Report on the first day of the *« INTERNATIONAL FOREST & WATER DIALOGUE »*

Notes taken by Jocelyne Djepang and Nezha Acil

Date: Tuesday 08 September 2015

Time: 10:00 – 17:30

Venue: Hall 3A

The opening consisted of introductory remarks from Thomas Hofer, the moderator of the event, Her Excellency Nomvula Mokonyane, South African Minister of Water and Sanitation and Mike Wingfield, IUFRO president. The three speakers explained and stressed the importance of forest and water interactions. The introductory part was followed by three scientific presentations showing the significance of forest and water interrelationships in the context of global change.

The panellists of the first session (from left to right: *Thomas HOFER*, FAO Team Learder for mountains and watersheds (moderator), H. E. *Nomvula MOKONYANE*, Minister of Water and Sanitation, South Africa, *Mike WINGFIELD*, president of IUFRO, *David ELLISON*, Swedish University of Agricultural Sciences, *Irena CREED*, Western University, Canada, and *Richard HARPER*, IUFRO Task Force on Forests, Water and Soil Interactions).

Part 1: *« Introduction to the international forests and water dialogue »*

Time: 10:00-10:45

Mr. Thomas Hofer began the event by explaining the importance of the theme « Forest & Water » (Fo & Wa) and briefly reviewing the history of the evolution of the « Fo & Wa » Agenda from Shiga 2003 to Durban 2015.

Mr. Thomas Hofer introducing the International Forests & Water Dialogue

For her discourse, H.E the minister Nomvula Mokonyane lingered over the numerous **threats faced by water resources** in South Africa and cited among these threats people migration and new settlements, increasing the pressure over the already stressed water resources, the aftermath of racial segregation and colonisation for land management, women and children marginalisation, the mining industry and the challenges of climate change. The Minister proposed prospects for solutions to be integrated in different national and sectoral policy for the purpose of preserving water resources, notably the adoption of policies promoting Sustainable Forest & Water Managements, the establishment of reforestation programmes and investments in local/indigenous knowledge and skills development. Finally, Her Excellency underlined the importance and urgency of taking into account the questions related to forests and water as a priority for the South African government.

As for Prof. Mike Wingfield, he outlined the crucial role of forests in **water regulation** and purification, illustrating by the case of water supply in Vienna, which originates directly from springs in Austrian mountain forests. After mentioning some other ecosystem services provided by forests, notably their effects in cooling land surfaces, regulating rainfall patterns, purifying groundwater and mitigating climate change, Prof. Wingfield also underlined the knowledge gaps existing at the landscape and regional levels with regards to current forest degradation and the availability of water resources in the context of global change, exemplifying by the outbreaks of mountain pine beetle in North American forests, which is likely amplified by global warming and expected to impact on the water cycle. Prof. Wingfield finally insisted on the importance of improving linkages and synergies between the forest and water sectors and announced the establishment of a new IUFRO Task Force for this purpose for the five coming years.

The moderator finished this session by a brief synthesis, then made the transition to the second part of the morning event, dedicated to scientific presentations, clarifying forests and water interactions and presenting recent projects, updates and findings.

Part 2: "Discover Forests and Water "

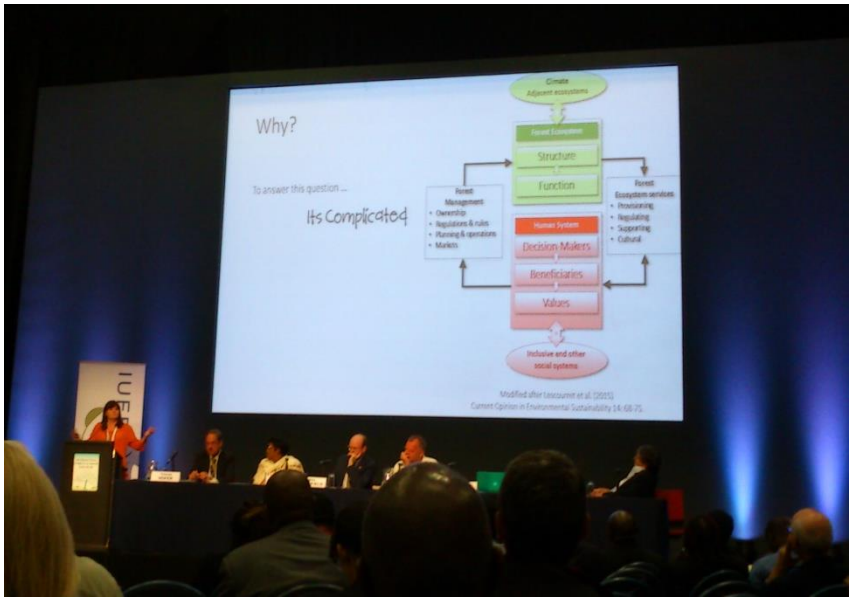
Time: 10:45-12:00

David ELLISON: "*Why forests matter for water, energy and climate: What we think we know*?"

This presentation demonstrated the link between forest cover and the availability of water resources and illustrated this by a study showing the correlation between rainforest degradation in West Africa and precipitation decrease in East Africa and which feeds the Nil. A model was also presented showing in more detail the role of forests in the hydrological cycle and emphasizing the fact that the larger the forest cover, the higher the soil infiltration and thus the quicker the groundwater recharge (but increasing forest cover in water deficient areas might be deleterious). The biologically-induced rainfall triggering and land surface cooling effects of forests were also mentioned, as well as the failure of water balance assessments in integrating upstream-downstream and upwind-downwind relationships. Finally, considering the transboundary character of the transport of atmospheric moisture, the speaker stressed the importance of adopting a cross-sectorial approach to policy-making, to face the challenges relating to the themes of Forests, Water, Energy and Climate.

Irena CREED: "*Managing forests for water – the not so secret services of forest ecosystems"*

This presentation showed that the internationally recognised **ISO 31000** standards is a promising tool for the reduction of complexity and the integration of Aquatic Ecosystem Services in forest management strategies. Designed for risk management, its framework consists of five main steps, from which comes up a number of challenges in relation to governance.



Ms. Irena Creed's presentation

Richard HARPER: "*Forest, water and soils: interactions and uncertainties"*

This presentation focused on IUFRO's strategy for 2015-2019, which consists in the establishment of a new IUFRO **Task Force**, aiming to address the gaps and uncertainties related to the interactions between Forests, Water, Soils and the effects Climate Change, in order to inform decision-making for better policy and management. The capacity of reforestation to improve water quality was also underlined and exemplified by the case of river salinity in Denmark.

Part 3: Lightning talks

Time: 12h45-14h15

This session was dedicated to a series of short presentations, consisting mostly of case, related to the « Fo & Wa » theme, from different regions of the world (Africa, Asia, Europe and America).

Among the key points of this session were:

- **Amanda MATHYS: "*Mapping tree species vulnerabilities to climate shifts in western North America*".** Modeling tree growth with climate constraints and comparisons of historic, current and projected ranges of lodgepole pine and Douglas fir showed that the former is more vulnerable to climate change than the latter.
- **Kelly Cristina TONELLLO: *"Hydrological dynamics of springs in different stages of preservation and its relation forest-water*"**. This presentation addressed the complexity of ecological restoration in tropical forests. The contribution of vegetation development to spring and water balance was analysed over time and showed the importance of natural vegetation in the maintenance of soil water.
- **Pengtao YU**: "***A calculation system on vegetation carrying capacity based on water resources***". Underlining the negative impact of reforestation on water yield in drylands, this presentation proposed a system to measure the carrying capacity of vegetation for water resources at the regional scale (the maximum load of vegetation that can be carried by a region/basin in a balanced and sustainable way). This method appears useful for the rational allocation of water resources and water-forest management in water-limited areas.
- **James REED: "*The contribution of forests and trees to food production in the tropics: A systematic review*"**. Analysis of literature relating to ecosystem services rendered to agriculture from forests in the Tropics showed *inter alia* that there are clear gaps in knowledge, that certain regions are understudied (Central Africa) and that most of the studies were conducted over a rather short-time scale (between 1 to 3 years (bias from PhD studies?)). The majority of these studies showed an overall net positive effect of forests and trees on agriculture, particularly on yield and biodiversity.

Ms. Amanda MATHYS' presentation

Part 4: « Forests and water in practice »

Time: 14:15-15:35

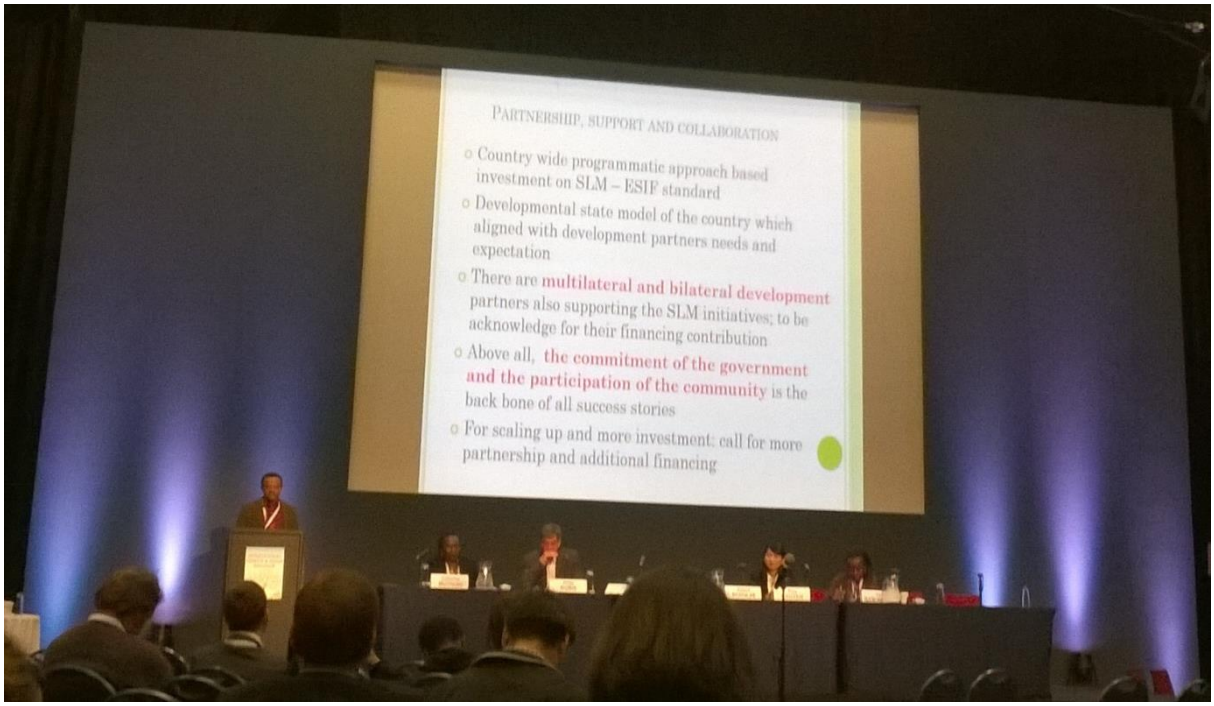
Philip DOBIE: *«Where Science meets Politics: Trees and Water for livelihoods »*

This presentation highlighted the regional (cross-watershed and transboundary) character of water scarcity and the conflicts that it may engender. Africa appears to be the most threatened continent in terms of water security, experiencing both physical and economic water scarcity. Distinguishing between "*green water*" (soil water uptaken by vegetation roots) and "*blue water*" (in rivers and canal reservoirs and used for livelihoods), the speaker underlined the challenge of **transforming science into policy**, stressing the need to build more synergies between these two fields, in order to improve water security, and pondering about questions, like "*Should forest planting be planned on the basis of atmospheric water transport?".*

Mr. Philip Dobie's presentation

HE Belete TAFERE: "*Afforestation as a means to protect watersheds and water: the case of Ethiopia's SLM practices* "

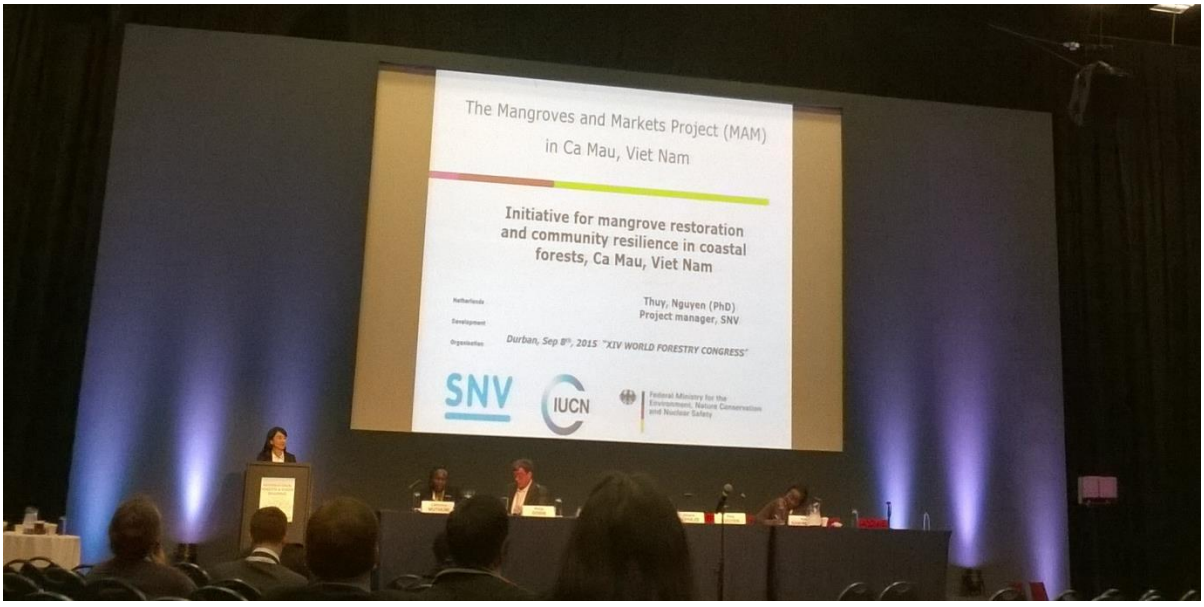
In this presentation, the speaker shared the Ethiopian experience of forest integration in water resources management, through **Sustainable Land Management**, for the purpose of stopping land degradation and desertification (afforestation program within the framework of the Great Green Wall Initiative). What contributed to the success of this experience was *inter alia*: the adoption of landscape/watershed-level strategies, certification schemes, different afforestation technologies, multilateral partnerships/collaborations and community-based participatory approaches in the management, planning and implementation processes.



HE Belete TAFERE's presentation

Thuy NGUYEN: "*Initiative for mangrove restoration and community resilience in coastal forests, Ca Mau, Viet Nam*"

This presentation focused on the *Mangroves and Markets* (MAM) project, whose objective is to propose solutions for mangrove restoration and conservation and to strengthen community resilience to climate change. The approach adopted involved multi-stakeholder platforms and partnerships, a sustainable and integrated **mangrove-shrimp model** and knowledge/capacity development. The results were the use of certifications, mangrove replanting and the establishment of an enabling policy environment.



Ms. Thuy Nguyen's presentation

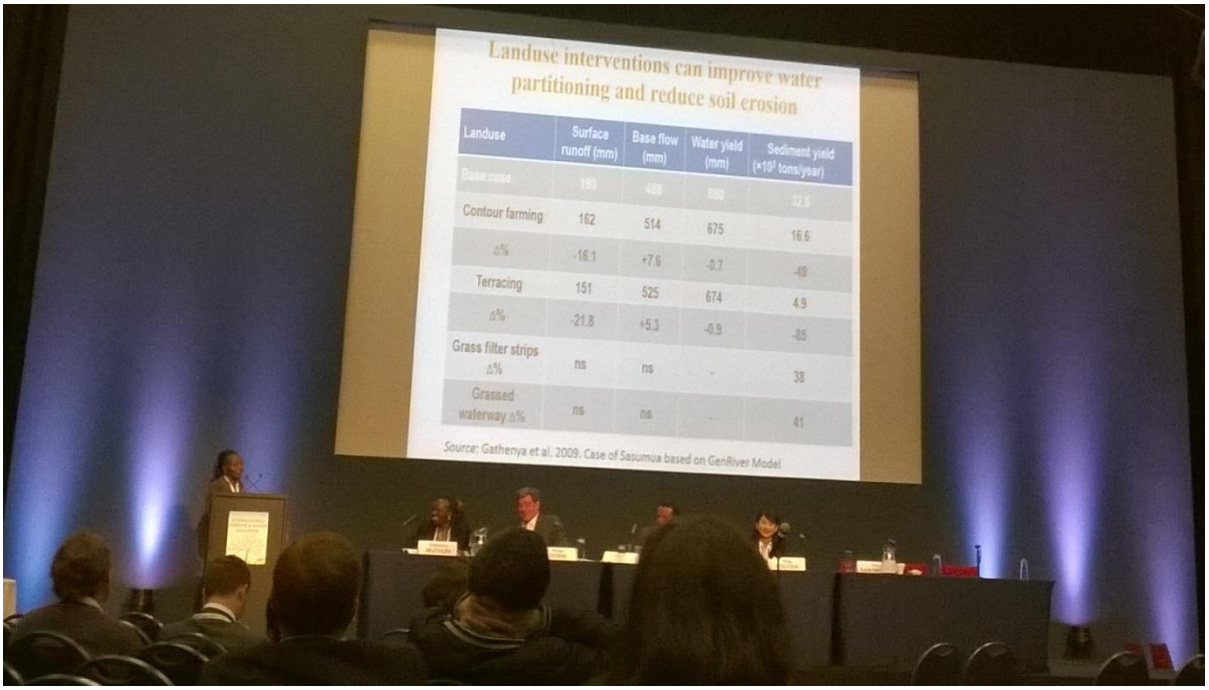
Roland SCHULZ: "***How is Climate Change Projected to Alter Streamflow Reduction by Commercial Production Forestry in South Africa?"***

This presentation addressed the scientifically complex, politically challenging and socio-professionally contentious issue of evaluating and declaring the land use type "commercial production forestry" as a *"**Stream Flow Reduction Activity**" (SFRA)*. Conducted in South Africa, the study provided a scientific assessment of the impact of industrial forestry on streamflow. To capture the ecological processes involved in forest hydrology, the authors used a *physically-based daily time step model*. The hydrological attributes of natural vegetation were used as a baseline and historical data relating to climate, soil and hydrology in catchments were incorporated in the model. Comparisons with streamflow outputs from production forests were then performed to assess runoff, streamflow and climatic changes. Projections in the future were also calculated to estimate the effects of climate change on streamflow reduction from production forestry. The conclusion stressed again that SFRAs were highly complex from a scientific perspective, challenging in terms of legislation and implementation, and particularly concerning regarding their expected evolution with climate change.

Mr. Roland SCHULZ's presentation

Sara NAMIREMBE: "*Innovative Payments for Tree Watershed Services in East Africa*"

Stressing the role of land use management in improving water partitioning and reducing soil erosion, the speaker compared and discussed different mechanisms of Payments for Ecosystem Services (PES) in Kenya, Uganda, Tanzania and Guinea. The conclusion recommended the use of innovative co-investment mechanisms, the revision of policies to render PES as a fair and efficient tool, and trust building between buyers and sellers.



Ms. Sara NAMIREMBE's presentation

Part 4: « World café »

Time: 15:35-17:30

Exhibition of projects and networking session

End of the first day of the International Forest & Water Dialogue.