SPGS
SAWLOG PRODUCTION GRANT SCHEME

NEWS 24

MAY - JUL. 2009
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Supporting tree growing by the private sector throughout Uganda

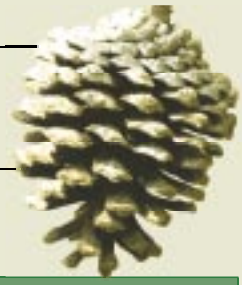
www.sawlog.ug

INSIDE: New HEARTWOOD Insert: 12 pages of science, reviews and opinions.

- Southern Africa safari: Ugandan growers' views.
- SPGS field meetings: big numbers; big ideas!
- SPGS/CFA regional workshop.

Phase I of the SPGS (2003-2008) was a joint European Union and Government of Uganda initiative and 10,000 hectares of timber plantations were established by private growers. Talks are currently underway for the European Union and Norwegian Government to fund an expanded Phase II of the project (2009-2013).

SEED & SEEDLING UPDATE



SEED

SPECIES	ORIGIN	ORG	KGS	SEEDS /KG	UGX	NOTES
Pinus caribaea var. *hundurensis*	Brazil	NTSC[1]	600	20,000	1.24 M	Seed is available at NTSC.
	Australia (Fiji seed stand)	UTGA[2]	50	35,000	1.5 M	Available. Sold to UTGA members only. There is currently no FPQ Australia seed in the country, but NTSC will have seedlings Aug.
Eucalyptus grandis (Kalitunsi)	Fort Portal	NTSC	230	150,000	90,000	Local seed, accepted by SPGS
	South Africa	SPGS	1	>2 M	14 M	Sold in 10gm sachets (20,000 expected) @ UGX 140,000
Maesopsis eminii	Mayuge & Masaka	NTSC	500	400	50,000	Local seed, accepted by SPGS
Terminalia superba	Mabira	NTSC	360	4,000	50,000	Local seed, accepted by SPGS
Terminalia ivorensis	Mabira	NTSC	450	4,000	50,000	Local seed, accepted by SPGS
Pinus patula	Echuya	NTSC	40	50,000	500,000	Local seed, accepted by SPGS

[1] NTSC – National Tree Seed Centre, located in Namanve on the Kampala-Jinja Highway.
[2] UTGA - Uganda Timber Growers Association (see details on page 15). Seed is sold only to registered members.

Please note that the SPGS only accepts seed from the above seed sources, therefore planters must ensure that the purchase the right seed or seedlings raised from these recommended seed sources. To calculate how much seed one needs to purchase:
To calculate how much seed one needs to purchase:

$$\text{No. of Kgs of seed} = \frac{\text{No. of ha to be planted x No. of seedlings required per ha}}{\text{Estimated number of seedlings per Kg of seed}}$$

NB. WARNING! We have heard too many cases of nurseries saying they have used improved seed (and indeed often have evidence that they bought some improved seed) but they clearly bulked the seed up with some very poor quality seed. This usually only becomes evident in the 1st year or so after planting out. Be warned! We strongly recommend you report such cases to UTGA, many of whose members are fed up of such unprofessional practices.

As usual we bring you the tree nurseries that have at least attained a level of management that leads us to recommend them to private tree growers. However, you must be certain of the seed source and quality as some nurseries sell both local (unimproved) and improved seed (and this includes the NFA). The SPGS only accepts specific seed origins – see SPGS FAQ v.4.

Private Tree Nurseries

Name of nursery	District	Contact	Tel
Uganda Gatsby Trust (hybrid eucalypt clones - 230,000 cuttings ready)	Mbale Fort Portal Mukono	Moses Samaon Simon	0772 595545 0782 153659 0752 644995
Busoga Forest Co.	Mayuge	Teddy Nyamaizi	0772 844197
Kikonda-SUB	Kiboga	Shedrack Kajura	0772 384024
Kamusiime Assn.	Bushenyi	Jonathan Mwebaze	0772 589659
Core woods	Hoima	Fred Babweteera	0772 466336
Norwegian A.G	Lira	Alfred Macapili	0772 615132
Private-Luwero	Luwero	Fred Ahimbisibwe	0772 392175
UMOJA Farmers	Kakiri-Wakiso	Jocelyn Rugunda	0712 429922
TREGD Co(U) Ltd	Kampala	Paul Ochom	0782 529133
E & P investments Ltd	Kampala	Elvis Fred Mulimba	0772 412949
BESEPO Tree Nursery	Mubende	Jean Vianney A Besesa	0772 905153 0772 501974

Cover Photo: *10 months old GU growing superbly at Ferdsult's Lugazi estate. GU is a hybrid Eucalyptus clone - E.grandis x E.urophylla - raised by Uganda Gatsby Trust's nursery in Kifu, Mukono.*
Centre is Prof. Julian Evans with UGT's Abubaker Mwima and SPGS's Celia Nalwadda

Heavy Traffic in the Forest

by Paul Jacovelli

I must share with you a quote I came across recently taken from Lewis Caroll's classic book - Alice in Wonderland: *One day Alice came to a fork in the road and saw a Cheshire cat in tree. "Which road do I take?" she asked. "Where do you want to go?" was his response. "I don't know" said Alice. "Then," said the cat, "it doesn't matter".*

You might wonder why I found this so relevant so let me explain. We at the SPGS have had to do a lot of thinking of late, particularly regarding the future of the project as it is about to embark on a second (much expanded) phase. We could easily just give grants to growers to plant any trees anywhere (and anyhow!): we could probably hit some impressive targets this way and it would make life pretty easy for the SPGS team too.

The interest just keeps on going: the SPGS Clients' Meetings are a great way of learning and sharing experiences (1st April, 2009).

Alternatively, we could do much more and stimulate the development of a world-class forest industry in Uganda that would provide massive rural employment, generate huge revenues for the government, reduce the pressure on the remaining natural forests here and absorb lots of nasty CO_2 too! The latter option sounds like the best road to take to us and we hope you agree. It will take, however, some visionary planning, a lot of hard work and most of all, positive collaboration with some key partners – notably, the NFA, UTGA and others.

The planning for Phase II is now well underway and it is hoped to launch the ship in the not too distant future. There are, however, a number of bureaucratic 'hurdles' to overcome first but we are confident that the will is there between the government and donors to see things through. The demand for our support is certainly there: just read about our most recent Clients' meetings on pages 8 and 14 in this issue. We decided that the numbers for these meetings were just becoming unmanageable and thus had to repeat our normal Clients' meeting – thereby ensuring some 115 planters (and potential planters) received exposure to the commercial world of the SPGS in the space of just seven days. We received some great ideas and feedback from those present, which gives us confidence as we prepare for the next phase.

What started as a discussion in Kampala with the Editor of the *International Forestry Review,* Alan Pottinger, way back in CHOGM days (2007), finally came to fruition when we hosted a really ground-breaking workshop in late April. Jointly funded by the Commonwealth Forestry Association (CFA) and the SPGS, the meeting came up with some brilliant ideas for regional cooperation (read Celia's report on pages 4 and 5).

In the midst of all these developments, we were very happy to welcome a very well known name to see our operations – namely, Professor Julian Evans – the lead author of the book the SPGS is always promoting – *Plantation Forestry in the Tropics.* Accompanied by Pat 'the Pipe' Hardcastle, Julian was undertaking a study for the Gatsby Trust on their clonal eucalypt project. Both were very complimentary on what the SPGS has achieved to date but they also left us with some useful food for thought too.

I was invited recently to write a feature on the project for the CFA's International Forestry Review. Of course I jumped at the idea and in the March 2009 issue, the article - entitled *Uganda's Sawlog Production Grant Scheme – A Success Story from Africa* - was published.

On reflection I wondered if I should have added on 'Part I' to the title, as I believe we have built a solid foundation but need to seriously work together on the main building now!

And on a sad note - Bric Milligan is leaving the SPGS for new pastures (I nearly wrote greener pastures then – but surely there can be nowhere greener than Uganda!). Bric has been with the project from 2004 and has been an important team member. Many growers (and also the SPGS staff) have benefited from his sound practical advice. We wish him all the best 'down under' – see page 17 for more.

Finally, it is hard to believe that this is No. 24 of our newsletter, which started with a 4-page, homemade edition in Feb. 2005. Our regular readers will hopefully have noticed the new look to celebrate and we hope you will appreciate the changes. A new 12-page inner section – termed *HeartWood* - contains a selection of more scientific articles, all of which have been volunteered by the authors. The main News section will continue to carry our usual blend of more general articles and features, which hopefully instruct and entertain the reader. Let us know what you think and please – send us your features as this is really what makes a difference. Happy reading.

Commonwealth Foundation

STRONG WINDS IN EAST AFRICA

by Celia Nalwadda

Commonwealth Forestry Association 1921

The winds of change are currently gaining strength, now blowing through the forest sector in East Africa. The winds are bringing with them a clear shift from public to private sector, especially in the area of commercial plantations. This was just one of the many conclusions to come out of a SPGS/CFA Workshop held in Uganda from 22nd-24th April, 2009. The Commonwealth Forestry Association (CFA) clearly shares the vision that SPGS and UTGA have - namely, to promote and support this private sector investment into plantations.

The Workshop was entitled ***"Developing a Commercial Forestry Industry in Eastern Africa: promoting regional cooperation through using case studies from the region".*** It certainly exceeded any expectations we at the SPSG had. The networking alone was fantastic, with many excellent contacts being made for future collaboration. There were representatives present from both public and private forest sectors in Kenya, Tanzania, S. Sudan and Uganda. There were also people involved directly with forestry education, training and research as well as representatives from two major private investors in the region – namely, Africa Forests (Tanzania and S. Sudan) and Green Resources Ltd. (Tanzania, Mozambique, S. Sudan and Uganda).

The main objective of the workshop was to have commercial forestry recognized as a business with a good potential for developing an industry in the region as well as publicizing the pivotal role played by the private sector in achieving this goal.

To set off the workshop, we had the privilege of Hon. Aston Kajara, Minister of Stare for Finance, Planning and Economic Development (Investments) delivering the opening speech. He noted the unique nature of the commercial forestry business and commended the private sector's efforts towards developing the industry. He also welcomed the idea of a regional forum to address current and future challenges of the sector and pledged government's support in ensuring security of the investments. Jim Ball (CFA Chair) also delivered a keynote address, giving a global perspective on plantation forestry (see HeartWood p.9).

Delegates then got down to business with an update of what is happening in the four countries (Kenya, S. Sudan, Tanzania and Uganda) as regards to commercial forestry. The huge level of investment by both Green Resources and Africa Forests was very encouraging. The SPGS and UTGA models attracted great interest from the foreign delegates too. It was also interesting that all the state forest operations (except in S. Sudan) expressed plans for them to remain as major players in the commercial forest sector – presumably for them to raise revenue in the future (although it was not clear whether the public funds would materialize for such a large scale investment).

It also came out that the challenges faced in the different countries were very similar - for example, land tenure issues, inadequate financing, limited research support, ineffective communication channels and limited technical support in terms of experienced and knowledgeable foresters. This pointed to the need for a regional approach, and delegates were given a working example of the East African Tree Biotechnology Project that is multiplying and disseminating eucalypt hybrid clones in Uganda, Kenya

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and Tanzania. Of course it wouldn't be proper workshop without some serious socializing and so the first day was crowned with a sundowner cocktail to clear the minds of the delegates in preparation for the tough work ahead but also to form important social networks in an informal setting. It must have been the infamous Kampala traffic jam that delayed so many delegates!

Day two was dedicated to identifying the specific challenges and suggested solutions to the four broad themes of: the Investment Climate, Training, Communication and Research. Participants split into groups based on their area of specialization or interest and were guided by a theme group leader. The two hours flew past whilst the groups sifted through pertinent issues and came out with workable solutions. They also nominated individuals to follow up with particular tasks.

The workshop came up with a number of resolutions out of the thematic group discussions which are to be sent to governments, private investors, communities, growers associations, NGOs and development partners.

The visiting delegates were on the third day taken on a safari to visit Ferdsult Engineering Company, a commercial tree grower (supported by the SPGS since 2004) in Lugazi, near Jinja. The group had interesting discussions on many issues relating to not just plantation silviculture but also how the SPGS is achieving its results and how the project could be adapted for other countries in the region.

Finally, it was clear from our feedback forms that participants greatly appreciated the idea of bringing together key players in the sector from within the East African region. Many proposed making it a regular event but let us first digest what came out of it. The SPGS and CFA are coordinating the process of drafting resolutions from this gathering: these will be published in the next SPGS News but will be posted earlier onto the web at – www.sawlog.ug

Editor's Note: Celia is an SPGS Plantation Officer as well as CFA's Youth Officer.

PROSPECTS FOR INCREASED COMMUNITY SUPPORT

by Charles Odeke (SPGS Plantation Officer)

Word is spreading fast as the numbers of communities requesting for support under SPGS's Community Tree Planting Initiative continues to rise. The main reason has been the results seen on the sites already planted by SPGS-supported communities: "seeing is believing" they say!

We have received 60 applications from community groups in 23 districts requiring a minimum of 3 million tree seedlings for community planting. The list is long and this would tie up SPGS staff completely if we were to keep everybody happy. Hence the SPGS needs to think strategically how to deal with such demand as we plan for the project's next phase.

With guidance coming from the recent study of SPGS by consultants for the EU and Norwegian Government, the future of the community tree planting support seems brighter. First, the SPGS might be able to increase the current support to accommodate the demand for seedlings. Secondly it could increase its capacity to handle the expansion – though clearly more staff will need to be recruited. The ultimate goal is not just expanding, but to see the communities planting better and their Associations more organised.

The community support will largely be fine tuned to its original structure of supporting communities surrounding the commercial planters. The supported commercial clients will themselves be in clusters, depending on where they are concentrated. For good reasons, the community support will more or less be concentrated on the identified clusters. We welcome any thoughts on our community support.

Otherwise, by the time of going to press we had delivered 7,500 pine seedlings to 2 Mukono communities, 14,000 pine seedlings reached another 2 communities in Nakasongola. Plans were under way to deliver 19,000 seedlings to 3 communities in Gulu, and some 33,000 seedlings to 4 communities in Western Uganda. Wanyange Tree Growers Assn. in Jinja was in line to receive 6,000 seedlings first to test their interest, provided they have prepared the land on time. Details of what transpired will be in the next SPGS News.

The foreign visitors at Ferdsult's Lugazi plantations.

HEADING SOUTH: SPGS'S 2009 Study Tour to South Africa & Swaziland

As the sun came over Lake Victoria one March 2009 morning, 11 Ugandan tree planters headed out from Entebbe to emerge four hours later at Johannesburg's impressive international airport, where they are in full swing preparing for the 2010 soccer World Cup. Anyway, with Paul and Bric as tour guides, another great SPGS adventure began. Before letting the participants tell you their experiences, we must first thank our wonderful hosts for making the trip so successful. You guys and gals did us proud: from the 'big-boys' (Sappi and Mondi) to some much smaller growers, we really were hugely impressed with the hospitality showed to us – and we really did mean it when we said that you would be most welcome to visit us in Uganda.

A big SPGS 'Thank You' to the following (and apologies for those we overlooked!):

Komatiland: Annalize Nieuwoudt; Margaret van der Westhuizen; Stiaan Marais; Ernst Nolte; Paul Mostert; Albert Dlamini.
York: Dave Malloch-Brown; Hendrick Khosa; Martin Bolton; Ephios Molobela.
Sappi: Murray Wilson-Browne; Rob Pallet; Carl van Loggerenberg; Sanele Zuma; Theunissen Rabie; Zelda Immelman; Tebatjo Machaka; Nobuhle Ndonyela.
Merensky: Chris Boschoff.
Private growers: David & William Davidson; Rocky Rich.
Mondi: Jaqui Wallis; Ray Kinsey; Kitt Payn; Noku Sentongo; Nicci Edwards; Tracy Vermaak; Khanyie Zitha; Owen Petersen; Jacqui Wallis; Mary-Jane Ntshiza; Tony Winter; Ian Harrison, Mark Holmes.
Peak Timbers, Swaziland: Derrick Makhatswa; Mavovo Mkhonta; Bhubesi Magagula.
Montigny Investments, Swaziland: Neil Rijkenberg; Koen Bardenhorst.

We start with Byamukama James's thoughts, which he called – ***Value Addition: a Dream Afar?*** For many who grew up during the 1970's Uganda's economic crisis and the structural adjustment programmes of the 1980's, where the standards of living were so low, the life expectancy was in a few decades. Those that were good speculators held the economy, believing in value addition along the chain. Therefore, to many people of that era, investment in commercial Forestry, with a gestation period of two decades and with heavy investment costs, is just a gamble. This has been confirmed during two SPGS clients meetings that I have attended in the recent past. To the clients, that even had planted many hectares of trees, the concept of pruning up to 9 metres to get a future prime sawlog or thinning from 1111 stems at planting to 250 stems at the end of the rotation was rather seen as loss of value than gain, as gauged from the questions repeatedly asked. However, to the "Doubting Thomases" and those that agree that the *"Africans eyes are in his hands and seeing is believing"* join me on a trip to South Africa where we shall learn how patience, investment in timely and appropriate silivicultural practices translates into high value products and profit.

However this actual value gain is a function of good silvicultural practices that result in prime high value sawlogs which have no bends, minimal knots and are of right top diameter. Therefore commercial forestry is not a speculative business but rather one that requires patience as value grows with good planning over a long period of time.

York Timber's sawmill in Sabie, Mpumalanga Province, has a daily consumption capacity of 1000 cubic metres a day, and, assuming a yield of 350 m3 of round wood per hectare and 265 working days a year, translates to around 700 hectares of harvested crop every year. Therefore, it would just require 12 years to consume all the commercial plantations in Uganda today!

The reported recovery was up to 60% from the round log. The major activity at the timber yard was sorting and grading of timber. The criteria involved the bends, knots and top diameter thickness, which are all functions of silvicultural operations besides haulage handling to minimise sand in the sawlog. It was worth noting that sawlogs had colour codes associated from each supplier.

They are always striving for quality products to mazimize their profits. I observed that the cost of processing poor sawlogs would be passed over to the commercial tree planters through the following ways:

- Very high and competitive price for prime logs.
- Very low and less competitive price of poor sawlogs.
- Rejection of very poor sawlogs and the supplier meeting the transport costs to and from the sawmill site.

The value gain in commercial forestry is realised at the next stage of production (either sawmilling or pulping). However this actual value gain is a function of good silvicultural practices that result in prime high value sawlogs which have no bends, minimal knots and are of right top diameter. Therefore commercial forestry is not a speculative business but rather one that requires patience as value grows with good planning over a long period of time.

Finally, I would recommend that those intending or are engaged in commercial tree planting, should patiently invest in good silvicultural operations by:

- Taking professional consultations in tree planting (training

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and following technical guidelines).

- Attending SPGS Clients meetings, to learn from good and bad practices in the field.
- If an opportunity to visit South Africa or any other country that has excelled in commercial tree planting arises, simply take it up.

Next we have the thoughts of Engineer Hilary Kakeeto and CD Langoya - **Maximizing timber productivity through silvicultural operations.**

Plantation forestry has played a major role in the development of the South African economy. It is estimated that over 1.3 M ha of commercial plantations have been established mainly to meet the growing domestic demands for construction, mining and the pulp industries. The two major sawlog timber trees are *Pinus patula* and *Eucalyptus grandis*.

Although there are differences in climatic condition and soil variations, productivity per unit area of any plantation is maximized through silvicultural operations. It was observed that economic return is the driving force in the forestry enterprise: a lesson that timber growers in Uganda should learn. The following are the key silvicultural observations to note from S. Africa:

Planning is the most important single operation in forestry enterprise and each business operation/unit has a planner who draws out long-term plans (10-30 years), mid-term (5 years) and short-term plans (yearly, quarterly, monthly and weekly). The plans are then passed to the department or contractors who will execute them. An officer is assigned to monitor the implementation of the plan and quality assurance.

Comprehensive **survey and zoning** of the area to be planted is done and where trees are going to be planted, the site index is determined which in turn will help in predicting mean annual increment (MAI). Water courses and area of biodiversity importance are preserved in its natural state.

Procurement of seedlings has been from renowned nursery operators and all the timber companies visited pay top dollars for quality seedlings. Their argument is that if you buy poor quality seedlings now, you will be stuck with them for 10 – 28 years. Because of the demand for top quality planting materials, planting materials are delivered as far as over 150 Km from the nurseries. The nursery operators visited take tree breeding very seriously as it is the foundation for forestry in S. Africa and as a business enterprise for them. For example, *Eucalyptus* cloned mother gardens are replaced every 5 years.

Planting out is undertaken at a large scale (20-30 ha per day on average) and it is done between 6:00am – 3:00pm. In order to extend the planting period, it is done with water (2 lts per tree) or aqua-soil (0.5lt when the soil wet or 1lt when dry). The use of aqua-soil yields better results.

Pruning is done to improve on the quality of the timber. Pruning regime is determined by the height of the trees which is influenced by the site index of the land. Rich and deep soil encourages faster growth and hence taller trees. In South Africa, they prune trees for timber and poles up to 9-10m in stages or 'lifts' depending on how fast the crop is growing.

Thinning is undertaken to reduce plant population per hectare. This is done because the plantation manager would like to maximum volume and timber recovery per hectare (maximize income per tree). In South Africa, early and heavy thinning in both eucalypts and pine is the order of the day as seen in the table below:

Initial spacing	Planting (trees/ha)	1st thinning	2nd thinning	3rd thinning	Final harvest – avg. vol.
York Timber:	*P. patula*	*yr 6*	*yr 12*	*yr 18*	*yr. 24-26*
3 x 3 m	1,111	650	400	250-270	350-400m^3/ha
Peak Timber:	*E. grandis*	*1.5*	*6*	*9*	*18*
3.3 x 3.3 m	918	500	400	250	220-300m^3/ha
Merensky:	*E. grandis*	*2*	*6*	*9*	*16-22*
3 x 3 m	1,111	625	375	275	340m^3/ha

Weeding: We learned that 70% of stress in young trees occurs in the first year and the major cause is weed. Every effort has to be made to control weeds at all cost during the first year and hence every planting operation should be planned to match with ability to control weeds.

In conclusion, the message from South African forestry is that economics should be the driving force for forestry enterprise expansion. This calls for integrated planning, aggressive silvicultural operations and investing in tree breeding. Protection of fragile ecosystems within the plantations is very important as well.

Boaz Tishekwa and Gershom Onyango were impressed by –
The use of fire in plantation management.

Fire can be both a problem and an asset to plantation forestry establishment and management, depending on how it is used or the circumstances. Our visit to South Africa and Swaziland exposed us to fire management operations of various degrees of sophistication. We learnt that fire danger is unpredictable and we need to be alert at all times to minimize the loss from fires.

South Africa has state of the art fire fighting systems. However, despite all the sophistication, the country suffered heavy losses of its forest plantations estimated at 130,000 hectares and millions of Rand during 2007 and 2008. This shows how serious fire can be and the loss it can cause to investments in forest plantations. For the private tree growers in Uganda this is an area that requires a lot of attention given our rudimentary fire fighting methods and equipment. In South Africa, the main cause of forest fires is lighting while in Swaziland like in Uganda, the main cause is man.

A visit to Tweefontein in South Africa provided us with an opportunity to see a state of the art fire fighting system. The fire fighting company had twenty four cameras that are located at strategic points. These provide surveillance over a 250 km radius and are all linked to one command centre where information from the cameras is stored in computers. Operators in the command centre can zoom in on any area

Cont'd on p. 13

MAKING FRIENDS & GETTING MUDDY BOOTS

Thaddeus Businge & Zainabu Kakungulu (both SPGS Plantation Officers)

The SPGS's Celia Nalwadda explaining the basics of site-species matching at Richard Bakojja's 5-yr PCH stand (April, 2009).

As part of our preparation for Phase II of the SPGS, we held two separate field safaris with some of our "would be" clients. The numbers were so big - over 115 growers alone - that if we were to have one field tour as we originally did, then it would be something close to a UPE class in some newly formed district, which would undoubtedly compromise the quality of service delivery. So we opted to have two separate but identical field safaris and meetings on 25th–26th March and 1st–2nd April 2009. Same exposure, same themes of discussion, same facilitators, only different participants. Both safaris were in Mubende district. What follows is a brief report summarizing the highlights from both meetings.

The first stop was at the Kasana-Kasambya (Mubende) NFA plantation (Australian PCH and hoop pine, *Araucaria cunninghamii*), started as a demo in 2003. Here the important silivicultural practices of pruning and thinning were discussed. It was stressed that pruning can greatly improve timber quality, whilst thinning is crucial to enhance diameter increment in plantations grown for sawlogs or special poles. Much debate ensued about finding markets for the material being thinned.

The next stop was at Besepo (U) Ltd., one of the early beneficiaries of the SPGS. More fascinating to the participants than anything was the fact that an individual in Uganda had this acreage of plantation. Many of the potential growers had not seen an individual private grower with over 400 ha of timber plantations. This was a great inspiration to many. Important lessons learnt were passed on to all by Ponsiano Besesa himself - especially early mistakes with using poor seed and taungya.

The SPGS team then took on a tutorial role and having split the groups into more manageable sizes, focused on pitting, weeding, site-species matching and finally, environmental protection (through wetland delineation and conservation). The group also had an opportunity to visit the impressive-looking nursery of Ponsiano's son, Jean Vianney, who also shared his experience in the business of nursery management. At the closure of the day, inspired by Besepo, most of those present were already promising to more than double their acreage come the next round of SPGS funding.

The second meeting started as before at the Kasana-Kasambya CFR demo. in Mubende but heavy rain the previous night meant that Besepo's plantations were impossible to reach. We were fortunate that we had Plan B and for this we have to thank one of the meeting's participants – Richard Bakojja, who was kind enough to let us visit his more accessible plantation in the same Reserve. Similar to Besepo, there were good examples of early mistakes (poor seed – especially with *Pinus oocarpa*) but also some excellent 4-5 year old stands of PCH from improved seed to admire (see photo).

For both groups, Day 2 was basically a more formal meeting, with various, short presentations from the SPGS team, followed by a Question and Answer session. In between all this there was much socializing. Important aspects such as Central Forest Reserve land allocation and permit issues, contractors, research and development, and the future of the Ugandan forestry industry were raised for discussion. Some of the key Q&A discussed at these meetings can be found on page 14.

At the end of both meetings, we asked the participants to evaluate the meetings and below are a selection of their comments:

"I've been enthused by this trip and motivated to focus on my investment in tree planting for profit and the environment".
"Great technical advice from the SPGS: we are now foresters".
"Very well organized and facilitated and gave a deep insight into commercial tree planting".
"A very educative and informative meeting. SPGS – keep it up".
"The next SPGS Clients' meeting should come to Gulu".
"I never seem to get exhausted of these clients' meetings: there is a new thing I learn each time".
"This is a noble revolution. Thanks to SPGS: Keep the candle burning".

We want to thank all those who participated in these meetings and for the excellent open discussions and contributions. A special thanks to our hosts for the day – namely, NFA (Mubende), Ponsiano Besesa and Richard Bakojja. We already are looking forward to the next meeting: we will keep you updated.

PHOTO GALLERY I - CLIENTS' MEETING

➔ *The SPGS's Thaddeus Businge emphasizing the importance of thinning on time and to the recommended stocking (NFA's Kasana - Kasambya CFR, Mubende)*

🡐 *Zainabu Kakungulu discussing weeding with clients at Richard Bakojja's Mubende plantation.*

➔ *Richard himself sharing his experiences with participants (1st April, 2009).*

🡐 *Ponsiano Besesa entertaining the crowd (and sharing some tree planting wisdom) with the first group at his Mubende plantation on 25th March, 2009.*

PHOTO GALLERY II - SOUTH AFRICA 2009

Komatiland Forests' Paul Mostert explaining how they coped with the massive fire in 2007 (see also photo on page 11).

York Timbers 3rd (and final) thinning operation in 18-yr old P. taeda is yielding sawlog material.

All forestry companies take fire prevention extremely seriously in Southern Africa: this is one of Komatiland's dedicated fire tenders.

CD Langoya taking the study tour very seriously! CD is an SPGS client planting in Gulu.

"Timber is gold" said Merensky's Chris Boschoff to our group: and looking at their 20- yr old E. grandis crops being harvested for transmission poles and sawlogs, it is hard not to agree.

How do you make profit in this forestry business we asked? "Planning, planning and more planning" was the message that came through strongly from all commercial operations visited.

SPGS

HeartWood

No. 1 (2009)

Welcome to the very first issue of HeartWood. This special insert in the quarterly SPGS's Newsletter contains scientific articles, reviews and opinion, with a focus on commercial forestry. We hope that it will stimulate a more scientific approach to the commercial planting now underway in Uganda and beyond.

Why HeartWood? Well heartwood is the valuable part of the tree: the part that gives a tree the strength to grow big and tall. The heartwood is the inner core of all woody stems and is composed of non-living cells. Heartwood is usually differentiated from the outer woody layer (the sapwood) by its darker colour – just like the inner section of the SPGS News.

The introduction of HeartWood was partly stimulated by the SPGS receiving a number of interesting articles and reviews from around the world. In this issue, we have features from as far afield as Argentina and Swaziland, covering topics as diverse as the sustainability of plantations and a 10 year review of chasing the carbon dollar. All for free too!

But don't just sit there reading all this: let us know what you think and send us your contribution for the next issue.

We start off with one of the key pieces of research in tropical/sub-tropical forestry - namely, the work Prof. Julian Evans and his colleagues have carried out in Usutu Forest in Swaziland since 1968. This work tells us a lot about the sustainability of well-managed plantations but is also a good lesson about the importance of sound, scientific research too. Our thanks to both the author and to the Commonwealth Forestry Association, for giving us permission to reproduce the paper here.

GROWTH RATES OVER FOUR ROTATIONS OF PINE IN SWAZILAND[1]

Julian Evans

INTRODUCTION

In earlier issues of the *International Forestry Review*, and its predecessor the *Commonwealth Forestry Review*, the writer has regularly reported data from the long-term productivity plots in the Usutu Forest, Swaziland (Evans 1975, 1978, 1986, 1996). The plots, first laid down in 1968/69, have monitored progress of each successive rotation of *Pinus patula* namely, the first, second and third. Field work in Aug. 2003 assessed growth of all young fourth rotation plots that had reached measurable age. Results in brief are published here since so few forest plantations have reached the fourth rotation, and even fewer have an accurate record of past performance rotation by rotation from the same site. Thus these early data can inform the on-going sustainability debate.

Over the 35 years that assessments in Swaziland have been made, the contribution of forest plantations to wood production and fibre supply has multiplied many times. The global area of forest plantations was estimated at 187 million ha in 2000 (FAO 2001) and the rapidly emerging importance of planted forests in sustainable forest management is widely recognised (Anon 2003). Indeed, it is variously predicted that in 20 to 30 years more than half of the world's industrial wood requirement will come from planted forests (Evans 2004). These remarks highlight the importance of narrow-sense sustainability – can intensively managed forest plantations be grown for wood fibre or timber for rotation after rotation on the same site without loss of production? Is this method of intensive silviculture sound or fundamentally flawed? The question can be looked at from a process approach – soils and nutrient cycling, tree and stand physiology, and environmental variables – but ultimately the only sure answer is to report what has been measured empirically where crop has followed crop for several rotations. This is what is reported here.

INCLUDED IN THIS ISSUE OF HEARTWOOD:

BACKGROUND

The Usutu forest

The Usutu forest in Swaziland in southern Africa covers more than 70,000 ha of which about 62,000 ha are pine plantations, mainly *P. patula* but with significant areas of *P. elliottii* and *P. taeda*. The forest is owned and managed by SAPPI with a significant Swaziland government interest. All wood produced is destined for the kraft pulp mill located in the centre of the forest beside the Great Usutu River. In all rotations silvicultural practices have remained much the same: (1) planting as single species at a stocking of around 1300 stems per ha; (2) low pruning at canopy closure for fire protection and access purposes; (3) no thinning; and (4) clearfelling on a rotation of 15 to 17 years. No significant fertilising took place during the first three rotations, but now phosphate is applied over about 13% of the forest area where the underlying geology of gabbro and gneisses is very phosphate poor. The weed environment for the first rotation was mainly grass and that for later rotations a mix of woody weeds and unwanted regeneration.

Average productivity of the plantations is close to 20 $m^3ha^{-1}yr^{-1}$ and standing

[1] *This article originally appeared in the International Forestry Review Vol. 7 (4) – Dec. 2005. It has been carefully edited here (for reasons of space): the full paper is available from the SPGS (and at www.sawlog.ug); note also that the references referred to are also included in the full paper.*

volume at clearfelling is typically 300 to 400 m^3ha^{-1}. Harvesting employs a mix of skidder, harvester, cable-crane and sometimes use of mules depending on terrain and site factors. Lop and top and other debris is left scattered on the site; log debarking occurs at the mill. Replanting takes place within weeks to a few months after felling.

Usually the same pine species has been planted in each rotation, but on a few sites a change has been made to match land type better. A tree improvement programme began in the late 1980s, initially using selections from Zimbabwe made by the late Richard Barnes, and a full breeding programme has now been embarked upon. This genetically superior material was not available for the first three rotations in the stands monitored by the long-term productivity plots, but has been used for the fourth rotation.

Usutu has enjoyed a sustained research programme, both mensurational in terms of this productivity research and silvicultural with an emphasis on site management and, latterly, genetic tree improvement. Research has paid dividends and underpinned the overall sustainability of the vigorous plantations.

Long-term productivity research

As indicated, research began in 1968. It arose directly as a result of alarming reports of second rotation yield decline with *Pinus radiata* in South Australia (Keeves 1966). At Usutu in Swaziland a network of 92 first (1R) and 92 matched second rotation (2R) plots were laid down to make the initial 1R:2R comparison. Most subsequent assessments have followed the 2R plots, known at Usutu as the XB series. Thus comparison with the first rotation (1R:2R) was made by paired plots, but between the second and third rotations (2R:3R) and now with the fourth (2R:3R:4R) it is made from plots relocated on exactly the same sites as their predecessor as rotation has succeeded rotation.

Plot area is about 0.072 ha and averages 70-120 trees. Three assessments have been made per rotation at ages 5/6, 9/10, and 13/14 years. Plot area is measured accurately, and inventory measurements are DBH of all trees, and the height and volume of three selected ones from across the diameter distribution. To ensure consistency and allow comparison between rotations the same procedures have been deliberately applied since 1968 – and indeed, since 1973, the same research team of the writer and Milton Nkhambule have made the measurements.

Overall, the data have shown that the second rotation grew about as well as the first, though it suffered a decline where soils were phosphate poor. The third rotation has grown as least as well as the second and in several places was significantly superior. The most recent account is in Evans and Masson (2001). There has been no widespread evidence of long term yield decline and, if the droughts of recent years had not occurred, the trend from one rotation to the next would probably be that of yield increases. Genetic tree improvement will have affected some of the later third rotation stands but, as indicated, little affected the comparisons reported by this writer. Improved seed has been used for all fourth rotation stands.

ANALYSIS & RESULTS

Height growth of 4R *P. patula*

A 9% improvement in height growth is very highly statistically significant. Put another way, for 25 of the 29 plots 4R mean height was superior to that of 2R. The slightly smaller variance in 4R plots suggests a more uniform crop.

Stocking

The issue of stocking is important for almost all mensurational parameters. Inspection of the means reveals little variation between rotations and for different blocks of the forest.

DISCUSSION AND CONCLUSIONS

Long-term productivity overall

The 29 plots now assessed in the fourth rotation provide the first clear indication of the long-term (narrow-sense) productivity picture. The first conclusion to draw is that, based on the criterion of height growth, silvicultural operations at Usutu appear likely to deliver increased yield per hectare in the fourth rotation. The second conclusion is that a localised yield decline on phosphate deficient soils, has disappeared.

Sustainability & genetic improvement

In the analysis some plot data were adjusted to remove inconsistencies to try and improve precision in comparing 4R with earlier rotations.

The adjusted data suggest that there is a genuine improvement in height growth of around ten per cent. In absolute terms at 5 or 6 years of age 4R mean heights are 80 cm greater than 3R or 2R. This is close to raising site quality from SQ2 to SQ1 based on data in the South African Forestry Handbook (Owen 2000) and is suggestive of a real rather than transient productivity improvement.

In looking for explanations for the improvement, the one significant change in 4R, apart from the Block A phosphate fertiliser application, is use of genetically superior *P. patula* seed from Zimbabwe, which trials at Usutu showed it to be advantageous, and Usutu's (and SAPPI's) own emerging select or orchard grade material. The contribution of slowly rising atmospheric carbon dioxide levels will not give rise to the step change these data suggest, and silvicultural practices are little changed. Thus it can be argued that the improvement recorded is evidence of genetic gain at the forest scale. This contention is supported by the reduced variance in 4R heights compared with earlier rotations since less variation would be expected from use of selected compared with unselected seed.

Height growth is a surrogate for productivity and measurements two or three years after canopy closure are still early in the life of the crop, nevertheless the improvement is indicative of greater yields per hectare likely to be forthcoming. Assuming the height increase is accurate, and setting aside other factors like stocking, volume per hectare improvement at rotation age could be between 15 and 30 per cent greater. Assessments at 10 years of age, due to begin in 2007, should show conclusively what the likely uplift will be.

A third conclusion is that the 9% improvement in mean height recorded for the fourth rotation compared with the second based on 29 plots, and the 6-10% improvement compared with the third rotation based on 14 plots, are probably evidence of genetic gain at the forest scale.

OUTLOOK

So far each successive rotation appears to be growing as well or better than its predecessor. Continued investment in genetic improvement may maintain this trend, but it cannot be assumed. The soils are nutritionally poor, there is evidence in places of large accumulations of litter (Morris 1993), and droughts may become more frequent. Another threat is changing weed flora with increasing occurrences of bugweed (*Solanum mauritanium*), inkberry and 'volunteer' pine regeneration, which may interfere with or dilute the benefit of genetically superior planted material.

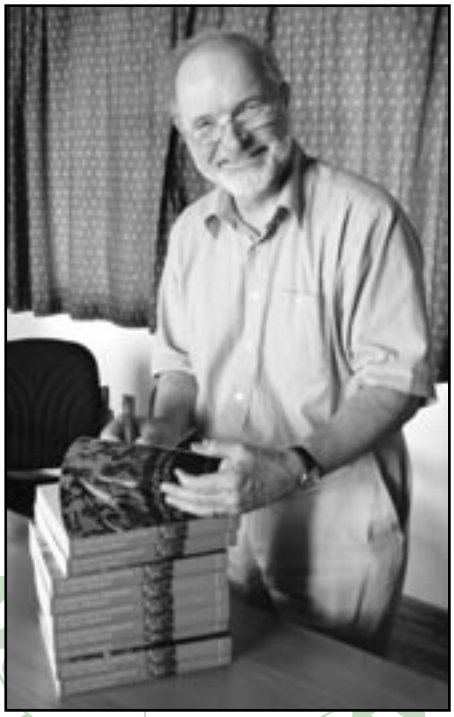
CONCLUSIONS

This short paper continues the regular reporting of productivity from the Usutu Forest, Swaziland. Evidence suggests that young fourth rotation *P. patula* is growing better than in all preceding rotations. The increase in mean height of 6-10% probably arises from genetic improvement. Factors of hail damage and variable stocking affect the comparison but do not invalidate the significant overall

conclusion. It is acknowledged, of course that the result is an interim one to be confirmed later in the rotation with volume assessments. Also worth noting is that this satisfactory outcome helps to ensure that the cost of wood production remains amongst the lowest in the world (Horrell, 2001).

In view of the intensive management of the highly productive plantations on the relatively poor soils at Usutu, namely short rotations, no thinning, and a clearfelling silvicultural system, to name but three, the data reported here augur well for the sustainability (narrow-sense) of plantations more generally. This is important since planted forests are destined to play an ever-increasing role in global wood supply.

About the Author: ***Professor Julian Evans*** *is a highly respected person in tropical forestry, perhaps best known as the author of the standard text - Plantation Forestry in the Tropics. Julian has worked or studied plantations in some 30 countries and has authored over 120 scientific and technical papers. From 1997 to 2007, he was Professor of Tropical Forestry at Imperial College, University of London. He visited Uganda for the first time in 2009 on a consultancy for Uganda Gatsby Trust (which is how he appears on the cover of News 24!).*



Prof, Evans signing copies of his Plantation Forestry book at the SPGS offices in Feb. 2009. Copies available for only UGX. 150,000/=

THE FUTURE OF PLANTATIONS

From my perspective - By Evan D. Shield

Introduction

In these early weeks of 2009, it would seem only common sense that any consideration of global problems should focus on the financial crisis. That crisis is lamentable, undoubtedly severe in its impacts and of uncertain duration. However, the focus of this contribution is on another set of global problems and their combined impact on plantation forestry. In all probability, at a global scale, these problems have potentially greater durability and severity than the financial crisis.

Problems for Plantations

This set of global problems arises through the impacts, probably cumulative, of global warming, population growth, peak oil, a developing scarcity of phosphorus and on-going land degradation.

In brief :

- global warming is claimed to have the potential to cause higher temperatures, lower precipitation and increasing frequencies of extreme climatic events such as droughts, floods, frosts and heat-waves. In addition, rising sea-levels are forecast. Basically, many now productive lands will be less able to carry economically competitive crops[1];

- today's global population is estimated at 6.76 billion[2] and, by 2050, it is anticipated to be 9 billion[3], an increase of 33 %. By 2050, 58.6 % of this 9 billion will live in Asia and 20.2 % in Africa. These continental areas already have regions wherein there are large populations of severely marginalized people ;

- peak oil means that – notwithstanding its recent dramatic declines – the price of oil and other fossil fuels will rise when demand again accelerates as the world's financial wounds are healed and confidence is re-established. It is also noteworthy that direct or indirect taxes on carbon dioxide emissions to mitigate global warming impacts will have the effect of increasing fossil fuel prices. Additionally, peak oil will continue to encourage acceleration in production of bio-fuels, many of which appear to be produced at the expense of food and feed for, respectively, direct and indirect human nutrition. This occurs in the context of there being almost 1 billion[4] undernourished people in today's world, including 209 million children whose diets are so inadequate that they are physically stunted[5];

- there is a growing concern that energy costs were not alone in driving the cost of phosphate fertilizers (such as super-phosphate, MAP and DAP) to such high levels in 2007 and 2008. Serious research is now suggesting that production of these fertilizers is also approaching a peak because of a global scarcity of phosphate rock[6]. Significantly, phosphorus is one of three critical elements for Eucalypt plantation success (together with boron and potassium) and its deficiency in soils used for plantations is also common[7]. Moreover, presently, there is no practical potential to substitute for production of this fertilizer, commercial volumes of which are derived exclusively from mined phosphate rock.

- mankind treats this earth badly. The chart below indicates how degradation[8] and population growth have combined to diminish the area of land on which each of us depends for food, feed, fuel and fibre. Unfortunately, degradation is anticipated to continue and, in combination with the impacts of global warming and population growth, to reduce further the availability per caput of arable land. For example, Professor Rattan Lal[9] is quoted to have estimated that, by 2050, all the necessities of food, feed, fibre and fuel for each person on the earth must be met from an average of only about 405 square metres of land (20 m. x 20 m.). He said: *"Because we have already degraded a lot of available land, unless there is successful restoration of some of that land, we will simply run out of land".*

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[1]For a scholarly analysis, refer to Cline, William R. : Global Warming and Agriculture – Impact Estimates by Country, 2007, published by the Center for Global Development and the Peterson Institute for International Economics.

[2]This estimate for the end of January 2009 is from the U.S. Census Bureau

[3]According to the United Nations projections

[4]FAO estimated that there were 923 million malnourished people in 2007 and The Guardian newspaper reports that this number increased by 40 million in the course of 2008. In their report: The State of Food Insecurity in The World, 2008, FAO stated that increasing food prices were largely responsible for this situation.

Note that FAO's data is based on protein / calorie malnourishment. If dietary deficiencies in iron, iodine and vitamins A. B, C and D are added, the malnourished population totals 3.7 million, as reported by the World Health Organization (2005). It is WHO data that is used in reference 10 in this paper, resulting in it being quoted to the effect that nearly 60 % of the global population is malnourished.

[5]Refer : www.theglobaleducationproject.org/earth/human-conditions.php

[6] Refer to the web-site : www.phosphorus-futures.net

[7]Refer to Silveira et al : Evaluation of the Nutritional Status of Eucalypts : Visual and Foliar Diagnoses, Chapter 4., page 85 in Forest Nutrition and Fertilization, ed. by José Leonardo de Moraes Gonçalves and Vanderlei Benedetti, published by the Institute of Forest Research and Study (IPEF), Piracicaba, São Paulo, 2004.

[8]Causes of degradation vary significantly. Deforestation is the prime cause of land degradation in South America, Europe and Asia ; poor agricultural practices in North and Central America and overgrazing in Oceania and Africa.

[9]Rattan Lal is a professor at the School of Natural Resources, College of Food, Agricultural and Environmental Science, Ohio State University, U.S.A.. This reference to his work is from an article in The Boston Globe by Drake Bennett, 29th. April, 2008. Professor Lal referred to an area of 1/10 of an acre, which is equivalent to 405 square metres.

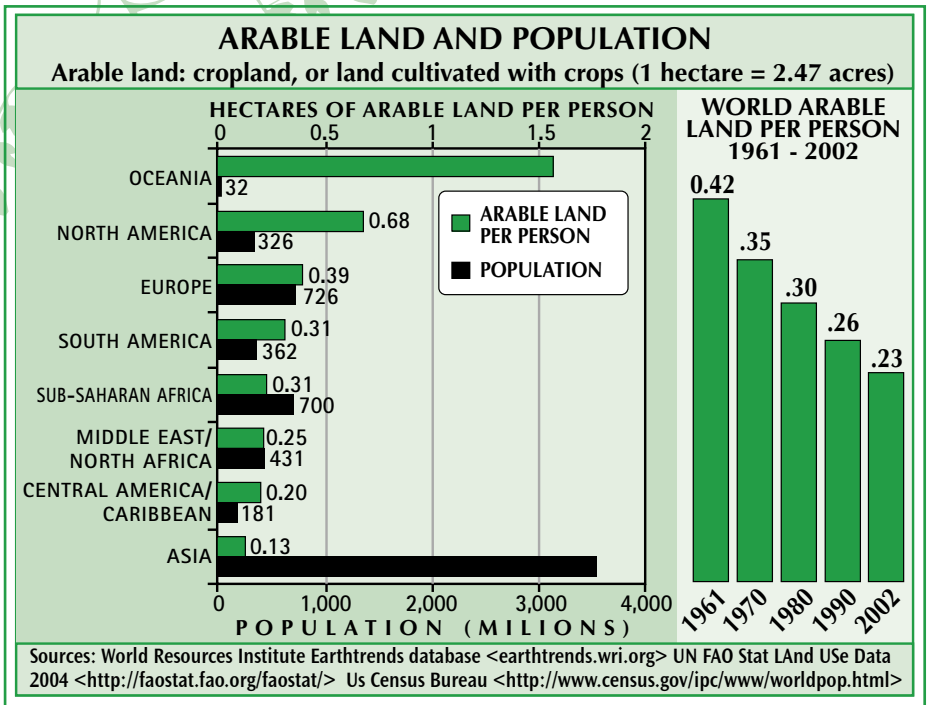

Figure 1. : This chart is from www.theglobaleducationproject.org/earth/food-and-soil.php. The estimated area of arable land per caput in 2002, 0.23 hectares, is equivalent to a square with a side of 48 metres. This area is ca. 5.7 times greater than the area per caput estimated to be available in 2050 by Prof. Lal.

The Impact

I suggest that it is entirely proper that feeding the world's growing population should be the first priority for land use on a global basis. Already, it is increasingly common to read reports of how production of bio-fuels as a land-use is driving up prices of food (globally) and exacerbating poverty and / or malnutrition (in Asia and Africa, particularly). Moreover, there are quite proper concerns that bio-fuel production is not only causing environmental and ecological degradation and loss of biodiversity (as when rainforests in East Asia are cleared to plant oil palms), but also is resulting in greater levels of environmental impact than would occur through use of the fossil fuel intended for substitution.

Regarding the first matter, no less an authority than the OECD has stated that the bio-fuel policies of its member nations are "costly and ineffective" while, on BBC Radio, the NGO Oxfam has claimed that the bio-fuel policies of Western nations have driven 30 million people into deeper poverty. A more closely argued and rigorous analysis by Pimentel et al[10], is summarized in these words :

"The rapidly growing world population and rising consumption of bio-fuels are increasing demand for both food and bio-fuels. This exaggerates both food and fuel shortages. Using food crops such as corn grain to produce ethanol raises major nutritional and ethical concerns. Nearly 60 % of humans in the world are currently malnourished, so the need for grains and other basic foods is critical. Growing crops for fuel squanders land, water and energy resources vital for the production of food for human consumption. Using corn for ethanol increases the price for beef, chicken, pork, eggs, breads, cereals and milk more than 10 % to 30 %."

Regarding the second matter – whether bio-fuels are more environmentally damaging than the fossil fuels for which they are the intended substitutes – the following chart is illustrative. Its authors[11] have estimated that any substitute within the green band has a lesser environmental impact than gasoline and those outside this green band have a greater environmental impact. Some "outside" bio-fuels may also result in greater green-house gas emissions.

According to these estimates, both Brazilian sugarcane-based ethanol and soy-based bio-diesel are responsible for greater environmental impacts than, respectively, the crude oil-derived gasoline and diesel they are intended to replace. The impact of Brazilian soy-based bio-diesel is particularly severe.

Significantly, this chart also demonstrates that wood-based bio-fuels (ethanol, methanol and methane) have positive advantages in both areas (environmental impacts and green-house gas emissions) when compared with gasoline and diesel fuels.

Its production, delivery and use also exceeds the green-house gas emissions of the traditional product. If such green-house gases were taxed appropriately, this product would have no economic future. As would be anticipated, the diesel substitute derived from Malaysian palm-oil plantations causes a greater environmental impact than that from fossil fuels.

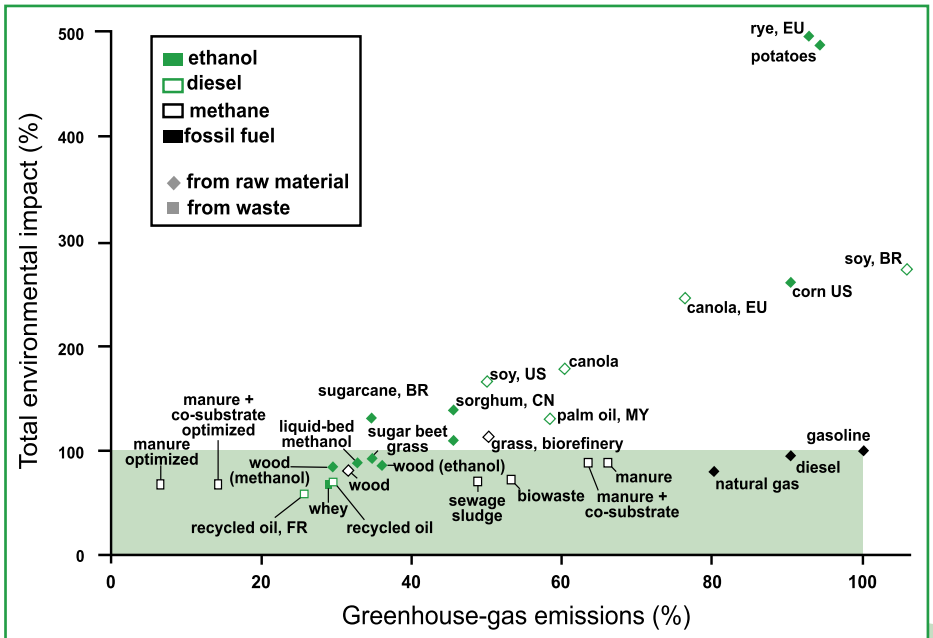

Figure 2. : Greenhouse emissions plotted against overall environmental impacts of 29 transport fuels, scaled relative to gasoline. Origin of bio-fuels produced outside Switzerland is indicated by country code: Brazil (BR), China (CN), European Union (EU), France (FR), and Malaysia (MY). Fuels in the green zone are considered advantageous in both their overall environmental impacts and greenhouse-gas emission levels. Chart is by Zah et al, 2007, available from Science On-line.

[10] *Pimentel et al : Bio-Fuel Impacts on World Food Supply : Use of Fossil Fuel, Land and Water Resources in Energies 2008, No. 1., pp 41 – 78. (Refer comments into end-note 4. above)*
[11] *Scharlemann and Laurance, Smithsonian Tropical Research Institute, Panama : "How Green Are Bio-Fuels ?", Science 319: 43 – 44, 2008*

Even if there was universal agreement that human nutrition should have priority in decisions regarding the use to which land is put, there remains the problem of land adequacy, as already highlighted in the reference above to the estimates and opinions of Professor Rattan Lal. Moreover, there is the important matter of how the required productivity from a reduced area of land can be attained without an adequate supply of phosphate fertilizers.

Certainly, it would seem that a second "green revolution" will be necessary if food, feed and fibre supplies are to be available in sufficient quantities to improve the lives of all of the world's inhabitants. Lest this view is seen as neo-Malthusian, permit me to remind readers of what appears to be the almost universal prevalence of out-of-sight, out-of-mind attitudes in this matter. In 1996, the FAO World Food Summit[12] resulted in a consensus target of halving the global number of undernourished people by the year 2015[4]. Since, the number has progressively increased to now include almost one billion people. That is hardly an indication of genuine humanitarian concern. Rather, it is almost certainly a reflection of the sad lack of political leadership within the global community. Tragedy is transformed to obscenity with the indication that, over the same period in which the resolve of the World Food Summit to save lives so conspicuously failed, global expenditure on armaments to take lives increased by 45 % to the annual level of USD 1.4 trillion in 2007[13].

The Plantations of the Future

Let me begin on this rather speculative topic by re-affirming that plantations represent an entirely legitimate land-use. Under best management practices, their production of wood should not be seen as different to other forms of cropping. Moreover, they can make three significant contributions to partial alleviation of possibly the gravest of the global problems highlighted above, namely global warming :

- plantations sequester carbon by photosynthetic extraction of carbon dioxide from the atmosphere and the storage of carbohydrates in the above-ground and below-ground components of their biomass. This sequestration can be augmented through adoption of specific management techniques and it can be attenuated in long-life wood products from plantations, such as furniture ;
- plantations provide wood (both primary wood and residues) which can be converted into a variety of solid, liquid and gaseous fuels. Technological advances promise a future in which wood-based fuels could eliminate bio-fuels based on food or feed raw materials ; but, most importantly,
- plantations provide wood with strong potential to substitute for that harvested from native forests, an activity which – unfortunately – is too often associated with degradation and destruction, reflecting some combination of ignorance, institutional weakness or malfeasance. This degradation and destruction of native forests may contribute 20 % or more of global man-made carbon dioxide emissions[14];

Figure 3. : (from The Economist) : Use as a bio-fuel has driven up the price of palm-oil as a cooking oil and the affordability of this small weekly purchase for many families in India is questionable.

However, in the future, it is difficult to see how conventional plantation cropping can compete for any land that can be used for growing food, feed and fibre for human consumption. Such is no more than reflection of what appears to be the looming, acute scarcity of such land. Indeed, it is not unreasonable to suggest the possibility that future governments may feel obligated to legislate to prevent dwindling areas of arable land being used for purposes other than supplying these essentials for human existence.

Thus, I suggest that the plantations of the future will either be located on lands not suited to food, feed and fibre production or be integrated with such production under a co-cropping system.

The first option here is not a pleasant prospect. Perhaps inevitably, it would relegate plantations to lands which would :

- deny achievement of potential productivity through edaphic and / or climatic limitations ; and / or,
- increase costs of log products (through use of remote lands and / or those of steep topography).

The second option of co-cropping is much more appealing. In my opinion, that it is both desirable and feasible is beyond doubt.

The range of food, feed, fibre and fuel crops which can be grown in integrated systems with plantation trees is wide. Importantly, so too is the range of intensities with which the co-crop can be applied in the integrated system. For example, grazing cattle in many Eucalypt plantations in Uruguay – a low intensity co-cropping – seems not to diminish wood productivity per gross hectare of land used. Simultaneously, it minimizes fire risks. Another low intensity co-cropping occurs under the trees-on-farms concept where it can be demonstrated that planting up to 10 % of a pasture area at a high stand density results in no loss of live-weight beef productivity per gross hectare because of the beneficial effects of the shelter provided. Any periodic revenue from sales of wood produced by the plantations is a bonus.

Not surprisingly, where productive arable land per caput is already a scarce resource, integration of plantation trees with co-crops for food, feed, fibre and fuel is already extensively practiced. In both Asia and Africa, the long-practised *taungya* silvicultural system is well distributed, though not always successfully[15]. More recently, reduced stand densities and greater continuity of co-cropping have been features of integrated systems applied over large areas in, for example, China, Thailand and India. This photograph shows one Indian system. I shall report on *Eucalyptus* in India – the nation with the world's largest area of Eucalypt plantations[16] – in a future contribution.

Figure 4. : A clonal plantation of E. tereticornis (aged 2 years) with a wheat co-crop in Punjab, India.

[12]*Subsequently reinforced by Millennium Development Goal*
[13]*Stockholm International Peace Research Institute : Armaments, Disarmament and International Security, 2008*
[14]*Source : IPCC reports, which also noted that this proportion is greater than that of the global transport industry. FAO states that 25 % of carbon dioxide emissions are attributable to deforestation. The organization also claims that global forests sequester 283 giga-tonnes (giga = 10^9) of carbon in their biomass alone, with one trillion (trillion = 10^12) tonnes stored in the total forest ecosystem. It estimates that destruction of global forests – concentrated in Asia, South America and Africa – releases about two billion (billion = 10^9) tonnes of carbon dioxide annually.*
[15]*For definitions of the taungya system and some report on its application, please conduct a Google search.*

To conclude, the question is posed : What can be done to replace rock phosphate as a source of phosphorus fertilizers[16]? The consensus of informed opinion seems to indicate that human urine presents the best prospects[6]. Apparently, it is already used successfully as a phosphorus fertilizer substitute in Uganda and Mexico.

About the Author: ***Evan Shield*** *is an independent consultant, specializing in Eucalyptus management, utilization and marketing. An Australian by birth, he now resides in Argentina, having worked many years in Papua New Guinea and Australia. He is a vocal supporter of heavy, early thinning regimes to encourage 'free growth' in eucalypt plantations (see SPGS News No. 18).*

UNDERSTANDING WOOD PROPERTIES OF UGANDAN-GROWN, CLONAL EUCALYPTS

by: Harold Turinawe, Mnason Tweheyo & Paul Mugabi
Corresponding Author: hturinawe@gmail.com

This study, which is being undertaken by Faculty of Forestry and Nature Conservation at Makerere University, is aimed at understanding the physical and mechanical properties of first rotation hybrid clonal eucalypts grown in Uganda. It is funded by the UK's Department of International Development (DFID) under Development Partnerships in Higher Education programme (DelPHE) and at the end of the study a Master of Science thesis will be produced and submitted to Makerere University.

Historically, human use of wood for various purposes has gone on for many millennia, e.g. primarily as a fuel or as a construction material for constructing houses and furniture and for making tools, weapons, packaging, artworks, and paper. Different kinds of timber have been and will keep being required for different tasks: in the past, however, suitability of wood to particular tasks was based on relative abundancy, price on market and traditional knowledge. Given the loss of forests in the last three decades, the increased wood demand and its predicted deficit has prompted scientists to develop fast growing trees that can meet the required demands. Consequently, fast growing trees are currently being adopted for plantation development and enrichment planting in many countries.

Following the trend to plant fast growing plantation trees, clonal eucalypts have been introduced in Uganda for both woodlots and extensive commercial tree planting. In 2001, clonal eucalypts were introduced in Uganda from South Africa because of their fast growing characteristics and high yields per hectare. After seven years of introduction in Uganda, some clonal eucalypts are now at a utilisable age and size i.e. above 20 cm dbh: these clones are predicted to produce building and transmission poles at 4-6 years and timber at timber 7-8 years, which is almost four years less than the rotation of traditional eucalypts. Indeed silvicultural assessment results from the National Forestry Research Institute (NaFORRI) clonal trials, show the tremendous potential of these hybrids – in terms of both growth and form.

Sadly, as the planting in Uganda progresses, some farmers and other foresters have come up strongly against the planting of this "supposed to be a solution" species. The major reason against is the uncertainty of the quality of the wood material from the clones. Currently in Uganda, we cannot tell with precision the suitable end product of these trees since there is data deficiency on wood properties of the clonal eucalypts grown in Uganda.

The above is scientific research and implementation gap. Logically basic end-user information on the clonal eucalypts should have been carried out before implementation. However, not all is gone; this study on physical and mechanical properties of clonal eucalypts will provide answers for potential end-user of these new trees. The study rides on the premise that wood unlike other building materials e.g. cement, steel, plastic and ceramics cannot be manufactured to particular specification but rather the best is made of existing natural material through selection to suit the different tasks; and that selection must be based on empirical knowledge of wood properties and the job requirements in terms of strength, appearance and durability among others.

The study focuses on five (5) main hybrids GC 796, GC 550, GC 540, GU 7 and GU 8 owing to their increased adoption especially in the Lakeshore Victoria crescent and the SE Agro-ecological zones of Uganda. This study is set to achieve the following objectives:

- Assessing moisture content (MC), Basic Density (BD) and Heat Capacity of the selected *Eucalyptus* clones grown in two agro ecological zones of Uganda.
- Assessing Static bending strengths (MOE, MOR, Wmax), Compressive Strength parallel to the grain, Ultimate shear strength parallel to the grain and Cleavage strength of selected *Eucalyptus* clones grown in two agro ecological zones of Uganda.
- To compare properties of clonal Eucalyptus with those of *Eucalyptus grandis* landrace.

Currently in Uganda, we cannot tell with precision the suitable end product of these trees since there is data deficiency on wood properties of the clonal eucalypts grown in Uganda.

The properties under investigation are expected to produce information on the following:

i. **Basic Density;** the most single important property controlling performance of wood
ii. **Calorific Value;** a property that indicates the fuel value of timber also closely linked with basic density.
iii. **Static bending strengths;** a measure of the strength of a material as a beam; there are many examples where timber is used as a beam, i.e. floor, ceiling joists, roof truss members, tables and chair bottoms.
iv. **Compressive strength parallel to the grain;** predicts the ability of timber to be used as columns, props chair legs.
v. **Ultimate shear strength parallel to the grain;** this is the most important property in structural timber especially so in the region of joints.
vi. **Cleavage strength of selected;** a property which indicates how easily wood would split, it is advantageous in the production of hand split shingles, barrels and firewood and can be used to predict nail or screw holding ability.

Results of this study are expected to provide basic information about the potential uses of hybrid eucalypts and therefore guide decision making for future promotion and commercialisation of the hybrid eucalypts for plantation forestry development in Uganda.

[16]*Refer : http://git-forestry-blog.blogspot.com/2008/09/eucalyptus-global-map-2008-cultivated.html. This site indicates India had 3,942,600 hectares of cultivated Eucalypt plantations in 2008.*

Uganda and Carbon: 10 YEARS ON.

Bill Farmer – Uganda Carbon Bureau

Every week we receive enquiries from small tree growers in Uganda about whether they can access carbon credits for their tree planting activities. The word has travelled that there's gold in the forests, and everybody wants some – but is this an illusion, or is there really something to it? There has been a lot of talk about how to access this 'gold' – now we need to get down to the practicalities of doing something about it.

In general, accessing forestry-flavoured carbon credits has been a disappointment, with remarkably few projects globally actually achieving the ultimate goal of getting dollars for carbon sequestration from tree planting (known in the business as **A/R – afforestation & reforestation**). Now of course there is a huge amount of discussion about carbon finance for avoided deforestation – meaning, money to protect a threatened tree so that terrestrial carbon does not become an atmospheric carbon emission (the famous **REDD** - Reduced Emissions from Deforestation and Degradation). If things went smoothly we could imagine the day when SPGS members might be able to earn carbon credits from their new sawlog plantings (A/R) and REDD credits from the protection of areas of natural tree cover.

As readers of SPGS News know by now, there are two carbon markets – the official UN compliance market governed by the **Clean Development Mechanism** (CDM) standard, and the **voluntary carbon market** which operates to a variety of standards – some self-designed by those that use them, and others that are designed and managed by independent third parties.

Compared to other countries in Africa, Uganda is doing quite well with the variety of forestry standards that have been used. Let us look at what has happened in Uganda over the past 10 years.

We showcased **FACE** (Forests Absorbing Carbon Emissions) at the first Consultative Meeting on the Uganda Forest Sector back in September 1999. This was a really pioneering exercise by the Dutch Electricity Generating Board back in the 1990's before any carbon system was in place. They chose to work with UWA in restoring previously encroached areas in the Mt Elgon and Kibale Forest national parks. Basically FACE got the rights to the carbon credits (as they have since come to be known) for 100 years, and UWA got its land planted with indigenous species.

The FACE projects were subject to independent third party verification of the carbon sequestered (i.e. stored) by SGS who worked with EcoSecurities to develop a methodology to audit companies and forestry projects - the Carbon Offset Verification (COV) system.

Most forestry carbon project developers have largely moved to the voluntary market where a more pragmatic approach is being offered. However, some plantation companies in Uganda, notably Green Resources, have the scale and determination to still pursue the CDM route.

However, the formal and voluntary carbon markets have moved on over the past 10 years, and FACE is now converting all its projects' certificates to what are considered to be more valid carbon standards, which include CDM and VCS. The two FACE projects in Uganda are similarly being converted, but they have been the subject of considerable adverse publicity in recent years from groups unhappy with their perception that communities were moved from the parks so that carbon credits could be earned from tree planting.

The next carbon project to arise in Uganda was the Bushenyi **Plan Vivo** scheme that the Forestry Secretariat initiated in conjunction with CARE and ECOTRUST. Farmers have been earning steady but modest amounts from the trees that they planted. Plan Vivo projects have been slow to catch on across the world as they involve a large amount of bespoke project design to match with the community situation on the ground, and the little publicity that the methodology has generated in the past has meant that marketing the credits has not always been easy. The ECOTRUST programme is slowly expanding into new areas in Uganda and we hope the appojntment of Ray Victurine (known to many in Uganda for his role in helping to set up ECOTRUST, and now working for WCS) as the chairman of the Plan Vivo Foundation, will stimulate the growth of new projects and further sites in the country.

Theereafter the World Bank's **BioCarbon Fund** focussed its attention on seeing if it could stimulate a clutch of CDM standard forestry project across the world, and the NFA was helped to develop a new planting scheme of mostly *Pinus caribea* and *P. oocarpa* in the Rwoho Central Forest Reserve. The intention was that the project's design could be easily duplicated and adapted elsewhere within Uganda and Africa, where prevailing land-use and socio-economic conditions often do not permit large scale forestry projects. In common with many CDM forestry projects of the same era, the scheme has been in the pipeline for a number of years, and has also attracted negative publicity from campaigners who have been lobbying against plantation forestry for carbon sinks. Up to March 2009 only one reforestation project in the world (in China) had succeeded in being registered with the CDM. According to Carbon Positive, these projects only earn temporary carbon credits, which is just one of a range of issues complicating such projects for A/R developers. As a result, this sector of the UN's CDM has

failed to take off like most other types of emissions reduction projects. Less than 30 forestry projects have been proposed to the CDM authorities out of more than 4000 in the total pipeline. Most forestry carbon project developers have largely moved to the voluntary market where a more pragmatic approach is being offered. However, some plantation companies in Uganda, notably Green Resources, have the scale and determination to still pursue the CDM route.

And then there is the earlier entry into south western Uganda of **TIST** (The International Small Group & Tree Planting Program). This is a village-based approach that started in Tanzania and attracted considerable publicity by selling carbon credits on eBay. It featured in the World Bank's initial project portfolio and received substantial support from USAID. In recent years its star has not shone so brightly, but there are new developments afoot so it may yet catch on more widely. A visit to TIST's Mt Kenya activities during the Nairobi climate change meeting in 2007 highlighted some of the difficulties of trying to take smallholder farmers into a CDM carbon methodology.

As for other fresh approaches in the voluntary carbon market, the Kikonda project of Global Resources recently hit the headlines by being the first certified project under the new German CarbonFix standard.

As for other fresh approaches in the voluntary carbon market, the Kikonda project of Global Resources recently hit the headlines by being the first certified project under the new German CarbonFix standard. This was a joint certification exercise with the Climate, Community & Biodiversity Standard. **CarbonFix** is attracting international interest and was highly praised in the recent University of Canterbury review of forestry standards in the voluntary carbon market We reckon that this is a standard that has further application in Uganda if the market continues to support it.

A hot tip for future application in Uganda is the widely respected **Voluntary Carbon Standard.** Uniquely, this has been offering the possibility of both A/R and REDD credits under the same standard. In many quarters this is seen to have the potential to become the voluntary market standard of choice, if only because of the quality of its backers. The cracking report published by WWF Germany in March 2008 comparing voluntary carbon offset standards rated the VCS as one that has the potential to do well because of its thorough and innovative rules, once it has built up a portfolio of projects. A standard to keep a close eye on. We are currently developing a REDD submission to the VCS, using modules under development by Avoided Deforestation Partners.

And finally (but there are quite a number of others standards out there that space does not allow us to mention, - except to say that we are still talking to the Social Carbon folk at Cantor) don't dismiss the new kid on the block. The **Forest Carbon Project Standard** (FCPS), owned by the respected non-profit organisation Winrock International, has entered the market as a REDD and A/R one stop shop. This may be a play ahead of a future national emissions cap-and-trade scheme promised by the Obama administration. But it has innovative features to ensure the permanence of the carbon stored in trees to cover unplanned losses. Time will tell if this takes off in Africa. CarbonExpo in Barcelona takes place in May, and we will be there catching the latest news on all these standards.

And coming back to the question of how do we advise those tree farmers through this minefield of jargon and standards – well, there are new ways of bringing together many small project sites under a single umbrella. For the CDM this is called a **Programme of Activities**, and some other standards are offering a similar approach. This was a buzzy topic in December at the climate change meeting in Pozan. With our new staff and partners we are doing this for the small hydro sector in East Africa. So our advice to the farmers is to go and get signed up to SPGS, where we hope to have a suitable umbrella waiting for them.

Bill Farmer – Uganda Carbon Bureau (*billfarmer@ugandacarbon.org* - *www.ugandacarbon.org*)

About the Author: ***Bill Farmer*** *established the Uganda Carbon Bureau in 2006 to be a provider of carbon offset finance services to Ugandan projects and enterprises. He has attended all the key Climate Change Conferences in the recent past. Bill previously led the technical team that undertook the reform of the Uganda forest sector and has worked and traveled widely in Africa and the Caribbean. Bill is currently in discussion with the SPGS on Carbon matters.*

SOME CARBON FACTS

Forests contain the majority (*ca.*60%) of the world's terrestrial carbon, and they play an important role in controlling its climate.

Although forest loss has been occurring for centuries, the last few decades have seen alarming rates of deforestation, with around 13M hectares of forest converted to other land uses every year. This cumulative loss of forest biomass represents a significant decline in the total carbon stocks, which decreased by about 1.1Gt annually between 1990 and 2005.

Sequestering carbon in forestry projects is one of the few ways to actually remove CO_2 that has already been emitted into the atmosphere.

Deforestation accounts for a fifth of all global carbon emissions, making land cover change the second largest contributor to global warming. Forests therefore play a vital role in any initiative to combat climate change.

Provided bioenergy is sustainably produced (i.e. from a renewable resource), it is a CO_2 neutral energy source. This is based on the premise that the same amount of CO_2 is released at the point of use as is removed from the atmosphere via photosynthesis as it grows.

The entry into force of the Kyoto Protocol in 2005 raised the profile of carbon trading not only in the regulated but also in the voluntary carbon market. Estimations are that the market is growing by 100% or more per year and could be trading 400M tonnes of CO_2 equivalent by 2010. Prices for VERs (Verified Emission Reductions – the units for voluntary carbon credits) in 2006 averaged US$10, up from $7 in 2005.

DEVELOPING A COMMERCIAL FORESTRY INDUSTRY IN EASTERN AFRICA[1]

Jim Ball - Chairman, Commonwealth Forestry Association

1. GLOBAL TRENDS

• Plantation area trends since 1990

The total worldwide area of plantations in 2005 was over 140 million ha, or 3.5% of the total area of forest. The annual rate of increase is about 2%.

Trees outside forests, often planted and grown in farmers' fields, are an important source of wood, but are mostly excluded from country figures. For the African region, trees outside forest reserves make up another two thirds of the forest area.

Region	Plantation forest, 2005				
	Area, thousand ha			Change %/yr	
	1990	2000	2005	90-00	00-05
Africa	12,245	12,865	13,338	0.5	0.7
Asia	46,591	55,665	64,888	1.8	3.1
Europe	22,530	26,588	27,694	1.7	0.8
N&C America	10,782	17,937	18,844	5.2	1.0
Oceania	2,447	3,491	3,865	3.6	2.1
S. America	9,132	11,437	12,189	2.3	1.3
World	105,717	129,983	142,823	2.1	1.9

Source: Global planted forests thematic study. 2006. FAO Forestry Working Paper FP/38

• Purposes

Most plantations are established to supply industrial roundwood, poles or fuelwood, but they are also grown for the provision of non-wood forest products (e.g. gum arabic), for protection (e.g. shelterbelts or anti-desertification measures) and for environmental services (carbon sequestration). Worldwide, 79% of plantations have been established for production purposes, and the balance for protective functions.

• Demands for wood, and the development of new techniques and markets

Increasing populations and more wealth mean that the world's demand for wood is growing at about 6% yearly. Africa's population is projected to grow at 2.1% between 2010 and 2020, and GDP grew at 6.2% in 2007. But natural forests cannot meet peoples' demands for wood and at the same time fulfil their protective and conservation functions.

The table (right) shows the world's production of wood in 2006. Note that fuelwood production worldwide is larger than industrial roundwood, and the high share of the world's fuelwood by African countries.

Although the global plantation area is a small proportion of the world's total forest area, about 40% of the raw material for industrial purposes now comes from plantations rather than from natural forests.

New techniques are being developed to improve recovery and to convert formerly intractable species into useable products (e.g. *Eucalyptus* into sawtimber or pulp) and new markets are being developed for sizes and species which were formerly un-saleable (e.g small diameter poles and rubberwood).

• Improved growing stock

Developments in tree breeding are leading to improved growing stock which not only has higher growth rates but also better technical properties.

• Increasing role of the private sector

Worldwide, most plantations have in the past been established and managed by public forest services but now there is much more private ownership. This trend is reflected in Africa also, encouraged by increasing demand and improved profitability.

"Outgrower" schemes have been developed in the past, especially in the agricultural sector for tea production, but they are now being introduced in the forestry sector. Typically, a private wood-processing company enters into a contract with landowners to grow the raw material – in this case trees. African examples include Ghana (sawlogs), South Africa (wattle) and Zimbabwe (pulpwood). Sometimes the company may offer loans or inputs such as fertilizer or improved growing stock.

Product (million m3)	Global	Africa	Share %
Industrial roundwood	1,635	69.0	4
Fuelwood	1,871	589.0	46
	3,506	658	19

Source: State of the World's Forests, 2009. FAO

• The importance of facilitating forest policies and laws, the supportive role of the public sector and the need for strong institutions

There has been a global and African trend towards decentralization and devolution in general, including the forestry sector. But while the devolution of responsibility for forestry has been moving to the private sector and communities, it has not always been accompanied by the consistent policies and legislation for the promotion of investment. Secure land tenure is especially important for the encouragement of investment in forestry.

Support is needed from the public forest service, in control, training and extension for example, but the capacity of public institutions is often weak. Support may also be offered by the government to private sector plantation establishment through direct grants, subsidies, loans at a low rate of interest, and taxation concessions. All need good governance and strong institutions to control them.

2. THE CATALYTIC ROLE OF THE SPGS

From the analysis of global trends above, it can be seen that the SPGS has developed to meet the new directions in forestry in the 21st century. It is directly aimed at support to the private sector, in grants and in advice and training, but its benefits will be enjoyed by the people of Uganda in general through increased availability of wood and

This was the opening address to the SPGS/CFA Workshop 22-24 April 2009. Other speakers' contributions at the Workshop are available at www.sawlog.ug

the development of wood-using industries. There will be social and economic benefits for rural people through improved employment and thus better livelihoods. Increased sawlog production will have an impact on the protection of natural forests and thus on the conservation of biological diversity. There will be environmental benefits in soil protection and in the sequestration of carbon.

But the influence of the SPGS will not be confined to Uganda. It has a most important catalytic role in helping to develop similar schemes in other countries, through demonstration and example.

3. THE COMMONWEALTH FORESTRY ASSOCIATION

The Commonwealth Forestry Association (CFA) was established in 1921, making it the world's longest established international forestry association.
Its mission is to promote the conservation and sustainable management of the world's forests and the contribution they make to peoples' livelihoods. This mission supports the Millennium Development Goals, in particular relating to the eradication of extreme poverty and hunger through the contribution of forests to livelihoods, and to the fundamental role that forests play in environmental stability.

The CFA unites foresters, scientists, students, NGOs and policy makers throughout the world in a unique international network. It is our commitment to the promotion of forestry that has led us to support this Workshop with SPGS.

There are a number of benefits, both for corporate members and for individuals. They include the peer-reviewed International Forestry Review and the CFA Newsletter (both quarterly in hard copy and on-line), awards, fellowships and training courses as well as a constantly updated website to keep foresters in touch.

You can learn more about the CFA, including membership, from our website - http://www.cfa-international.org/

4. PLANTATIONS IN EAST AFRICA

The following are some personal thoughts on the establishment of plantations in East Africa.

- East Africans are pioneers in plantation establishment! We have more than 100 years of experience, so if you need advice on species selection, establishment or management, often all you need to do is to look around you!
- The matching of species and provenances to site and to markets. If there is one thing that I have learnt, it is that you must select species and provenances that are suitable for your local site, and given that, you must select species – or a mix of species – that can be sold when they mature.
- Introduced species vs indigenous. Don't be sidetracked by this argument! If your species matches your site and the foreseen end-use then don't worry if it is introduced or indigenous. But obviously avoid any species that are known to be invasive – take advice!
- The need for protection from fire and from pests. Like any other investment, your plantation needs protection.
- The impact of climate change on species selection and growth. We live in a changing world; we need to select species that are not only matched to our site and to the markets we expect when we cut them, but in the medium term we also have to choose robust species adapted to the changes that will occur in the climate.

About the Author: ***Jim Ball*** *appears to be very active for someone who retired in 2001. He is Chairman of the Commonwealth Forestry Association (CFA); he has recently been involved with some big international forestry conferences as well as drafting some FAO publications too. Jim worked in Uganda (1963-71) as a DFO in Masaka, Ankole and Kigezi Districts and as Silviculturalist, based at Entebbe. He then had spells in Kenya ('71-'73), Nigeria ('74-'83) and Sudan ('83-'91) before heading to Rome as FAO Plantations Officer.*

B.SC. COMMERCIAL FORESTRY – IN UGANDA!

Degree Program to be Offered by the Faculty of Forestry & Nature Conservation, Makerere University:

The Faculty of Forestry and Nature Conservation, Makerere University, under its current three undergraduate degree programs (BSc. Forestry, Bachelor of Community Forestry and BSc. Wood Science and Technology), has continued to produce graduates with sufficient knowledge to address diverse issues in the forest sector. However, the current programmes offered do not strongly address the increasing desire and involvement in "tree planting as a business" that is expressed by both the government, and most importantly the private sector. The increasing involvement in commercial tree planting has created a demand for specialised skills and knowledge.

The Department of Forest Management is therefore developing a curriculum for a BSc. Commercial Forestry Degree Program aimed at training a cadre of graduates to promote forest plantations as a viable investment in Uganda's forest sector for improved livelihoods, transformation of societies through economic growth and attainment of sustainable development. In so doing, the programme will promote national development through

training; research and technology transfer in forest plantations; hence contributing to the mission of the Faculty of Forestry and Nature Conservation and that of Makerere University. Further, the programme is well suited in fulfilling MDGs 1 & 7.

The Faculty of Forestry and Nature Conservation is well endowed with well trained staff in the different disciplines, who in collaboration with staff from other relevant Faculties will contribute to the smooth implementation of the programme. Further, the faculty has professional and cordial relationships with Forest Research Institutes (e.g. NaFORRI), private commercial tree farmers (individuals and companies), National Forestry Authority, Forest Services Sector Division and the SPGS, which will enhance knowledge sharing as well as field-based learning.

In addition to the currently available space for teaching and learning (office space, specialised research laboratories, lecture rooms, computer laboratory and library), we are currently discussing with likely partners willing to commit funds for setting up a joint resource centre (located at Makerere University campus) to serve as one-stop reference facility for tree farmers, SPGS and Makerere University community. This facility will greatly enhance the development and dissemination of knowledge in reference to commercial tree farming.

Head, Dept. of Forest Management, Makerere University.

IMPORTANT PUBLICATIONS.

FAO's Global Review of Forest Pests and Diseases (2009)

FAO's Global Review of Forest Pests and Diseases (2009) is a timely publication for us in Uganda, as we need to plan now for any potential threats to growers' investments.

Measures to protect forests from insect pests and diseases (P&D) are an important part of sustainable forest management. Effective P&D management requires reliable information on the P&D themselves, including their biology, ecology, distribution and of course, possible methods of control. For this report, FAO coordinated the responses from 25 countries around the world - including 7 African countries – Ghana, Kenya, Malawi, Mauritius, Morocco, RSA and Sudan.

The report states that most countries do not carry out routine monitoring and detection of P&D. It also highlights the lack of trained people capable of identifying P&D. Reading the report, it is clear that Africa faces severe challenges from invasive forest P&D: they cite the blue gum chalcid (*Leptocybe invasa*) – now found from the North to the South of the African continent. Other P&D introduced the last five years include:

- *Cinara pinivora* (giant conifer aphid) in Malawi.
- *Coniothyrium zuluense* – Ethiopia.
- *Thoumastocoris peregrinus* (bronze bug) and *Coryophodema tristis* – RSA.
- *Gonometa podocarpi* – Tanzania.

All the above P&D pose threats to neighbouring countries. The report lists other important P&D in Africa as:

- *Cupressus cupressivora* (cypress aphid).
- *Eulachnus rileyi* (pine needle aphid).
- *Pineus pini* (pine woolly aphid).
- *Sirex noctilio* (European wood wasp).
- Plus a range of cosmopolitan fungi, including *Armillaria* spp. (root rot); *Sphaeropsis sapinea* (shoot blight) and *Mycoshpaerella pini* (red band needle blight).

The report has sections on selected, trans-boundary P&D and also on selected tree species. Inevitably though, having such a global scope means that only a limited selection can be covered in the report (though the authors do say that the list will be expanded on their web-site over time).

As with (most of) FAO's publications, this one is available free (as a pdf) from their web-site – www.fao.org/forestry - though it would be preferable to have higher quality photographs to be able to identify the pests better. Presumably one must pay for that!

ENERGY GROWS ON TREES

ITTO (2008). Int. Tropical Timber Org.

Technical Series No. 31; 87pp.
Available as a free download from www.itto.org

"The increased interest in wood-based bio-energy has been stimulated by two main concerns: energy security and climate change". So says Wulf Killmann (FAO's Director of Forest Products and Industry) in his opening address at this gathering of very illustrious people. **Energy Grows on Trees** is a report from an international conference on wood-based bio-energy, held in Hanover, Germany, in 2007.

The clear message that jumps out at the reader from the various presentations is that wood-based bio-energy is a rapidly developing sector but much of the technology is in developed countries. One of the conference's nine specific recommendations caught your reviewer's eye – namely, to investigate the creation of small grants schemes of wood-based bio-energy, especially in tropical countries. Now there's an interesting thought!

FAO'S VOLUNTARY GUIDELINES FOR RESPONSIBLE FOREST MANAGEMENT

by Jim Carle (FAO, Rome)

FAO were tasked with preparation of voluntary guidelines for: i) responsible management of planted forests[1]; and ii) fire management[2]; by member countries through the Committee on Forestry (March, 2005), Ministerial Meeting on Sustainable Forest Management (March, 2005) and by the private sector, through the Advisory Committee for Paper and Wood Products (an FAO technical statutory body). The two voluntary guidelines were to strengthen country capacity to achieve sustainable forest management and increase the contribution of forests and trees towards sustainable livelihoods and land-use.

FAO collaborated with a wide range of partners and stakeholders in preparing the voluntary guidelines, through technical and expert consultations, six Regional Forestry Commissions during 2006 and through private sector and NGO processes. The 18th Session of the Committee on Forestry (COFO), March 2007, commended FAO for coordinating the multi-stakeholder processes and recommended that FAO, together with Member Countries and partners, strengthen capacity towards their implementation.

The voluntary guidelines address the social, cultural, environmental as well as economic dimensions of planted forests and fire management. Furthermore they encourage policy dialogue, strategic planning and integrated actions across sectors. The primary target users were senior policy and decision makers and managers from both the public and private sectors, with secondary users including academics, scientists, NGOs and other civil society groups.

The voluntary guidelines provide a comprehensive review of responsibilities under international commitments to decision makers in policy, planning and management. They also provide a framework of principles and strategic actions necessary for responsible management of planted forests and fire management at the national, sub-national and field levels. The two voluntary guidelines are tools that can contribute to sustainable forest management and broader livelihoods and development goals.

The voluntary guidelines address the social, cultural, environmental as well as economic dimensions of planted forests and fire management.

The voluntary guidelines for responsible management of planted forests are available in English, French, Spanish and Chinese, whilst Arabic and Russian are in process. The voluntary guidelines for fire management are available in English, French, Spanish, Russian, Indonesian Bahasa and Korean, whilst Nepalese, Portuguese, Macedonian and Croation are in process.

To facilitate implementation of the voluntary guidelines for fire management, the Fire Management Actions Alliance[3] was launched at the 4th International Wildland Fire Conference in May 2007. The 50 founding members of this international partnership undertook to implement the voluntary guidelines for fire management, share information, knowledge and activities and to enhance international cooperation in fire management. FAO provides the Secretariat to the Alliance.

FAO is supporting Member Countries to undertake needs analyses, prepare action frameworks, elaborate on 3-5 year programmes and identify funding opportunities for implementation of the voluntary guidelines, including through national and regional workshops. FAO support has been available through the Regular Programme, TCP, GCP and national forest programmes Facility. FAO has also been collaborating with a wide range of stakeholder groups to mobilize resources from the public and private sectors, NGOs, funding agencies and donors for implementation of the voluntary guidelines in their projects and programmes.

For further information please contact Jim Carle, OIC, FOMR at jim.carle@fao.org or Ext. 55296.

[1] *Voluntary Guidelines for Responsible Management of Planted Forests:* http://www.fao.org/docrep/009/j9256e/j9256e00.htm
[2] *Voluntary Guidelines for Fire Management:* http://www.fao.org/docrep/009/j9255e/j9255e00.htm
[3] *Fire Management Actions Alliance:* http://www.fao.org/forestry/firealliance/en/

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PHOTO GALLERY III - SOUTH AFRICA 2009

Mondi's Mark Holmes describing their massive clonal eucalypt production to the Ugandan visitors. The importance of an ongoing, applied research programme was emphasized.

A contract worker planting pines near Sabie for York Timbers.

↑ *This all-wooden house created much excitement amongst the Ugandan group: it was part of a hotel in Sabie, Mpululanga Province.*

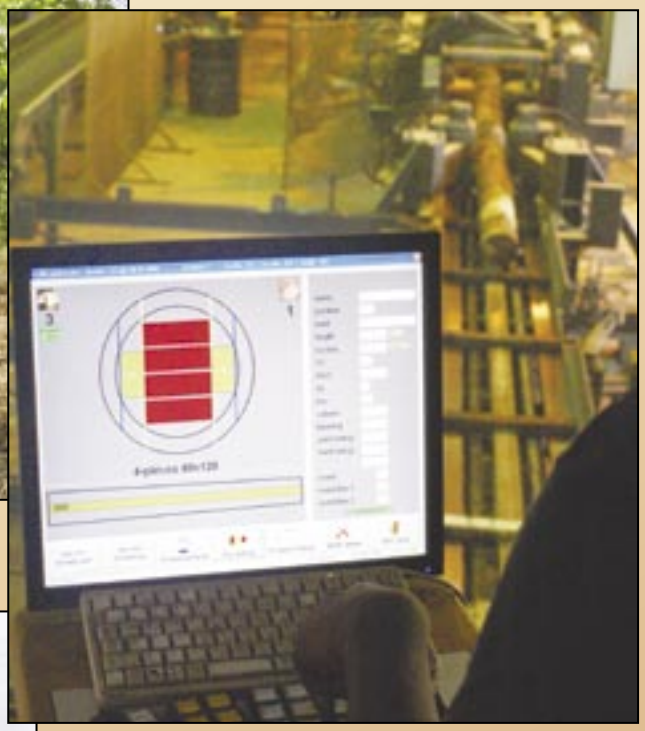
↑ *A mechanical harvesting operation taking place in Mondi's Kwa-Zulu Natal eucalypt plantations. All material is destined for a nearby pulp mill.*

↑ *"We have take-off!" A flock of pelicans at one of Mondi's conservation areas in the KZN plantations. The commercial forestry companies take their environmental and social responsibilities very seriously.*

← *Just one of Komatiland's 'wet-deck' storage area for logs burnt in the 2007 fire. Logs can be kept for up to 2 years provided they are kept moist.*

PHOTO GALLERY IV - SWAZILAND 2009

↑ *Heavy, early thinning of eucalypts is being practiced at Peak Timbers, to promote the growth of large sawlogs. This stand was under 2 years old.*



↑ *Computerized scanning determines the optimum cut and maximizes recovery from each log (Peak Timbers' sawmill in Swaziland).*

↑ *Montigny's Koen Bardenhorst showing us their highly impressive enterprise in Nhlangano (Southern Swaziland). Maximizing value addition to timber is their motto.*

↑ *A text-book example of where to situate a processing plant for timber: in the middle of the forest and close to a main road (Swazi Plantations, Piggs Peak, Swaziland).*

← *Swazi contractors sharing experiences with the Ugandan visitors: nearly all forestry operations are carried out by skilled contractors.*

From p. 7

HEADING SOUTH...

for fine details of a suspected fire or suspicious activity and alert nearby ground crew to take remedial action.

The fire surveillance company provides a 24 hour surveillance service to many private forest plantation owners in the 250km radius at an agreed fee. The impressive thing about this arrangement is that forest owners need not invest in expensive fire surveillance equipment of their own. All they need to have in place are good fire fighting crews and equipment. Another aspect of this organization that impressed us is the public awareness programme under the ***"Mlilo kills"*** slogan. The programme targets both grown-ups and school children. The immediate benefits are attitude change of grown-ups towards fire danger since the message is continuously being put across. The long-term impact is on young children who grow up with a positive attitude towards the dangers of fire.

All South African and Swazi plantation forest companies have fire fighting equipment ranging from small units that are normally mounted at the back of pick-up trucks. These can be handy in putting out small fires or initiating a fire fighting operation while waiting for the arrival bigger equipment. Some companies have big fire trucks and even helicopters for fighting big fires that are common in that part of the world. All companies or their fire fighting contractors have well trained fire-fighting crews that are at different degrees of readiness depending on the fire index of the area.

South Africa has state of the art fire fighting systems. However, despite all the sophistication, the country suffered heavy losses of its forest plantations estimated at 130,000 hectares and millions of Rand during 2007 and 2008. This shows how serious fire can be and the loss it can cause to investments in forest plantations.

Although fire is generally destructive to forest plantations, the managers in the two countries visited at times use fire as a management tool. Burning under canopy or 'cool burning' as it is referred to, reduces incidences of future fires by reducing dry brush from the floor of the forests.

Forest road networks are very critical in fire management. They should therefore be well planned and properly maintained at all times. This enables fast movement of fire fighting crews and equipment. Both South African and Swazi timber growers maintain their forest road networks better than some of our so-called all weather. marrum trunk roads!

Wide fire lines separating different compartments or blocks and clear of dry vegetation minimize the spread of fire and help in containing any fire outbreak in manageable units. Fire management involves more than just fire fighting or surveillance. A good communication strategy and programme can help minimize fire occurrences: we saw many signs and bill-boards carrying messages on the dangers caused by fires.

One other strategy in fire management is maintenance of good public relations with local communities.

Where possible employ your labour force from the local communities, pay competitive remunerations and provide additional welfare packages e.g. health insurance, food, transport (if work place is far from place of abode). Such seemingly simple things can ensure protection of ones investments by having a neighbouring community that identifies itself with such investments.

Although our industrial plantation industry is still at infancy stage, all industrial tree growers should from the outset, incorporate fire management in their management plans and start investing in things like look-out points and communication equipment like walkie-talkies - especially those undertaking large scale planting. Fire is likely to be the biggest enemy of forest plantations with the prolonging dry seasons that are attributed to global warming.

And finally, Mike Nsereko and Keeya Hood – ***Lessons Learned.***

Many of us who were on the recent trip to South Africa and Swaziland had never travelled for over 100km through planted forest. Between 8- 18/March/2009 it did happen. "We have only planted dots back home" commented Boaz Tishekwa, one of the guys we went with. "If we maintain the current momentum we shall also reach there with time" was the response of Paul Jacovelli who was leading our group.

South Africa and Swaziland are home to millions of hectares of planted forest which are well managed. Most of the forests are planted with pine, gum and black wattle. In South Africa, the key players are Sappi and Mondi. The medium scale operators are also doing well with their own processing plants which are mechanized. The small operators also exist and a few of them use their crop to produce value added products like sawn timber. However the majority in this category sell to large scale companies.

In Swaziland, in a Company called Montigny Investments owned by Mr. Neil Rijkenberg (a very enterprising investor), a lot of value addition takes place leading to the production and supply of a wide range of products including timber used on railways, mining timber, fencing poles, charcoal briquettes, ceiling boards, floor-boards and other products that are exported to South Africa and beyond. Neil explained to us that it is extremely important for any investor in the forestry sector to be mindful of the idea of value addition so as to be able to earn more money from his investment.

Overall, the trip to South Africa and Swaziland was very educative and an eye opener for us. It showed us that what we have started in Uganda has potential for success if we do things the right way. In effect it encouraged us to work even harder. In that regard, we wish to extend our sincere thanks to SPGS for having afforded us this opportunity. We also wish to encourage all tree growers who have not gone to South Africa to endeavour to make the visit if any opportunity arises because the exposure will most certainly leave you a better tree grower than you were before.

Q & A

The question and answer sessions are usually the highlight of our regular SPGS Clients' Meetings and the recent meetings in Mityana in late March and early April were no exception. We felt that it would be useful for a wider audience to also hear the replies to some very pertinent questions – especially those relating to the future of the project and to some of the key concerns of growers. Here they are:

Q: *"Even though we haven't got a SPGS contract, why does the SPGS not pay for trees we have planted following SPGS standards?"*
A: We have always made it very clear that the SPGS cannot pay for trees planted outside of a formal contract with the project. Firstly this is a clear stipulation for the use of EU funds. Further to this, the SPGS contract incorporates an agreed Forest Management Plan (FMP) and we need to ensure that this is followed – right from the land preparation stage. Hence there can be no retrospective payments for any planting carried outside of a formal SPGS contract.

Q: *"What is new in the FMPs that we must submit to the SPGS before we get a formal contract?"*
A: The FMPs required from potential applicants to Phase II of the project, must have more details about the land to be planted and the detailed planting programme. More attention is being focused on environmental and social issues too. Details are included in the new publication – SPGS's Frequently Asked Questions (v.4) - available from the SPGS office or at www.sawlog.ug

Q: *"Will the planting grants be increased to cover rising costs – as well as the extra costs of meeting the SPGS's new standards - for Phase II?"*
A: The details of Phase II are still being discussed by the project's Steering Committee and should be finalized by mid-2009. The recommendations from the recent EU and Norwegian consultant teams are currently being studied, as is the 2008 report carried out for UTGA on establishment costs.

Q: *"When will the new SPGS funds be available?"*
A: Both the donors of the SPGS Phase II (the EU and Norway) are currently working with the Government of Uganda to sign their respective financing agreements for the project's new funding. However, even when these are signed, it will still take some months before funds are actually available and new contracts can be signed. We will, as always, keep you informed through our Newsletter and on the web-site.

Q: *"Is it not risky planting on Central Forest Reserves (CFRs) with poor Government support for encroachment problems?"*
A: The increasing number of private sector, commercial tree growers need to work together – especially through UTGA – to convince Government that the current situation is not conducive to long-term investment in the sector.

Q: *"With the SPGS looking to support 'clusters' of growers, some of us are concerned that we will not receive support under Phase II".*
A: The cluster idea came about for two main reasons: firstly to rationalize the project staff's support to growers and secondly, to focus potential investors' minds on the location of their tree crops. The fact is that isolated, small plantations are never going to be very profitable thus the need for investors (and the SPGS) to think more about the final market for the trees. By encouraging clusters of growers, the opportunities are much greater for collective marketing: growers in such clusters would also benefit from sharing costs – for example, for fire protection.

Q: *"Why should we not have more than 300 trees per hectare for the final crop stocking – especially on more fertile sites?"*
A: The recommended final crop stocking for sawlogs comes from plantation research in many countries: in fact most Southern African companies go down to 250 or 275 sph for their final crop! More final crop trees will result in smaller sawlogs, which will not have high recovery of timber in the sawmill. The SPGS is trying to maximize the returns for investors and our thinning regimes are geared towards growing large sawlogs in the shortest possible time.

Q: *"What markets are there for the material from our first thinnings?"*
A: Thinning material from eucalypts is generally easier to market – e.g. for firewood, building and fencing poles – though this always depends on the volume of material and the distance from the market(s). For pines it is not so easy since small diameter pine has limited market appeal – especially as there is no pulp-mill in Uganda. NilePlywoods will buy for their chipping plant if around Jinja but otherwise, we all need to work together to identify possible markets. What is important, however, is to thin on time and to the recommended stocking – whether there is a profitable market or not for the material. Thinning 'to waste' is sometimes a necessary sacrifice that has to be made for the sake of the future crop.

UTGA: YOUR ASSOCIATION

by Mike Nsereko

2009 started well for the Uganda Timber Growers Association (UTGA). First, we had a rare chance to meet with the Minister of Water and Environment, Hon. Miria Mutagamba on 6th February, 2009 in her office in Luzira. The UTGA delegation expressed gratitude to the Minister for having afforded them a chance to meet her and pledged their desire to work with her to promote commercial forestry. The delegation presented its concerns to the Minister which included among others, the issue of encroachment in Central Forest Reserves (CFRs), lack of a clear strategy regarding land allocation and the delay to include two UTGA members on the Board of the NFA as had earlier been agreed.

In response, the Minister explained that they had carried out a study on all CFRs in the country to determine the extent to which each reserve was encroached: the report was forwarded to the President and is now waiting for his response. She further informed the delegation that the Ministry had also instituted a Committee to make a proposal for the reform of the forestry sector in the country to remove hindrances to its development.

The Hon. Minister promised unreserved support to UTGA in its quest to promote commercial plantation forestry in Uganda. She requested the association to resubmit the names of two of its members for inclusion on the Board of NFA which was duly done. UTGA is now eagerly waiting for the outcome.

If you attended any of the two recent SPGS clients meetings of 25-26/March/2009 or 1-2/April/2009, you must have heard the Chief Technical Advisor intimating that the recent EU and Norwegian consultants' had identified UTGA as the key organization over the next phase and that the SPGS needs to look into building the organization's capacity to deliver services to its members. In respect of this, the association organized a retreat of its Executive Committee in April 2009, to brainstorm and plan how the association should proceed in order to achieve its objectives better. Discussions were fruitful.

The UTGA constitution was reviewed to provide for a wider spectrum of membership to the organization and issues of sustainability were deliberated. Key among the outcomes of the retreat was that the association now plans to have a stronger secretariat and is reviewing both the membership and subscription fees. UTGA is now finalizing an output-based work plan arising out of the strategic plan that had earlier been developed. All these deliberations will be discussed at the Annual General Assembly of the Association now planned to take place on Wed. 5th August 2009. The Association is now targeting to be self sustaining in two years' time and members should now hope for improved service delivery.

The association has already taken delivery of 50 kilograms as the first batch of the planned 150 kgs PCH seed to be imported for its members. In fact, the seed has already been distributed to the members. All members of the association are reminded to place their bookings soon enough to avoid missing out on the next batch of the seed.

I had the privilege of being part of the recent SPGS organized study trip to Southern Africa in March, 2009. I carried back with me very useful lessons in commercial forestry especially in regard to forest contracting, community involvement, marketing, value addition, etc. – as well as making some very useful contacts. The knowledge and exposure I gained from the trip opened my eyes to the potential of commercial forestry in Uganda and hopefully will enable me perform my duties better.

The association has come up with identification for all its members in the form of membership certificates. Most of the registered members of the association have already been issued with their certificates. All members who have not received theirs are requested to get in touch with me for the same.

Finally, my last word is always that of appeal: *"All Ye tree growers in Uganda come join your association"*. The whole will always be better than the individual parts. Contact us on 0772-979824 or email nserekomike@yahoo.com or miken@sawlog.ug. The interesting thing is that if the proposed changes to the constitution are adopted by the General Assembly in August, virtually all tree growers will be able to join the association as there would then be no threshold to hectares planted as is the case now!!!!

Did You Know?

One stand of quaking aspens *(Populus tremuloides)*, which grows from a single root system, covers more than 100 acres in the Wasatch Mountains of Utah, USA. Known as 'Pando' (Latin for 'I spread'), all of the trees in this system change colour and shed leaves in unison.

Dendrochronology is the science of dating trees from their growth rings. Tree rings can provide precise information about environmental events including droughts, fires and volcanic eruptions.

Trees renew our air supply by absorbing carbon dioxide and producing oxygen.

For every one of the 750 species of fig tree (*Ficus* spp.) there is a corresponding species of specialist wasp to pollinate it; and each wasp knows its own fig.

TIME TO PASS ON THE BATON

by Zainabu Kakungulu (SPGS Plantation Officer).

After 30 years of active involvement in forestry both within and outside Uganda (with both government and private sector), **Jossy Byamah,** the outgoing Forest Manager for Busoga Forest Company (BFC) and Chairman of Uganda Timber Grower's Association (UTGA), says, *'' I have played my part and I think its time to let others make their contribution.''* In an exclusive SPGS interview, Jossy shares his experiences, achievements and challenges and then uses his psychic powers to predict the future of Uganda's forestry sector.

Jossy Byamah makes his point.

Q: Age has caught up with you and now you have no option but go back to your village and play with your grandchildren. How do you feel that you have to retire from active involvement in your profession?

Jossy: (laughs!) "It feels great that I will now have all the time to play with my grand children. However, what's more fulfilling for me is that I think I've done my part and it is time for you - the younger generation - to take up from where I stopped. My career has been an exciting one with lots of challenges and achievements which all have been part in shaping my entire life. In my opinion I've performed to my fullest potential. It's time to give others chance".

Q: Let us talk of success: how many hectares of plantation in Uganda can be accredited to you?

"During the early days of my career in the 70's, forestry in Uganda was mainly about conservation and so there was very limited plantation forestry. However, there were tree planting projects like urban forestry and village tree planting that I worked for. Until 1996 when I joined BFC, acreage accredited to me is hardly 100 ha. The biggest area that has been planted under my supervision is over 2,000 ha in BFC. This is a great achievement and I am very proud of it."

Q: Why do you think Uganda has not had a commercial forestry industry despite the enormous potential?

"First, Uganda had lots of natural forests from which to supply all its timber needs. With the tremendous increase in population over the last 20 years, these forests became a soft target for encroachment and unfortunately these are no more. We therefore need an alternative source of timber and there is no short cut: plantation forestry is the only way out.

The other issue is that tree planting was purely business for the government. As you well know, forestry is an expensive venture and you don't expect the returns in less than 20 years. Individuals were therefore not able and willing to invest in such long-term business so it was left to the government. Like it is with other long-term investments, the private sector needs incentives to encourage them to invest in commercial forestry. That's why with the coming of the SPGS grant the private sector has even now surpassed government in investing in commercial forestry. This is such a positive development. The sector is steadily recovering."

Q: That of course implies that there is light at the end of the tunnel?

"Oh yes, there is definitely a lot of hope in the future of the forestry sector in the country but only if the current trend of enthusiasm is maintained and with improved support from the government and other stakeholders. The future of Uganda's commercial forestry lies in the strength of the UTGA. It is only through an organized association the we are able to negotiate and lobby for support, enjoy benefits of bulk purchase of inputs, handle contentious issues such as security of land tenure, plan and organize for marketing our products - as well as other benefits that can not be achieved single-handedly as individuals."

Q: Are you also retiring as chairman UTGA?

"No, I am not retiring as chairman of UTGA. However according to the UTGA constitution, my term of service will be expiring by June 2009 so there will be re-election during our AGM."

Q: Would you mind a 'kisanja' (another term?)

Laughs!! "Well I really wouldn't mind for it has been a good experience for me. However, I think the organisation needs a fresh, young energetic, vibrant touch which I may not be in position to offer. But I'll remain a very active member."

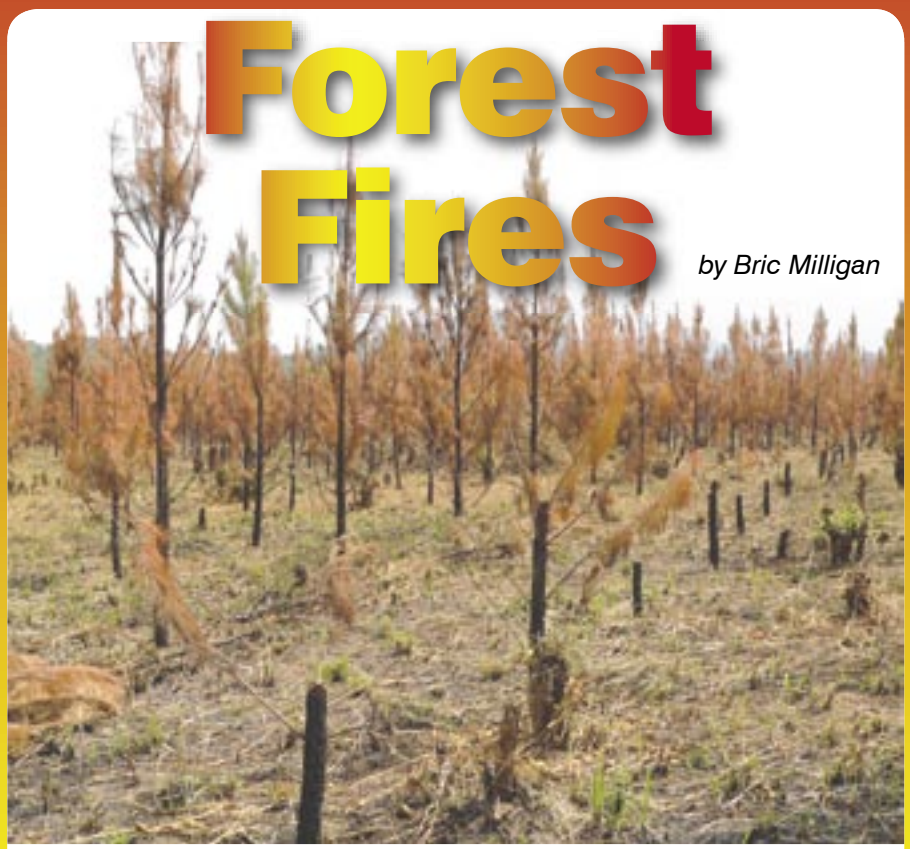
Q: And lastly, if you were given an opportunity to become 25 again and to re-start your career, what would you do that you think you never did?

"When I see what the private sector has achieved in the past 5 years, as regards commercial forestry, I regret how much time we have lost and where we would be if only we had done this earlier. As a young professional I had an opportunity to see a booming forestry industry in countries such as South Africa, USA, Italy and Japan. However, it never occurred to me that this would be possible here in Uganda. It's only now that it's dawning on me that it's possible and it would have been possible even then. On a happy note, I must say I feel very privileged to be a part of the revolution of current plantation forestry sector in the country."

Thank you. Everybody associated with the SPGS thanks you for your valuable contribution to the sector and also wishes you a long and happy retirement.

Forest Fires

by Bric Milligan



A burnt private plantation near Hoima (Jan. 2009).

Over just a couple of weeks early in 2009, nearly 100ha of SPGS clients plantations were wiped out by fires in just one district - and those are just the ones we are aware of!

We rushed out once we were told of them and had a look to see how such losses could be averted in the future. Although these fires are tragic we did noticed three main things that could have reduced or even prevented the damage:

1. All the fires came from outside the plantations and did not seem to be started with the purpose of burning the trees. So if there were people on site looking out for fires they would have seen them coming and could have made plans to tackle the fires before they reached the plantations. Talking to the neighbouring communities and asking to be informed about fires that could pose a risk would also have helped.

2. Almost all of the external firebreaks were too narrow for the type of vegetation that they were protecting. In some cases the bush was higher than the firebreak was wide. A firebreak needs to be wide enough to stop the fires along the ground so that if the bush on the outside is almost five metres in height, the belt must be wider. Some of the firebreaks were covered in dry grass so that they were in fact not firebreaks at all!

3. All of the plantations that were burnt were bushy so that once the fire had entered there was lots for it to burn. If you are in a dry district make sure that your plantations are relatively clean of weeds especially approaching the dry season.

Those are three points that would have helped without even having to have to actually fight the fire. It is of course very important to have people and equipment to be able to attack the fire quickly and effectively as soon as it starts burning: often it is even better to put out the fire before it enters your plantation. Better planning will lead to safer plantations. Read the Fire Protection Chapter in the new *SPGS Tree Planting Guidelines for Uganda* – for more information.

BRIC – IN HIS OWN WORDS

The time is drawing near for me to bid my farewells to Uganda, as many of you know I will be leaving towards the end of May to take on a new challenge in Tasmania, Australia. I have been in Uganda just over four and a half years and all in all I can say that it has been a great experience and I am very grateful that it was possible for me to have experienced it.

On the work side of things it has been on of the most gratifying work experiences that I have had. The level of dedication from the growers, investors and staff has been wonderful and the willingness to improve has been great. Sometimes it is a daunting situation when everything you say is being written down and memorized and then implemented in the field. It puts a lot of pressure on you to make sure that you get what you are trying to portray across correctly. Also it is gratifying to see so much progress in the time that I have been here: thanks to the whole SPGS team you can see visible improvements in attitudes, standards and especially in areas of good, well-managed plantations. It has been an honour to have been part of all that.

What I hope to see should I come back and visit is a lot of progress on the nursery side of things. The lack of professional, containerized nurseries to supply good quality seedlings to the growers is proving to be a weak link in the chain. Of course in the longer term it would be great to see efficient, modern processing plants being set up here too and good returns being made on the investments that seem to be emptying your pockets quicker than you had imagined.

Outside of work my wife and children have made many friends and have really loved living in Uganda. The friendliness of the people and the beauty of the country are wonderful. Even though we come from South Africa we have come to love Uganda as our home and pray for it each and every day as it has so much potential. We have been fortunate to visit many parts of the country and even though it

Cont'd on p. 18

FSC UPDATE

Thaddeus Businge

The SPGS continues to be committed in raising the awareness and promoting forestry certification under the Forestry Stewardship Council (FSC). Following the pre-audit in November 2008, we have received the report from SGS, which clearly points out our strengths and weaknesses. As you would expect, we are now addressing the weaknesses with the hope that we can eventually have our small growers' group certified under the FSC Group Scheme. One of the most important things to come out is the need for Uganda to draw up a set of standards that reflects the situation here. Rest assured that the SPGS along with other stakeholders will be active in this process.

The Ugandan FSC working Group is in the process of being formed, the main purpose of this will be to draft FSC standards for Uganda. Edward Mupada, the FSC contact person for Uganda is spearheading this with the SPGS assisting where possible. The guidelines will be drafted after consulting many of the forestry and other stakeholders in this country: anyone with suggestions is therefore welcome to contact Edward and discuss them with him. Suggestions can also be forwarded to UTGA who we hope will be the FSC Group Scheme certificate holder (SPGS as a time-bound project cannot be the official certificate holder).

Some of the FSC group pilot scheme members have received part of their SPGS payments for their recent plantings. These plantings have met the minimum requirements taught to us during the various FSC training sessions we have had so far. More planting is going on during this rainy season to hopefully complete our target of 300ha by the pilot group scheme members.

These 300ha are inspected against the existing SPGS silvicultural standards as well as environmental and social responsibility – refer to the new ***SPGS Tree Planting Guidelines*** for our recommended environmental and social standards. There are however a few challenges in enforcing these standards on the ground mainly due to the communication gap between the plantation owners and the workers on the ground. This is proving to be a challenge and several activities that could cause problems in the final audit have taken place.

Finally, it is very encouraging to hear that New Forests Company has just had the final audit on their Ugandan plantings and are awaiting the final FSC audit report. We also know Busoga Forestry Co. is pursuing FSC in Mayuge and Lira too. Times are certainly changing!

Ed's note: It has been pointed out to us by SGS (the main certifying body in RSA) that in previous SPGS Newsletters, we have been using the FSC logo without permission. The 'tick and tree' FSC logo should not be used unless one is certified. Sorry for that.

From p. 17

BRIC – IN HIS OWN WORDS

is not as big as other countries it is so diverse and fascinating.

Lastly a few words of my future, I will be working for a company called Forestry Tasmania, in Tasmania. We will be living in the city of Hobart. My work will involve working with communities and out grower schemes some in the Northern Territories of Australia. I ,(my family too), am looking forward to the change and growing a new area of my forestry skills and background but I am sure that there will many times when I look back with fondest to my experiences here in Uganda and possibly more often at the warm temperatures as I will need some adjusting to the cold winters "down under".

My personal e-mail is bricmilligan@gmail.com and I hope to keep in touch and I will be following developments here in Uganda closely.

Bric

Bric at an SPGS Training Course in Nakasongola (2007)

STANDING IN A VALLEY ONE HOT, SUNNY AFTERNOON

by Ikwap Joseph

In mid-Feb 2009, I got a call from one Odeke Charles of SPGS who invited me for the contractor training and labored to explain to me the importance it had for me. I was a bit disinterested because I had a lot going on in my mind; my workers had spent a lot of time slashing a small piece of work and it was getting counter productive. I did not know what to do next!

To add to my disinterest was the cost of training he had attached to it! And deep inside of me I knew I would not attend the training, however Odeke could not give me peace he kept calling to confirm my participation. Little did I know that this call was golden and would swiftly change my business for the better! I will forever be grateful to SPGS for this initiative. Interacting with the facilitators and fellow contractors was an eye-opener on how to effectively manage labour to make them productive - a thing I have been very green in!

The training exposed a lot of weaknesses in our business management and yet offered remedies to them. So unique an experience it was. The biggest ulcer to me was poor labour record keeping and thankfully now I know the value of record keeping. If anybody asks me now how many kinds of records I keep, I will endlessly list them for them.

My other challenge came in management of workers especially conflict resolution between them and the community and between themselves. They say ignorance of the law is no defense and yet **Ignorant** would be my only defense if I was to stand in the court dock if I was challenged in court about any issues arising from my labor. The policy and legal framework governing labor in Uganda was an important aspect of this training course because I can now confidently stand in the court dock and quote the labor laws. Thank God I will not reach the court dock because I know the workers' rights and they are to be respected.

Am already benefiting from the training on how to reduce labor turn over because am now systematically applying what I learnt knowing that guaranteeing of safety at work is one crucial aspect of labour management if it is to remain productive. The sky will surely be the limit for me and ALL ROUND FORESTERS. What better way to answer the questions that were lingering in my mind on that hot sunny afternoon when Odeke called me than to attend this training? None. Before the training I stood in a green valley of ignorance now I stand on top of a hill deeply forested with Ideas for successful business in contracting. Yet this is just the start, I remain eagerly waiting to attend the remaining course modules. Viva SPGS!

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The writer is the MD of ALL ROUND FORESTERS a contracting company with New Forest Company, Namwasa, Uganda. Offering services like consultancy, planting, all kinds of weeding, thinning and pruning.

Editor's note: *Thanks for this interesting contribution, Joseph: you have won yourself an SPGS T-shirt! Please hurry to claim it while stocks last.*

Participants at the 1st SPGS Contractors' training course (March 2009)

PLANTATION GUIDELINES

We are pleased to announce that we have finally finished off the complete set of ***SPGS Tree Planting Guidelines for Uganda,*** started way back in 2005. Many of the individual chapters were published separately over the last few years and as these proved very popular with growers, these have all been updated and included along with many other (new) chapters for this publication. It is heavily illustrated throughout with examples of good and bad practices. We hope that it will assist both current and potential growers – as well as the more general reader interested in the tree planting revolution underway in Uganda now.

It is not a small book (like the trees here, it kept on growing!). Copies will be given to all SPGS's clients from Phase I (2004-09) and of course, to those we will sign up for Phase II later this year (once the funding is approved). Once all our partners have received copies, we will then sell remaining ones at the cost price of just UGX40,000 from the SPGS office. Copies should be with us by mid-May 2009. It will also be available to download from our website -

www.sawlog.ug

TRAINING UPDATE

The **CONTRACTORS' TRAINING** course started on the right foot with Labour Management module. The course took place 3-6th March 2009 in Kampala. 24 participants successfully completed the training and were awarded Certificates of Attendance. Participants went through aspects of labour management that included understanding contractual labour and its management, improving labour productivity, Health & Safety in the forest environment and labour-related laws. The course was finalised with a case study to operational site of Brand Mwebaze (Heart of Gold Tree Ltd.) a contractor planting for Alvera Ngoga in Mpigi district.
Judging from one of the participants (see page 19), the training went well. The next course modules are being planned for later this year: namely, Small Business Management, Contract Management and Plantation Silviculture. All participants who attended the first module are expected to attend these modules too.

A series of 1-day **FOREST FIRE PROTECTION** courses were held during Feb. '09 in the districts of Hoima, Gulu, Mubende, Nakasongola and Mbarara, targeting SPGS clients. More of these courses will continue to be run at appropriate time to safeguard forest plantations from fire damage.

A PLANTATION PLANNING & ESTABLISHMENT course took place 2-5th Feb 2009 in Luwero and Nakasongola districts. Participants were mostly SPGS applicants plus the District Forest Officer from Rukungiri. The book prize (Plantation Forestry in the Tropics) was won by Julius Biteba, Asst. GM for Dr. Byabashaija. The next ***Planning & Establishment*** course is planned for 2– 7th May' 09 in Hoima. Other course will hopefully follow once Phase II kicks off later in 2009.
NB. Contact Josephine at the SPGS office for further information on all SPGS training courses.

A PLEA FOR SOME PLAIN TALKING……

I hear what you're saying but, with all due respect, it's not exactly rocket science. Basically, at the end of the day, the fact of the matter is you have got to be able to tick all the boxes. It's not the end of the world, but, to be perfectly honest with you, when push comes to shove, you don't want to be literally stuck between a rock and a hard place. Going forward we need to be singing from the same song-sheet 24/7 but you can't see the wood from the trees. Naturally hindsight is 20/20 vision and you have to take the rough with the smooth before proceeding onwards and upwards. The bottom line is you wear your heart on your sleeve and when all is said and done this is all part and parcel of the ongoing bigger picture. *C'est la vie* (if you know what I mean!).

IN THE NEXT ISSUE

- **Phase II SPGS support:** the details.
- **SPGS/CFA Workshop:** key recommendations.
- **Plus..** more fascinating forestry-related science in ***HeartWood.***

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