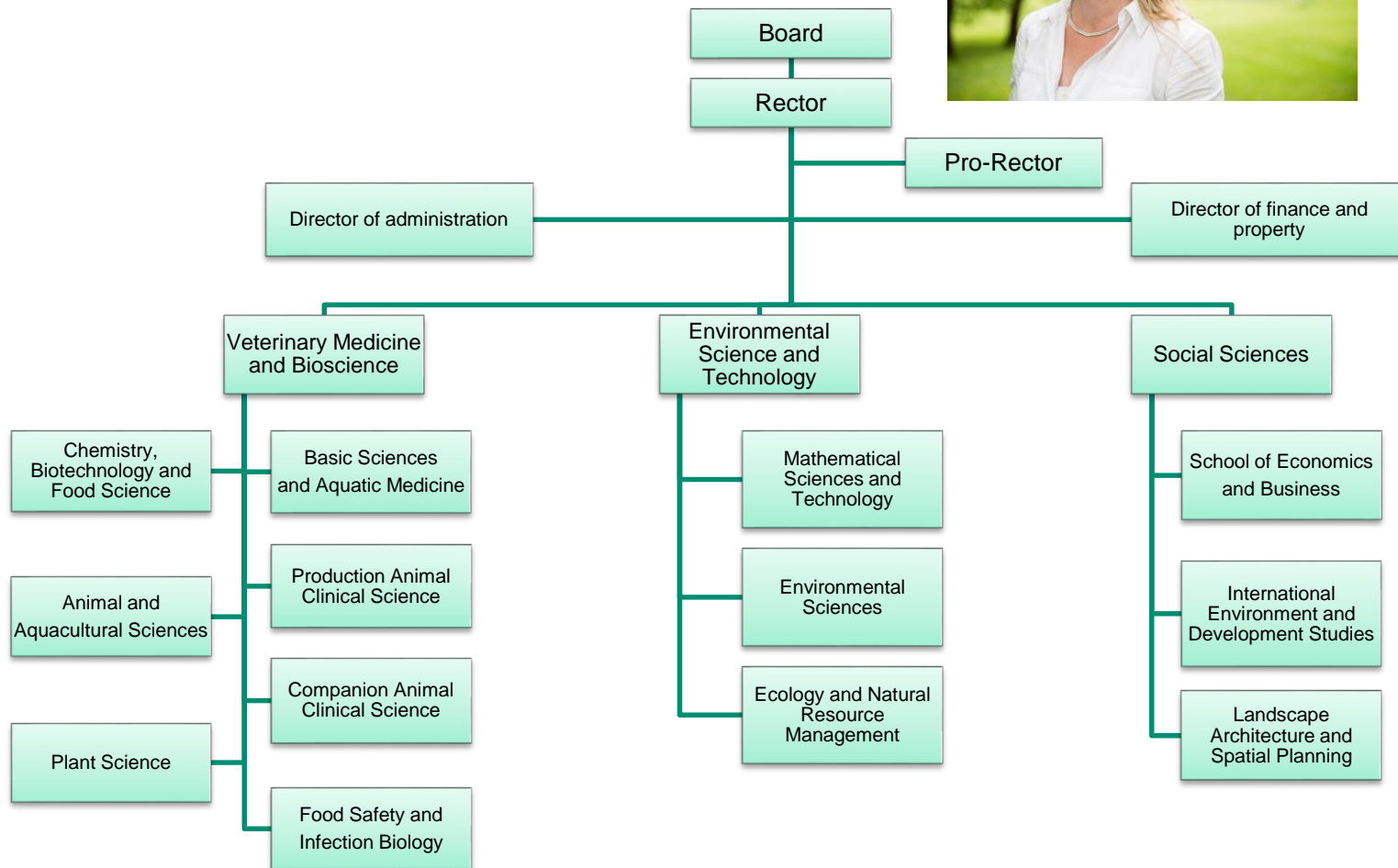
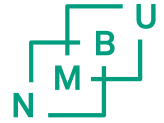
Øystein Johnsen, Dean  
Faculty of Environmental Sciences and Technology

# NMBU – facts



- 5,200 students
- 1,700 employees
- 64 programmes
- Two campuses from 2014-2019  
Campus Adamstua, Campus Ås
- From 2019, Campus Ås only
- 6.3 billion for new buildings

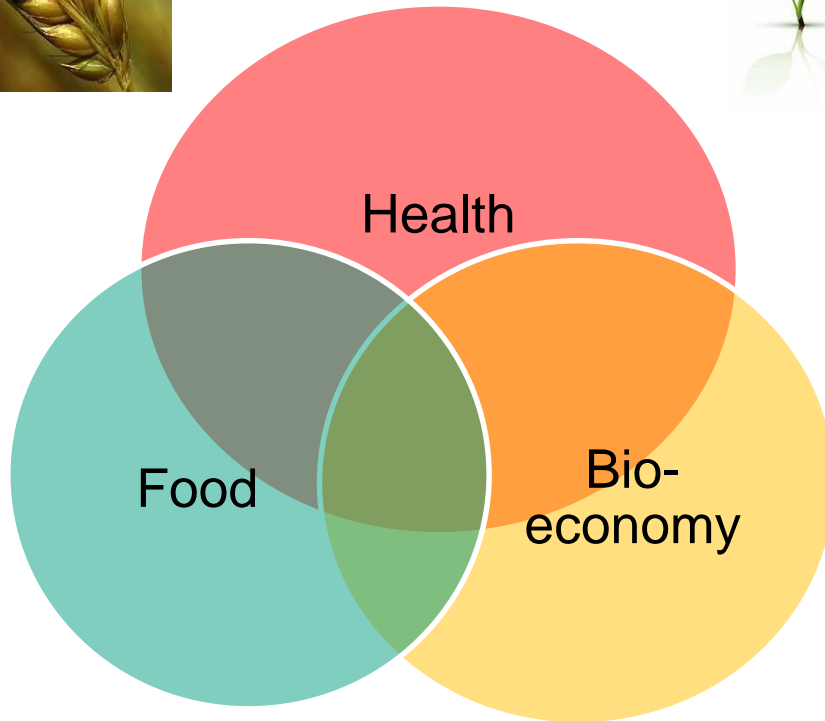
# NMBU organisation



# Vision

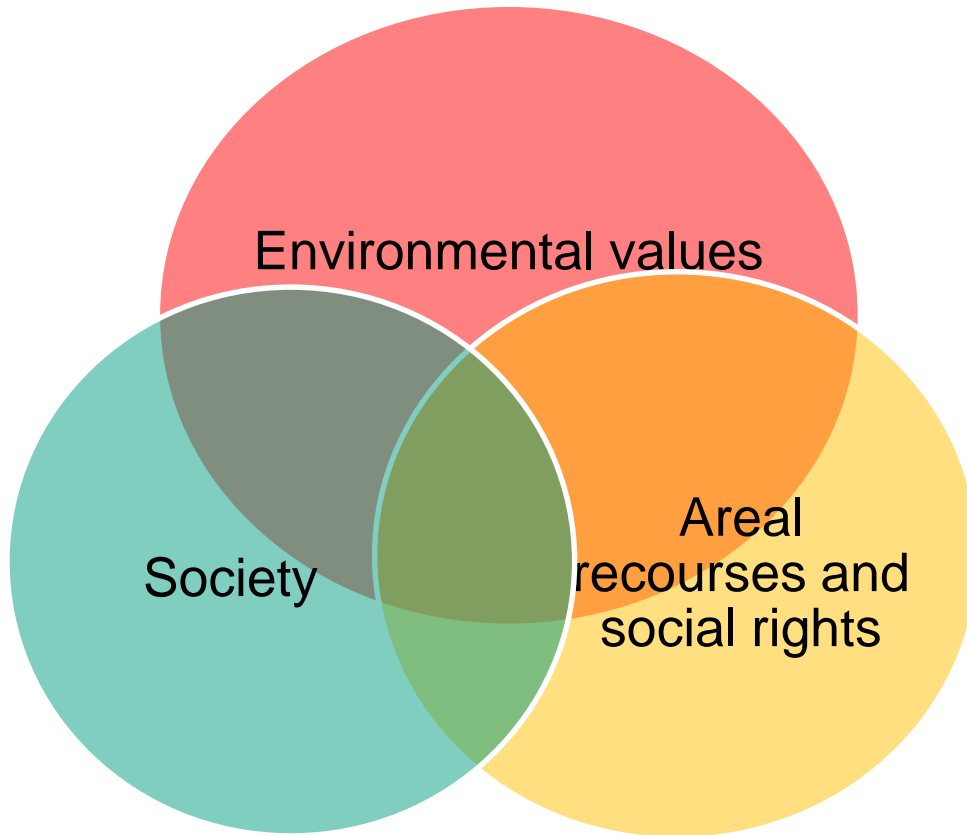
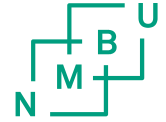
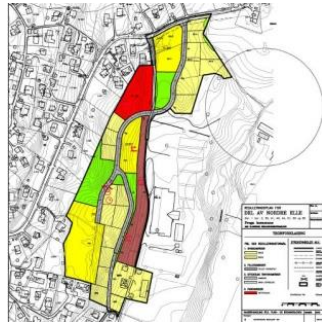
- *Knowledge for Life*
- Relationships between
  - sustainable bioeconomy, food, feed and health
  - society, environmental values, natural resources and social rights
  - environmental change, ecosystem services and sustainable technology



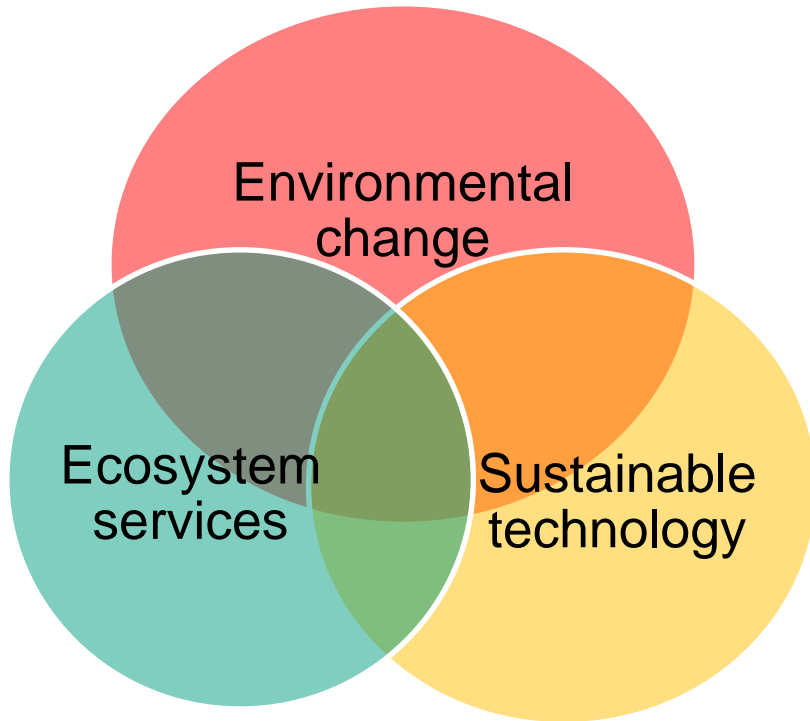
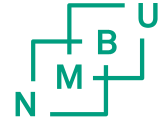


- *Healthy animals, plants and people in cleaner environments*
- *Sustainable and safe production of food and other products from biological materials*
- *Innovation*



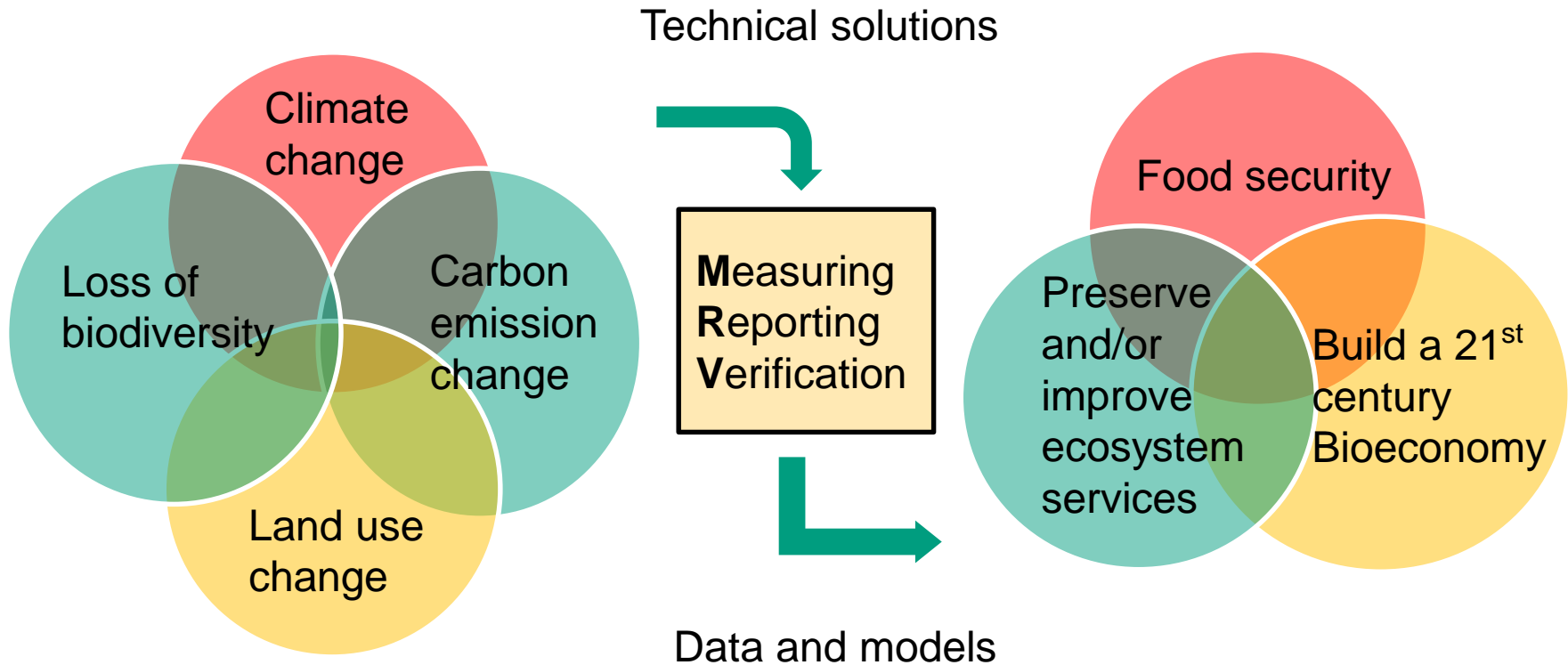
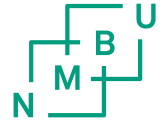


- *Politics, economy, market and planning*
- *Global and local food security*
- *Conflicts of interests*
- *Equality rights and access to benefits*
- *Management of natural resources*
- *Governance aspects*
- *Capacity building*

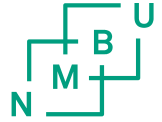


- *Agriculture, forestry, biodiversity, renewable energy, carbon sequestration*
- *Adventure activities, recreation, nature management, tourism*
- *Pollution, radiation, exotic species, use and conservation of natural resources*
- *Reduced emission, energy efficiency, energy smart cities, monitoring the environment, characterizing resources*
- *Sustainability from production to waste, clean water, drainage, sanitation*
- *Fundamental understanding of ecosystem functions*

# Today's issues



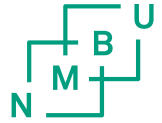




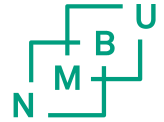
# Tropical forests

- Tropical forests account for about 44% of the global forest area
  - Rainforests, mangroves, montane forests, dryforests, and wooded savanna systems (woodlands)
  - Store carbon, contain high levels of biodiversity, important for local, regional and global climate, provide a wide range of ecosystem services (timber, fuelwood, purifies water, wild-life, cultural values)
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# REDD+ - a global initiative



- Tropical forests are threatened by deforestation and forest degradation (caused by timber and fuelwood extraction, conversions to agricultural farmland, oil and gas production, mining and infrastructure development)
  - Between 1990 and 2010, the land use change caused by forest degradation and deforestation, have accounted for 15% of the global human induced carbon emissions
  - Reducing Emissions from Deforestation and Forest Degradation, conservation and enhancement of forest carbon stock and sustainable management of forest in developing countries)
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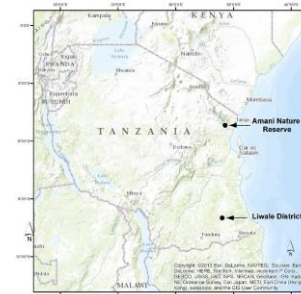
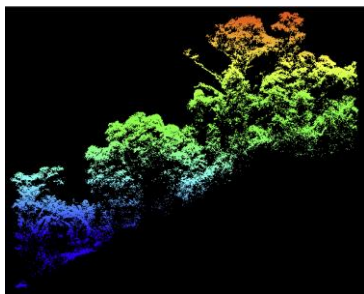


# REDD+ mechanism

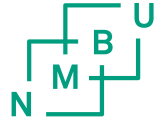
- Participating developing countries receive payments if they can verify reduced carbon emissions from forest management activities
  - A reference level of carbon storage status in the forests is needed; a baseline in which the change in carbon stock can be measured over time
  - A reliable, robust and transparent systems for Measuring, Reporting and Verification (MRV) of forest carbon stock changes is required
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# Accuracy of biomass estimates

- Accurate methods for quantification above ground biomass in different forest ecosystems are needed
- The use of these methods has to be cost-efficient, also when monitoring carbon stock changes over time



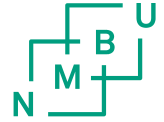
# REDD+ issues in Tanzania



- NMBU in collaboration with partner universities in Tanzania and partner institutions in Norway
  - Concluded on more than 4 years of research
  - Monitoring of deforestation and capacity building in the field of forest monitoring
  - Share some of these experiences with us
  - Broader look at lessons learned in other parts of the world
  - The connection between forests and carbon storage on one side and pollination of agricultural crops on the other
  - Two doctoral dissertations taking place on October 28 and October 30
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# Two dissertations



October 28

MSc. Ernest Mauya:

*Methods for estimating volume, biomass and tree species diversity using field inventory and airborne laser scanning in the tropical forests of Tanzania*

October 30

MSc. Endre Hofstad Hansen:

*Estimation of biomass in tropical rainforest using airborne laser scanning*

Erik Næsset, 5.10.2015

## Workshop

### *Technical challenges for REDD+ and some recent advances in MRV*

Time: Thursday 29 October 2015

Place: Studentsamfunnet i Ås, [Olav L. Moens plass 1, Ås](#)

Organizer: Norwegian University of Life Sciences, Department of Ecology and Natural Resource Management

### Program

Moderator: Prof. Erik Næsset, NMBU

1000-1020 Dean Øystein Johnsen, NMBU  
*Opening remarks*

### Policy issues for REDD+ and MRV

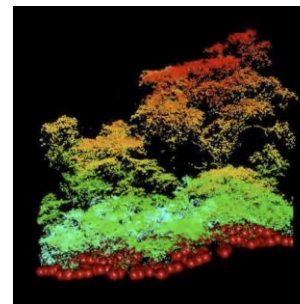
1020-1040 Prof. Ole Hofstad, NMBU  
*REDD+ policies and land use*

1040-1100 Dr. Pete Watt, Indufor, New Zealand  
*Implementing MRV from scratch – some lessons learned in Guyana*

1100-1120 Prof. Ørjan Totland, NMBU  
*REDD+, co-benefits and biodiversity: examples from carbon storage and crop pollination*

1120-1140 Prof. Rogers Malimbwi and Prof. Eliakimu Zahabu, SUA  
*Experiences with the REDD+ - policy issues and challenges: case Tanzania*

1140-1240 Lunch



### Current issues in forest monitoring for REDD+

1240-1300 Prof. Arild Angelsen, NMBU  
*How to set reference levels for REDD+*

1300-1320 Prof. R. Malimbwi (SUA), Prof. E. Zahabu (SUA), Prof. Tron Eid (NMBU)  
*Towards monitoring of forest degradation – development of biomass models for Tanzania*

1320-1340 Prof. Timo Tokola, University of Eastern Finland  
*Finland's engagement an experience with establishment of forest monitoring in tropical countries*

1340-1400 Dr. Ross Nelson, NASA's Goddard Space Flight Center  
*Towards global assessment of biomass – where do we stand and what is lacking: future space missions and their prospects*

1400-1420 Prof. Terje Gobakken, NMBU  
*Recent experiences with advanced technologies for forest monitoring in a developing country: Tanzania*

1420-1430 Senior Adviser Karine Hertzberg, Ministry of Climate and Environment  
*Eight years of REDD+: NICFI's perspectives on knowledge gaps*

1430-1500 Discussion