Table 1: Key Issues, Lessons learnt and Way forward in Forestry Education and Training in SS Africa

	Key Issues to be Addressed	Lessons learnt	Where do we go from here
1	Declining Investment in forestry education and training	• Public and private sector investments in forestry education is in steady decline; • Majority of countries undergoing economic and Structural Adjustment programmes; and • These have led to retrenchment of public sector employees at all levels and ore specifically termination of technical level training.	**I. Making forestry education relevant and attractive in:** • Developing a long term vision and tailor educational system accordingly • Assess capacity required in and outside the conventional forestry sector
2	Relevance and pertinence of forestry educational system	• Forestry curricula heavily driven on forest plantation and wood industry raw material supply; • Limitation of forest graduates to address livelihoods of poor rural people and their ineptitude to address new and emerging issues; • Lack of national policy to guide forestry education; and • Forest graduates are either jobless or moving to other emerging and attractive sectors (NGOs).	• Undertake capacity development to meet the specific sectors requirements • Broaden the scope of forestry education to encompass environmental services, climate changes, carbon sequestration and carbon trades issues etc
3	Conservative approach of forest practitioners	• Foresters have contemplative approach of forest while forest issues are multidisciplinary in nature with frequent paradigm shifts; and • As a result there are some gaps and inadequacies in current professional education that should be addressed by workshops and seminars to equip foresters with new skills and addenda to current curricula and well as regular continuing education in the relevant universities.	• Promote the new of doing business via networking between education development and research institution at sub-regional and regional level and launch regional PhD and Master programmes for realizing

4	Mismatch between education and research systems	• Collaboration is weak among education, training and research institutions at sub regional and regional levels; • Collaboration equally weak even within universities faculties at national levels; and • AFORNET is therefore the main apex forestry network in SSA that forging collaboration horizontally and vertically among all kind of institutions dealing with forest and trees research in Africa south of the Sahara.	efficiency and economy of scale • Review curricula and re-adjust them to the merging demands • Undertake refreshing and continuing education for active foresters • Identify innovative funding mechanisms
5	Limited collaboration among schools of forestry	• Forestry education had a sub-regional focus during colonial era. But sovereign interests fragmented these arrangements; • As consequence, less forest endowed countries have over capacities while whole region with the largest forest resources have no significant capacity for managing forest resources; and • Forest education should be undertaken at sub-regional and close to the main ago ecological zones. AFORNET is spearheading such approach in launching a regional PhD. Programme as well as a Master programme in forestry.	**II. Promote Cooperation in Forestry Education all levels through:** • Secure integrated national, sub regional and regional research programmes that will promote synergy among research, education and development agencies • Scaling up and mainstreaming research deliverables into development agenda • Establish or strengthen existing network such as AFORNET, FORNESSA and ANAFE
6	Declining attractiveness of Forestry education	• Forestry education is increasingly becoming less attractive to students because of declining employment opportunities and declining funding of the forestry educational system; and • As a consequence there is an imminent generational gap that is yet to addressed decisively and comprehensively.	

Table 2: Key Issues, Lessons learnt and Way forward in Forestry Research in SS Africa

	Key Issues to be Addressed	Lessons learnt	Where do we go from here
1	Institutional Weaknesses	Strengthen forestry research institutions through: • Institutions are focusing on their traditional disciplinary framework at the expenses of societal demand-driven issues • Weak collaboration within and between countries • Very few regional programme are contributing to enhance collaborative research in networks like AFORNET, FORNESSA and NGARA • Research institutions shuttling between ministries and institutional memories lost	**I. Creating a sustainable critical masses of intellectual in forestry research through:** • Bold restructuring and overhaul of fragmented research institutions. Better have emerging institute of excellence than dilapidated institutions without the pre-requisite basis infrastructure and human resources (e.g. possible merge and/or of research capacities around strategic research agenda • Establish vertical and horizontal linkages with key players including specific end users of research deliverables
2	Lack of research management plan	• Few research institutions have coherent strategic plans that internally and externally audited • Research agenda often shifted to comply with external donors requirements • Research managers are often political appointees and have not always received	• Promote networking across national, sub regional and regional levels • Facilitate sharing of resources or pooling of resources for effective collaborative research that is strategic in nature

		appropriate management training and often rely on external consultants for writing research proposals	
3	Weak stakeholders contribution to research agenda setting	• Research programme are mainly designed by the scientists for the scientists. • Weak contributions of the end-users in research agenda setting(e.g. private sectors, local communities, civil society etc) • Research outputs poorly adopted by end-users	**II. Build and manage the capacity on sustainable basis through:** • Improving institutional environment(e.g. working conditions , research facilities , career paths etc) • Train research managers on emerging issues and advance skills for generation and
4	Imbalance between basic sciences and applied research	• Research institutions focused too much on applied, duplicative and/ or replicative researches without sound connection to basic sciences. • No synergies between basic sciences (Universities) and applied research (forest research institutions)	mobilization of new and emerging funding opportunities • Undertake continuous external audits of strategic plans and financial asset **III. Link research to developmental and societal concerns via:**
5	Poor linkages between research and other sectors	• Poor coordination and networking leading to sub-optimal uses of scarce resources • Lack of plat form or medium to information sharing to avoid duplication • Poor dissemination of research results among scientists at national, sub-regional and regional levels	• Re-align research agenda with developmental priorities to secure and attract funding and political support • Promote multi-location (country, eco zones etc)research and sharing of research protocols to
6	Low funding of research	• policy and decision-makers are dealing with more burning issues such as food insecurity, health and social unrest. Thus	ensure comparability and broadening validity of technologies

		forestry research not a sensational issue and therefore not on the top of the agenda • SAP have drastically reduced the internal funding while external donors are funding research on ad hoc basis • Salaries are not attractive and this provide room for brain-drain	generated **IV. Sustainable funding of research via:** • Encourage multi-institutional and multi-country driven research as well as joint mobilization of funds for strategic researches • Encourage internal revenue generation through levies on environmental goods and services derived from forests • Undertake interdisciplinary research on landscape level in bringing on board agriculture, livestock and other environmental issues to maximize funding on sustainable basis

Table 3: AFORNET Medium and Long Term Strategic Research and Priority Areas

Research Theme and Priority Areas	Zone and Priority Scale		
	Local or National	Sub-regional	Regional
Theme 1: Development of methods and tools for "best practice"			
Plantation forests			
1. Undertake tree improvement and adaptability tests of improved indigenous and	***	**	

exotic germplasm.			
2. Examine productivity under single and mixed species stands.	***		
3. Monitor water, nutrient dynamics and biodiversity in forest plantations.	***		
4. Develop "standardized protocols" for assessment of trees-outside-forests.		***	**
5. Monitor and evaluate forest health with respect to pests, pathogens and forest fires.	***		
6. Undertake tree improvement and adaptability tests of improved indigenous and exotic germplasm.	***		
Moist and dry forests and woodlands			
7. Clarifying basic ecological processes and functions towards developing silvicultural practices for multiple use forest management.	***	***	
8. Determining physical, mechanical and strength properties of lesser utilized tree species.	***		
9. Determining genetic variability of commonly exploited species as a basis for developing effective in-situ and ex-situ conservation strategies.	***	***	
10. Defining and testing cost-effective and practical criteria and indicators for sustainable forest management.	**	***	***
11. Analysing trends and developments in consumption and supply of wood and fibre based products.	**	***	***
12. Elaborating methods and tools (to provide protocols or guidelines) for forest /tree resource assessment across the wide range of ecological, socio-economic and tenure contexts within which forests and woodlands span in Africa.	***	***	*
13. Develop practical and local level methods and system for monitoring forest changes and responses to various disturbances (natural and artificial) or interventions	***	***	
Forest industries			
14. Analyze the needs and requirements of key export markets for tropical timber products including commitment to quality and reliability of supply	**	***	***

15. Explore conditions for logging certification across the continent towards sustainable management	*	***	***
Non-wood forest products			
16. Product assessment and valuation, resource production (in-situ and ex-situ) and harvesting /extraction methods to ensure sustainable use.	***	***	
17. Improved technologies for product handling and processing for value addition.	***	**	
18. Marketing arrangements to minimize or eliminate income losses to primary producers through intermediary transactions.	***	**	
19. Bioprospecting with assistance of traditional knowledge to develop new products from the existing biodiversity.	***		
Theme 2: Forestry contribution to poverty alleviation			
20. Examine the extent to which community based forest management – and the range of products and services derived therein - can be demonstrated to alleviate poverty.	***		
21. Analyze forest potential for community based tourism.	***		
22. Develop equitable cost and benefit sharing mechanisms both within communities and between communities and other stakeholders (e.g., relevant government agencies).	***	***	*
23. Evaluate CBFM in relation to land tenure, ecological, socio-economic and institutional contexts.	***		
24. Analyze the human and infrastructural capacity and legal tools required for CBFM.	***	**	
25. Examine the theoretical models of devolution and institutional analysis (normative and positive analysis) and their relevance and applicability to the SSA.			***
Theme 3: Forestry linkages to other sectors			
26. Identify and examine key interactions between forestry-agriculture interface,	***	**	

forestry and rural energy, forests and hydrology			
27. Analyze the typology of forest and woodland grazing regimes and examine extent to which they contribute to sustainable forest management.	***	**	**
28. Quantify the contribution of forestry to livestock production.	***	**	**
29. Examine the impacts of livestock and wildlife on forest resources.	***		
30. Analyze the effects of HIV/AIDS on forests and forestry.	***	***	*
Theme 4: Socio-economic, policy and institutional analysis			
31. Conduct forest resource valuation to demonstrate its contribution to rural livelihoods, food security, environmental services and GDP.	***	***	
32. Quantify the contribution of forestry to informal sector.	***		
33. Evaluate the impacts of forest policy reforms and transformation of public ownership of forests to private or quasi-private ownership.	***	***	
34. Assess the impact of sectoral and extra-sectoral policy reforms on sustainable forest management.	***		
35. Analyze impacts of decentralization and /or devolution of forest public administration on (a) resource management, (b) institutional arrangement, (c) forestry education and (d) forestry investment.	***	**	*
36. Examine the economics and national forest policies in relation to regional and international forestry processes and markets for forest products.			***
37. Evaluate forestry in relation to competing land use alternatives.	***		
38. Study the institutional and socio-economic aspects of out-grower schemes.			
Theme 5: Forestry Law Enforcement and Governance			
39. Streamline policy and regulatory frameworks within economic groupings	***	***	***
40. Conduct comprehensive assessment on timber volumes and their values as well as their contribution to the GDP and poverty alleviation.	***	**	*
41. Assess the impact of corruption and illegal activities within the forest sector	***	**	*
42. Enhance the capacity of the sector to the national economies, poverty	***	**	*

alleviation and therefore improve forest governance and transparent marketing and trade in forest sector			
Key:			
***: High priority and potential for collaboration within indicated zone			
**: Medium priority and potential for collaboration within indicated zone			
* : Low priority and potential for collaboration within indicated zone			