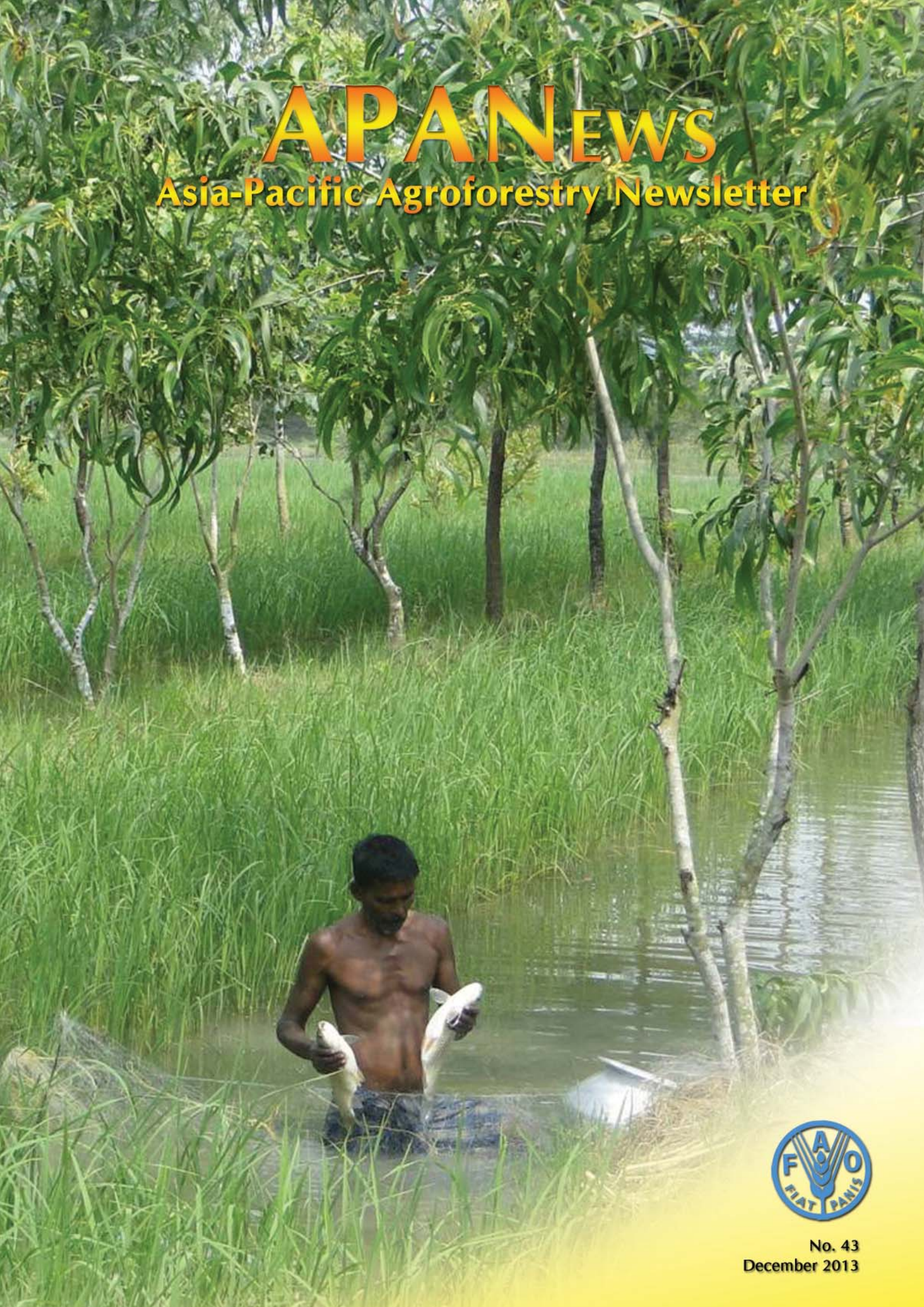
APANews

Asia-Pacific Agroforestry Newsletter



No. 43
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Dear Readers

Welcome to the 43rd issue of APANews! In this issue, we feature interesting articles on edible seeded oak in Viet Nam, establishing agroforestry in saline lands in India and *eru* (*Gnetum* sp.) farming in Cameroon.

Edible seeded oak (*Castanopsis indica*) is mostly grown and naturally regenerated during the fall-winter season in Viet Nam. It is a native timber tree and is naturally distributed in mountainous secondary forests, low forest ecosystems in sand dunes and some coastal forests. It is often integrated in agroforestry systems because of its timber and fire-retardant properties. Read more about the morphology, ways for effective seed germination and propagation, its economical and environmental values on page 3.

An article from India discusses the establishment of agroforestry systems in salt-affected lands in the Ganges delta. These lands are only considered productive during the monsoon season when traditional rice varieties are planted through monocropping. During the dry season, these lands are fallowed as irrigation water is limited and salinity build up is high. The article discusses how simple land shaping techniques minimized waterlogging and saline build-up which led to the survival of trees. Find out how these land shaping techniques facilitated the successful conversion of the land to agroforestry. Read about the details on page 5.

Gnetum sp. or *Eru* is a small perennial understorey vine that is often found in the tropical forests of Cameroon and countries in the Congo basin. There is high demand for the leaves of *Eru*. They are prepared as soup and consumed with fried cassava paste. Wild reserves of *Eru*, however, are almost extinct and government and private sector agencies are working together to find ways to effectively propagate *Eru*. The article cites the collaboration and partnership of government agencies, the private sector, and local farmers and youth in undertaking *Eru* farming through the Savana Eru Project (SAVEPRO). SAVEPRO introduced Eru cultivation as a source of livelihood for local communities that have settled in grasslands and montane forests. The project trained farmers, established pilot farms, and introduced agroforestry systems in selected areas. Read more about the details on project methods, results and outcomes on page 7.

As always, we feature upcoming events in 2014 that you might want to participate in. Foremost is the *Third World Congress of Agroforestry* (WCA 2014) to be held in February 2014 in Delhi, India. With the theme "Trees for life: accelerating the impacts of agroforestry," WCA 2014 aims to act as springboard to hasten the impacts of agroforestry, build people's livelihoods, increase the vitality of the landscape, and further the adoption of large-scale innovations.

Other noted events in 2014 include the celebration of *2014 International Year of Family Farming*, *Forest Asia Conference 2014* and *World Day to Combat Desertification 2014*.

We also present new publications from FAO, World Agroforestry Centre, CABI and the Asian Development Bank.

Thank you once again for your continued support to APANews! Let us continue to work together, strengthen networks and partnerships, generate and share knowledge and collectively spearhead innovations in agroforestry—*The Editors*

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COVER. *Acacia, Casuarina and Eucalyptus* are integrated with rice paddies-fish ponds during wet season in low lying coastal sands in the India's Ganges delta (*see story on page 5*).

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Growing edible seeded oak (*Castanopsis indica* (Roxb.) A. DC. in Viet Nam

Martin Kropff and Hoang Quang Ha (ha_hoangncf@yahoo.com)

Edible seeded oak (*Castanopsis indica* (Roxb.) A.DC.), or more popularly called cay *De gai–cay De nep*, is a native timber tree in Viet Nam. The tree belongs to the family *Fagaceae* and is mostly grown and naturally regenerated during the fall-winter season. This tree species is fire-retardant but the young has difficulty surviving in hot and dry conditions.

Distribution and plant ecology

Castanopsis indica is naturally distributed either in mountainous forest ecosystems, mostly in secondary forests (i.e., in northern mountains of Lang Son and Vinh Phu provinces or in the central highlands of Daklak, Gia Lai provinces) or in lowland forest ecosystems, mostly on sand dunes in northcentral Viet Nam (i.e., in Quang Binh, Quang Tri and Thua Thien Hue provinces).

This oak is a dominant tree species in mountainous broadleaved evergreen forests and in lowland forests on sand dunes with altitudes of 10-1 500 m above sea level (asl). It occupies 10-50 percent of the total timber trees and forest wood biomass. This tree species also occurs in some of the coastal forests in Viet Nam. It is scattered or mixed with *Engelhardtia* sp. (Cheo), *Lithocarpus* spp. (De trang, De nui dinh), *Madhuca pasquieri* (Sen mat), and *Quercus* spp. (De gai) in mountainous areas, or with *Syzygium corticosum* (Tram), *Syzygium finetti* (Tram cuong ngan), *Cinnamomum mairei* (Sim ru), *Lithocarpus dinhensis* (De nui dinh), *Lindera myrrha* (O duoc), and *Acronychia pedunculata* (Lau tuyen) in coastal low forests.

The tree prefers low light. Seeds are naturally regenerated with other plant species (about 1-5 % of total natural seedlings). Coppice regeneration is possible for edible seeded oak.

The flowering period occurs in January-March in mountainous areas and July-September in north central areas. The fruiting period is in February-April in mountainous areas and August- December in north central areas.

Morphology

Edible seeded oak grows up to 10-30 m high and 0.2-1 m in diameter. The trunk is straight and the crown broadly rounded. The bark is brownish grey with dark grey traces, wrinkled, thick and grooved. The inner bark is fibrous. The bud scales, young branches, petiole, leaf blades abaxially and rhachis of inflorescences are densely covered with reddish brown hairs. The leaves are elliptic measuring 5–15 x 3–6 cm (Figure 1). The base is obtuse with margins acutely and regularly serrated for three-fourths of the length towards the top. The apex is acute or acuminate with the upper parts green and the lower parts reddish brown.

The young leaves are densely pubescent above. The petiole measures 0.3–1.2 cm long and is fulvous and hairy. The male inflorescences occur in branched spikes measuring 10–18 cm long.

The flowers are nearly rounded. The perianth occurs in 6 segments and is scale-like. There are 6-14 stamens with slender filaments. The female inflorescences occur in spikes measuring 8–20 cm long. The flowers are often solitary and are longer than the leaves. They bear abortive stamens. The ovary is inferior. The acorns measure 1.2–3.6 cm in diameter and are covered with spines. The nuts per locule are broadly conical with 0.8–3.2 cm in diameter and are shiny brown when mature (Figure 2).

Seed storation and propagation

The seeds are collected in October-December in north central Viet Nam and stored in cool conditions with temperatures of 5-25 ^{0}C. Cold stratification (moist pre-chilling) is thus used for seed storage, or seeds

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Fig. 1. The leaves and fruits of edible seeded oak (Castanopsis indica).

Fig. 2. Edible seeded oak (Castanopsis indica) yields 280-300 seeds per kilogram.

Growing edible seeded oak...

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are stored on cool grounds under the beds of farmers. The seed storation environment is regularly checked to ensure that it is moist but not wet. Old newspapers are often used to line boxes where the seeds are stored. About 100-200 g of seeds can be stored in boxes lined with old newspapers.

For propagation, seeds that have been soaked in fresh water can be dried under shade or light sun conditions for some days, then mixed with an equal volume of moist sand or cool soil for 10-50 days. Seeds being germinated are placed in open containers and moist sands. About 60 percent of the seeds are germinated using this process.

Seedlings with 2-4 leaves are then potted and placed in nurseries for 8-12 months before outplanting (Figure 3).

The seedlings are best grown in spacings of 3 m x 3 m (1 000 seedlings per hectare) or 3 m x 2 m (1 650 seedlings per hectare). The tree species is best grown in agroforestry systems where it is mixed with other valuable timber trees such as *Syzygium corticorsum* (Tram), *Syzygium finetti* (Tram cuong ngan), *Cinnamomum mairei* (Sim ru), and *Eurycoma longifolia* (Bach benh). It is considered a medicinal herb in many coastal communities.

In intensive farming conditions, growers can use cattle dung (about 2.0-3.0 tons per hectare) for basal application or NPK fertilizers (0.1 kg per tree).

Economical and environmental values

The tree has a hard, pinkish brown wood which is resistant to termites and other insects. The wood is ranked as a main source of construction and furniture materials. The bark is also used to yield tannin.

The tree is also a rich source of seeds which are cooked or dried for consumption and animal feed. The seeds are priced at US$0.5-0.8 per kilogram (as of 2011-2012 prices) and are sold at local markets (Figure 3). One mature tree can produce up to 20 kg of seeds per year.

The edible seeded oak is also established in coastal areas to prevent sands from shifting and maintain the supply of natural water to irrigate agricultural crops and rice fields. Integrating edible seeded oak in coastal farming systems help yield 8 tons of rice per hectare at US$2 000-2 500 per hectare. •

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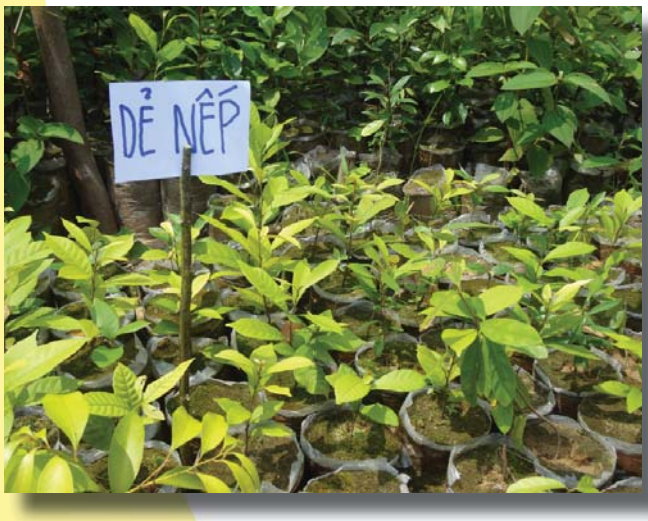

Fig. 3. Seedlings of edible seeded oak (Castanopsis indica) are prepared in nurseries for 8-12 months before outplanting.

Fig. 4. The seeds of edible seeded oak (Castanopsis indica) are sold at the local markets with prices of about US$0.5-0.8 per kilogram.

Agroforestry in low-lying and salt-affected lands

D. Burman (burman.d@gmail.com), B.K. Bandyopadhyay and A.R. Bal

The low-lying coastal lands in the Ganges delta and other similar areas in India suffer from poor drainage conditions and saline build-up in the soil. Most of these areas receive high rainfall (>1 500 mm) during the monsoon months (June-October) which results in deep waterlogging.

During the monsoon or *kharif* season, rice is the only crop that can be grown and farmers are compelled to use the traditional varieties of rice with very low productivity (Figure 1). Unfortunately, the cropping intensity of these coastal areas is very low. Most of the areas during the *rabi* or dry season are fallowed due to scarce irrigation water and salinity build-up caused by shallow brackish ground water. These problems in coastal agriculture are further compounded by natural disasters like cyclones, sea water intrusion, drought, etc.

The risk-prone traditional agriculture with monocropped *kharif* rice in coastal regions can be improved through diversified agriculture or agroforestry. Agroforestry is essential to optimize resource utilization, enhance farm income and improve livelihood security of the farmers.

Agroforesty

Agroforestry is the practice of simultaneously growing a combination of trees and agricultural crops to produce various products to provide farmers with different sources of income. Agroforestry systems are gaining importance in tropical agricultural development due to their technical and economical potentials to achieve higher and sustainable agricultural production and farm income, and enhanced livelihoods. Establishment of these systems requires low capital. Aside from diversified products, agroforestry systems help improve and maintain soil quality.

Agroforestry can effectively utilize natural resources for optimal and sustainable crop production. Agroforestry systems offer farmers different sources of income and at the same time provide options to better cope with climate stress as compared to farmers who depend on monocropping or single crop farming. Agroforestry provides better environmental services as compared to monoculture systems. It has the potential to mitigate climate change through increased carbon sequestration, improved biodiversity and optimized crop yields on the same piece of land.

Coastal land shaping for agroforestry

Most of the coastal lands in India remain waterlogged, with an average depth of about 50 cm, during the four months of the monsoon season. Growing forestry trees under these conditions is difficult as most tree species are susceptible to waterlogging and saline build-up. Growing of trees and establishment of agroforestry systems in coastal lands is still possible if simple land shaping techniques are applied.

Shallow trenches of 0.50-0.75 m deep are dug at a distance of about 4-5 m. The soil dug out is then used to establish ridges of 0.80-1.00 m high, depending on land conditions, along the trenches (Figure 2).

Rainwater is collected and stored in the trenches—sufficient enough to keep the soil moist prior to the onset of the dry season (up to March). The harvested rainwater also provides irrigation to other crops.

The trenches also collect rainwater during the dry months, which likewise improves soil drainage. It was observed that the salinity build-up in the soil was relatively less (Figure 3) when trenches were established.

In the coastal areas, salinity build-up reaches its peak towards the end of the dry season (May-June). This is mainly due to the evaporation of the shallow saline ground water,

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Fig.1. Farmers can only grow traditional varieties of rice with very low productivity during the "kharif" or monsoon season.

Fig.2. Shallow trenches and ridges are prepared to help trees cope with the waterlogged conditions and saline build-up in the soil of costal lands.

Agroforestry in low-lying...

Continued from page 5

usually located less than 1 m below ground, during the dry season. With the trenches, fresh water from the rains minimizes the evaporation of the brackish water during the dry months, thereby lessening saline build up (Figure 3).

Fig.4. Acacia, Casuarina and Eucalyptus are integrated with rice paddies-fish ponds during "kharif."

Fig. 5. Guava with "kharif" rice paddy.

Fig. 6. Cotton in original land and rice in trenches during "rabi."

Though most of the rainfall (about 80 percent) occurs during the monsoon season, heavy rains occasionally occur during the dry season. The productivity of upland crops cultivated on heavy and textured coastal saline soils suffers drainage congestion following heavy rains, resulting in minimal yields during the dry season. This is a major constraint when cultivating crops after the monocropping of *kharif* rice. Building trenches not only promotes better drainage but also encourages the collection and storage of rainwater, which provides needed irrigation during the dry season.

Diversified crops under agroforestry

The establishment of trenches and ridges can now support the planting of trees and cultivation of multiple and diversified agricultural crops throughout the year. The ridges may be used to plant multipurpose trees like *Casuarina*, *Eucalyptus*, *Acacia*, etc. (Figure 4) or fruit trees like sapota and guava (Figure 5). Vegetables could also be grown in between the trees on the ridges during kharif. Farmers would get good prices from vegetables when harvesting during the monsoon season. Rice paddies and fish ponds could be established along the trenches and other areas of the agroforestry farm during kharif (Figure 4). Major carps like *catla*, *ruhu* and *mrigel* and/or fresh water prawn can be grown with kharif paddy.

During *rabi*, the original land area can be used to grow field crops that require minimal irrigation such as cotton (Figure 6), sunflower, sugarbeet or other vegetables. Irrigation for these crops can be sourced from the collected rainwater stored in the trenches.

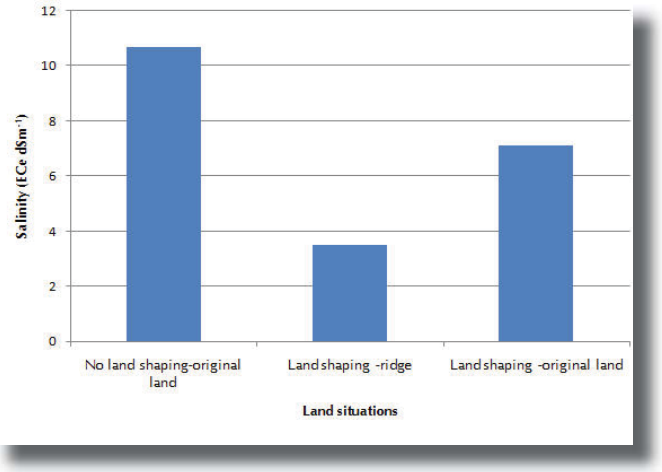

Fig. 3 Rainwater, stored in trenches, keeps the soil moist and prevents evaporation of saline water thereby reducing salinity build-up in the soil.

Table: Crops/fish to be grown under agroforestry system round the year.

Land formation	Kharif (wet season)	Rabi (dry season)
Trenches	fish	short-duration rice
Original land	rice paddies-fish ponds	cotton, sunflower, sugarbeets and vegetables that require minimal water requirements
Ridges	multipurpose/fruit trees and vegetable crops	multipurpose/fruit trees

The trenches may also be used to cultivate rice during rabi if additional water is available to the farmers (Figure 6). A list of crops which can be grown during kharif and rabi is given in the Table.

With these simple land shaping techniques, agroforestry farms can be established in coastal areas as an alternative to the monocropping of rice. These techniques promote the growth of multiple crops throughout the year with very minimal irrigation requirements, which will surely assure farmers of income and livelihood. •

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International conference on food security and nutrition

The *International Conference on Food Security and Nutrition* (ICFSN) 2014 aims to provide a platform for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in food security and nutrition.

Topics of interest for submission include, but are not limited to, food safety and quality, natural products and innovative methods, nutrition and food security, traditional knowledge and culture in public health; environment and food and nutrition security for all, successful strategies and interventions, etc. ICFSN 2014 will be held in Shanghai, China, 29-30 March 2014. For more information, visit http://www.icfsn.org/.•

Eru farming with *Gliricidia* offers alternative sources of livelihood to small-scale farmers in Cameroon

Tanda Godwin Ade (epda_ngo@yahoo.com or godytanda@yahoo.fr)

Gnetum sp, locally called *Eru*, is a small perennial understorey vine in the tropical forests of Cameroon and other neighboring countries that comprise the Congo Basin. The leaves of *Eru* are prepared as soup and consumed with cassava paste (water *fufu*) and *garri* in Cameroon and Nigeria. *Garri* is made from frying squeezed paste from cassava using palm oil.

About 30 years ago, the social, nutritive, economic and environmental benefits of *Eru* were just beginning to be recognized in Cameroon. The 1980 economic crisis resulted in increased pressure on Cameroon's forest resources, accompanied by unsustainable tree harvesting methods. The high demand for *Eru* leaves, marketed in local markets and in Nigeria, pushed the plant into near extinction in Cameroon's southwestern forests.

In 2004, initiatives by the private sector were launched to respond to the challenges of propagating *Eru* as a nutritive vegetable as well as an economic crop. Further collection of *Eru* expanded to the littoral, central, south and eastern regions of Cameroon where the plant was still available in commercial quantities.

Eru has also become one of the most recommended value chains. However, it would take the collaboration and partnership of local farmers, youth, local communities and policy/decision makers for *Eru* farming to succeed and provide employment for all while addressing climate change adaptation and mitigation.

Early domestication efforts

Early domestication efforts triggered by the phenomenal extinction threat on wild reserves of *Eru* started at the Limbe Botanic Gardens in 1990. At that time, a method of growing *Eru* outside of its natural habitat (*ex situ* conservation) was being implemented by organizations and local farmers to reduce pressure on forests and at the same time promote climate adaptation. However, local farmers experienced the challenges of slow growth rate, on and off development interventions and lack of research on new propagation methods. Other organizations have used the method as a means to adapt to climate change.

Savana Eru Project (SAVEPRO)

SAVEPRO was implemented by the Environmental Protection and

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Fig. 1. Eru on the stem of Gliricidia sepium in Cameroon. (Photo by author)

Eru farming with *Gliricidia*...

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Development Association (EPDA) for five years (2007-2011). The project aimed to promote sustainable cultivation and marketing of *Eru* to help contribute to Cameroon's economic growth, rural employment and poverty reduction.

The project specifically aimed to: (i) introduce *Eru* cultivation as a source of livelihood for local communities residing in the grass fields and montane forests of the Bamenda Highlands; (ii) train small-scale farmers of the Ndung rural community in *Eru* cultivation techniques; (iii) establish a pilot *Eru* farm; and (iv) introduce agroforestry farming systems (green farming) in Ndung. Activities toward achieving these objectives included a feasibility study on *Eru* cultivation, training of farmers on vertical and horizontal *Eru* staking and farm management, establishment of a 2 m x 6 m *Eru* farm and a 3 m x 5 m *Eru* plot to demonstrate vertical staking, and integration of *Gliricidia* spp. in the *Eru* farm.

SAVEPRO promoted domestication of *Eru* through propagation by stem cuttings. This method is new in the northwestern part of Cameroon. Hence, EPDA implemented SAVEPRO through three phases for easier assimilation: (i) establishment of a seed bank to serve as both demonstration and research site; (ii) training of community-based organizations, farmer groups, and interested individuals to act as trainers; and (iii) expansion and scaling up of initiatives. Phase 3 emphasized *Eru* plantlet multiplication, expansion of demonstration/research sites, distribution of plantlets for outplanting on farms, and replication of initiatives in other communities.

Project site

SAVEPRO initiatives took place at Ndung Mile 34 along the Bamenda-Wum road. Ndung is a small community of farmers. It is bounded by the Nta'ya Hills and montane forests in the north, Wum in the east, Obang in the west and the Mezam River in the south.

Soil. The soils in the project site were generally humic ferrosols, characterized by rich organic matter and high permeability, with finely structured sandy loams in the top layer. About 50 cm below the sandy loam is a layer of thick ferrous pebble which is nutrient poor. Farmers thus sought the best fertile montane forest patch for farming.

Climate. The site has a long wet season and a short dry season with an annual average rainfall of 2 400 mm. Generally, the annual rainfall pattern is between 1 500–3 000 mm. Rains often start after mid-March and continue until November. A strong peak occurs in July–August, and sometimes in September. The months of December, January and February receive little or no rain. These changes were perceived by the local communities as results of climate change.

Temperature. Temperature varies with altitudes. Temperatures in the plains were hotter than in the hill tops. Temperatures ranged between 15°C and 25°–30°C, and the widest range between day–night maximum and minimum occurred between November and March.

Relief. The relief of the area was hilly with varying altitudes. The Nta'yah Hills has an altitude of about 1 678 m asl (Periementah *et al*. 2010). Ndung is surrounded by a series of hills and lowlands and is traversed by the Mezam River and a road network that runs from Bamenda (Capital city of the northwest region of Cameroon) to Wum. The nature of the hills produced steep fertile valleys.

Hydrology. The Mezam River runs through the Ndung village and is joined by small streams and springs originating from the Nta'yah Hills. The streams have few fish species and a high number of tadpoles and crayfish.

Local economy. Slash-and-burn agriculture is the primary source of livelihood in Ndung. Farmers use rudimentary and archaic farming methods and subsist mostly on small farmlands of mixed crops—ground nuts, plantains/bananas, pears, maize, coco yam, yam, cocoa, palms, coffee, and other cash crops. Oil palm farming was recently introduced. Young people were found engaged in sand quarrying in and along the Mezam River. People also cultivate cashew and collect *Xylopia* spp.

EPDA demonstrates the Eru planting process. (Photo by author).

Hunting, petite trade, fishing and livestock breeding and raising were also carried out to a lesser extent. Farmers were not familiar with agroforestry.

Project results

The training of small-scale farmers used participatory and interactive methods that took on a participatory reflection and action (PRA) approach introduced by EPDA. Participatory reflection and action introduces an idea that sparks group thinking. Group thinking was accompanied by dialogues, follow-up sessions, evaluation and reflection that trigger a primary action. A primary action may further give rise to secondary actions depending on the original idea.

The training methods in Phase 2 of SAVEPRO emphasized discussions and are gender-sensitive. The women participants were selected based on their work of gathering forest products for fuel, fence, food, fodder, and as raw materials for medicines. Participants were taught to distinguish between *Eru* species, prepare bunds, construct horizontal stakes using local materials (e.g., bamboo), cultivate plantlets, and integrate *Gliricidia* cuttings. These hands-on exercises were supported by lectures on *Eru* cultivation, agroforestry, climate change and local adaptation which heightened the farmers' awareness on the value and benefits of agroforestry through *Eru* cultivation (i.e., sustainable management of local forest resources with focus on nontimber forest products and livestock, green farming, and sustainable sources of fuelwood and other wood products).

The project was able to establish five *Eru* demonstration farms in five different localities. The localities were selected based on soil, shade coverage, community needs/ enthusiasm that contributed to favorable *Eru* growth.

Through SAVEPRO, EPDA trained 17 small-scale farmers of Mundum Quarter at Ndung (a small farming community along the Bamenda-Wum road) including members of the Nkenbe Women Group who were engaged in *ex-situ* conservation of *Eru*. Five of the farmer-trainees joined in group discussions after on-farm training. These trainees will participate in the full-scale promotion of *Eru* cultivation in Ndung.

To help establish a pilot *Eru* farm, plantlets were purchased and planted in 8 m x 6 m areas using horizontal staking. A 3 m x 5 m fallow plot was also established to demonstrate the vertical staking technique in *Eru* cultivation.

SAVEPRO promotes training methods that are gender-sensitive, participatory and interactive. (Photo by author).

To introduce farmers to agroforestry, the project integrated *Gliricidia* spp cuttings (1 m x 1m) in the *Eru* farm. The farmers appreciated the combined cultivation of the two species as they provided multiple benefits and varied sources of income.

Project outcomes

The experiences gained from SAVEPRO encouraged farmers to request *Eru* plantlets and venture into their own *Eru* farming. They were guided by handouts obtained from participating in the training programs. However, EPDA recognized the need for additional funding to support these initiatives. EPDA is thus thinking of launching fundraising initiatives to set up *Eru* nurseries, producing a training manual on *Eru* farming, and a user-guide to promote the adoption of *Eru* farming at the community level within Cameroon and even in neighboring countries.

Three months after implementation of the training programs, technical assistance was provided to the farmer-trainees to enable them to build their capacities and guide others who are interested to venture into *Eru* farming.

The farmer-trainees also gained a sense of ownership of project initiatives. SAVEPRO made them aware that agroforestry through *Eru* cultivation can improve their lives by providing a profitable source of livelihood and at the same time offer employment opportunities and produce multiple products and benefits such as food, fuelwood, fodder, etc. The integration of *Gliricidia sepium* made farmers recognize the need to support *Eru* farming with initiatives to enrich soil nutrients. Moreover, potentials for business and commercialization of *Eru* farming are also being explored with the private sector.

Eru domestication is being implemented in other parts of Cameroon and training is also

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Eru farming with *Gliricidia*...

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being expanded to four other communities in collaboration with local governments, and the private and business sector.

Information on project results were packaged into several materials (e.g., videos, photos, publications, etc.) to continue the promotion of *Eru* farming. At the same time, project results were being shared by EPDA through national and international workshops.

Recommendations

From the experiences of SAVEPRO, EPDA recommends the following:

- Technical assistance must be provided to the farmer-trainees, including continuous follow-up on the progress of their respective *Eru* farms for a year to sustain interest and help farmer-trainees overcome difficulties that they may encounter;
- Capacities of the farmer-trainees in *Eru* farming must be sustained to enable them to take the lead in promoting *Eru* farming beyond Ndung;
- Capacities of the farmer-trainees in plantlet multiplication (e.g., through nurseries) is urgently needed to avoid continued purchase of plantlets;
- Additional feasibility studies must be carried out in other villages (e.g., northwest region) to expand and/or replicate SAVEPRO initiatives; and
- User- friendly publications and information materials must be developed that could be easily accessed by small-scale farmers to help promote Eru domestication. •

A farmer-trainee plants Gliricidia cuttings to enrich the soil to support the favorable growth of Eru. (Photo by author)

The author is the Executive Director of the Environmental Protection and Development Association.

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Nexus 2014: water, climate, food and energy conference

The Water Institute at the University of North Carolina at Chapel Hill and collaborators will host *Nexus 2014: Water, food, climate and energy conference,* 3-7 March 2014 in Chapel Hill, North Carolina, USA. *Nexus 2014* aims to learn from relevant case studies and examine cutting-edge research; identify future research areas; debate emerging solutions; identify how science can inform policy processes; build new, or strengthen, existing networks; launch the Nexus Academic-Practitioner Network; and provide inputs to the UN Sustainable Development Goals process.

The conference will bring together scientists and practitioners working in government, civil society and business, and other stakeholders focusing on the questions of how and why the nexus approach is, and can be, used on international and local levels. For more information, visit http://nexusconference.web.unc.edu/.•

World congress on agroforestry slated February 2014

The *Third World Congress on Agroforestry* (WCA 2014) will be held in Delhi, India, 10-14 February 2014, with the theme "Trees for life: accelerating the impacts of agroforestry." The congress is co-hosted by the World Agroforestry Centre and the Indian Council of Agricultural Research. Congress outputs and outcomes will shape the next steps in the field of integrative science, transformative change in landscapes, tree improvement, innovative tree-based value chains, debates on global and local sustainability, reform of land and tree tenure and holistic education.

Building on the legacy of the second congress in 2009, the *Third World Congress on Agroforestry* 2014 will act as a springboard to accelerate the impacts of agroforestry, build people's livelihoods, increase the vitality of the landscape and drive the adoption of large-scale innovations.

With the aim to significantly boost awareness, engagement and investments in agroforestry, the Congress will attract up to 1 200 participants, including pre-eminent researchers, senior politicians and donors as well as major businesses with concerns for sustainable development. WCA14 will produce a global roadmap with clear targets for the future of agroforestry. For more information, visit http://www.wca2014.org/. •

2014 is international year of family farming

The *2014 International Year of Family Farming* aims to raise the profile of family farming and smallholder farming.

Family farming is a means of organizing agricultural, forestry, fisheries, pastoral and aquaculture production which is managed and operated by a family and predominantly reliant on family labour, including both women's and men's. Family farming and small-scale farming are inextricably linked to world food security.

Family farming preserves traditional food products, while contributing to a balanced diet and safeguarding the world's agro-biodiversity and the sustainable use of natural resources. It also represents an opportunity to boost local economies, especially when combined with specific policies aimed at social protection and well-being of communities.

In 2014, the campaign will focus on the significant role of family farming in eradicating hunger and poverty, providing food security and nutrition, improving livelihoods, managing natural resources, protecting the environment, and achieving sustainable development, in particular in rural areas. The campaign aims to reposition family farming at the center of agricultural, environmental and social policies in the national agendas by identifying gaps and opportunities to promote a shift towards a more equal and balanced development. The campaign will also promote broad discussions and cooperation at the national, regional and global levels to increase awareness and understanding of the challenges faced by smallholders and help identify efficient ways to support family farmers.

For more information, visit http://www.fao.org/family-farming-2014/home/en/.•

Building resilience for food and nutrition security

Together with partners, the International Food Policy Research Institute and its 2020 Vision Initiative, are organizing an international conference on "Building resilience for food and nutrition security" to be held 15-17 May 2014 in Addis Ababa, Ethiopia. The conference is the centerpiece of a two-year global consultative process that will evaluate emerging shocks that pose significant threats to food and nutrition security; assess experiences and draw lessons for using programs, policies, institutions, and investments to build resilience; determine key approaches and tools for building resilience to shocks of varying levels; identify knowledge and action gaps in research, policy, and programming; and set priorities for action by different actors and in different regions. For more information, visit www.2020resilience.ifpri.info/. •

IIRR announces international training programs for 2014

The International Institute for Rural Reconstruction (IIRR) will be organizing the following international training programs in 2014:

Participatory monitoring, evaluation and learning (PMEL)

PMEL is a tool to strengthen participation, enhance local capacity and increase local people's confidence and control over development decisions and processes. The course aims to articulate the rationale for the applications of PMEL within the context of the paradigm shifts in development work; identify various elements that constitute the application of PMEL; reflect on the practical applications of PMEL within the context of their own organization, program or projects; and identify ways to improve current practices in monitoring and evaluation.

The course is intended for planning, monitoring and evaluation officers, program officers, project managers, research/action research officers, trainer/extension workers, community animators/facilitators and advocacy workers, with at least two years direct experience in either planning, implementing or managing monitoring and evaluation activities. The program will be implemented on 1-10 April 2014. Deadline for applications is 15 March 2014.

Building resilient communities: community-managed disaster risk reduction

This program aims to orient participants on the community-managed disaster risk reduction (CMDRR) approach which builds people's capacities to prevent and mitigate the impacts of hazards of communities at risk. This is achieved by enhancing individual survivability and community readiness. Building resilient communities means strengthening the foundation of safety and enhancing disaster risk reduction measures.

The program aims to develop a shared understanding of the concepts, principles and practices of DRR; demonstrate the use of selected tools and conducted participatory disaster risk assessment in the community; and develop strategies to sustain CMDRR in a community.

The course targets senior managers, development planners, facilitators, trainers, resource persons, and mentors who will benefit from learning the hows and ways forward in CMDRR. The course will be implemented 20-29 May 2014. Deadline for applications is 2 May 2014.

Addressing household food security in the context of changing climate and environment

The course aims to provide a general understanding on emerging issues, challenges and opportunities with regards to global, regional, national, community and household food security issues and impacts. The course focuses on the four dimensions of food security, namely: availability, access, utilization and stability. It will articulate the working concepts, principles, tools and interventions on food security; increase awareness on global, national and local food issues affecting forest dwellers, smallholder farmers and fisherfolks; describe strategies for the active mobilization of food security stakeholders; identify best practices to strengthen and sustain food security projects; and develop an action plan to improve current food security efforts or introduce new initiatives on food security.

The course is intended for local and international NGO staff, government and extension personnel and researchers and faculty members engaged in food security programs and projects. It will be implemented 12-21 August 2014. Deadline for applications is 31 July 2014.

Integrating a value chain perspective in rural development

The course focuses on integrating a value chain perspective in rural development, and how this conceptual and methodological framework can enhance program strategies for sustainable livelihoods, profitable small scale enterprises and a socially responsive private sector. The course specifically covers value chain assessment and how it feeds into planning for development interventions. It emphasizes field-based learning through practical exercises, conduct of participatory market assessments and field visits to agricultural enterprises that practice value addition. Development of action plans at the end of the course enables participants to synthesize

knowledge and skills acquired and to apply these in their respective organizations and programs.

The course is intended for middle-level managers and field facilitators of enterprise development programs; representatives of funding and policy making organizations providing strategic support to enterprise markets and value chains; and extension personnel and community workers engaged in social enterprises. The course will be implemented 27 August-5 September 2014. Deadline for applications is 10 August 2014.

Community-based integrated watershed management

In this course, participants will learn the skills and techniques necessary to systematically plan, implement, monitor and evaluate community-based watershed initiatives in partnership with local communities, government line agencies, and rural development practitioners. Hence, the course design strikes a balance and practical integration between the technical, social, economic and political elements of community-based integrated watershed management implementation.

This course is designed for mid- and senior-level rural development professionals and government functionaries who are interested to learn concepts and strategies of a watershed approach in solving problems that beset rural development and natural resources management initiatives. The course will be implemented 7-16 October 2014. Deadline for applications is 15 September 2014.

All programs will be held at IIRR headquarters in Y.C. James Yen Center, Cavite, Philippines. For more information, visit www.iirr.org.•

Forest change 2014

Forests still cover 31 percent (~4 billion hectares) of our planet's land cover. Hence, major challenges are connected with the management and preservation of forest ecosystems. Mitigation and adaptation strategies towards climate change, food and energy security for a growing population, as well as conservation of ecosystem services, potentially change forest area and structure.

As an example, forest cover changes already contribute 12-15 percent of the world's annual carbon emissions associated with the loss of biodiversity and many environmental services. Still, major problems exist in providing accurate estimates of forest cover and quality change. However, this would form an important precondition to implement incentives for developing countries to stop deforestation. Moreover, efforts to mitigate or even stop losing natural forests must be well harmonized with the agricultural sector, because the world is also facing a 50-70 percent increased food demand in 2050.

Forests change 2014 will be held 2-4 April 2014 in Freising, Germany to discuss terrestrial survey methods, remote sensing survey methods, ecosystem and environmental services, biophysical + natural drivers of forest change, anthropogenic drivers of forest change, management systems and concepts, and management paradigms. For more information, visit http://www.fchange2014.wzw.tum.de/.•

Restoring coastal livelihoods conference 2014

Indonesia has lost nearly a third of its mangroves since 1980, the majority due to the conversion of mangroves to aquaculture ponds. However initiatives such as the *Restoring coastal livelihoods* project are working to reverse causes of degradation, and to improve management and reduce drivers of aquaculture expansion.

Bringing together practitioners, government staff, academics, NGOs and the business community, the *Restoring coastal livelihoods conference* will be held at CIFOR's headquarters in Bogor, Indonesia, 17-20 February 2014, with the theme "Increasing resilience of mangrove-aquaculture socioecological systems in Southeast Asia." This is an opportunity to analyze the drivers of mangrove conversion to aquaculture and the impacts on coastal communities and ecosystems; share experiences related to mangrove restoration, aquaculture extension and improved management, and approaches to sustainable livelihood alternatives in degraded areas; identify constraints to and options for sustainable management; engage participants to develop models and scenarios taking into consideration principles of adaptive capacity and resilience; and provide recommendations to the National Mangrove Strategy at national and subnational levels.

For more information, visit http://www.cifor.org/fileadmin/subsites/twincam/doc/Regional_Seminar_RCL_Announcement.pdf.•

Forests Asia conference 2014

The Center for International Forestry Research (CIFOR) will convene a two-day conference 5-6 May 2014 in Jakarta, Indonesia, to focus on sustainable forest landscape management for green growth in Southeast Asia. The event seeks to position forests and landscapes at the core of ongoing policy processes in the region related to green growth, sustainable land use, climate change adaptation and mitigation, food security, nutrition and poverty eradication.

Asia has experienced rapid and sustained economic growth in recent decades. Yet alongside overall progress in development, the region is still home to roughly two-thirds of the world's poor and continues to be disproportionately affected by extreme weather events, with the majority of its rural population depending on climate-sensitive sectors such as forestry, agriculture or fishing.

Already a major contributor to global greenhouse gas emissions, notably from agriculture, cash crop plantations and other forms of land use change, Asia's growing economy and population will add further pressure on Southeast Asia's forests and landscapes for forest goods, food and energy.

Forests Asia 2014 seeks to inform and be informed by national initiatives and key processes in Southeast Asia, taking perspectives from other emerging economies such as China.

The event aims to position forests and landscapes at the core of the ASEAN Community 2015 process, highlighting the role sustainable landscapes can play to achieve environmental sustainability, equitable economic development in a competitive economic region, and a reduction of the development gap among ASEAN member states.

Recognizing the importance of sustainable forest landscape management in Southeast Asia and drawing upon existing ASEAN policy processes, the conference will support ongoing regional strategies to:

- Promote bilateral and multilateral exchanges to improve the implementation of green growth policy;
- Strengthen law enforcement and governance relating to land tenure, land use and trade;
- Develop a low-carbon economy and enhance adaptation capacity to achieve win-win synergies between climate change and economic development;
- Re-affirm the potential for REDD+ in ASEAN and lessons learned thus far for climate change mitigation, biodiversity conservation and livelihoods;
- Find the balance between economic growth and social development to reduce and prevent negative impacts to food security.

Addressing governance and trade and investment opportunities, climate change mitigation and adaptation, livelihoods, food security and nutrition, *Forests Asia* will aim to set the framework for the potential development of a regional, integrated landscape research initiative.

For more information, visit http://www.cifor.org/events/upcoming-events/forestsasia/about-the-conference.html.•

World day to combat desertification 2014

The theme of the *2014 World Day to Combat Desertification* (WDCD) is ecosystem-based adaptation. With the slogan "Land belongs to the future, let's climate proof it!", the 2014 WDCD highlights the benefits of mainstreaming sustainable land management policies and practices into our collective response to climate change. Sustainable land management increases both community and ecosystem resilience while improving the human condition, particularly in the drylands.

The 2014 WDCD aims to:

- increase the attention given to land and soil within climate change adaptation
- mobilize support for sustainable land management
- call for the inclusion of land and soil and their significance in food security into national climate change adaptation policies.

The 2014 WDCD campaign will kick-off on the observance of the UN Decade for Desert and the Fight against Desertification (2010-2020). For more information, visit http://www.unccd.int/en/programmes/Event-and-campaigns/WDCD/Pages/WDCD-2014.aspx. •

FAO Publications

Towards the assessment of trees outside forests

Towards the assessment of trees outside forests aims to assist in assessing trees outside forests as part of the Global Forest Resource Assessment (FRA) 2010. The paper was authored by Hubert de Foresta, Eduardo Somarriba, August Temu, Désirée Boulanger, Hélène Feuilly and Michelle Gauthier. It highlights the importance of trees outside forests in providing food and sources of income, and in supporting biodiversity. However, despite their importance, the paper states that such trees are often excluded from assessments of forests and forest resources. This is, in part, due to confusion over the definition of trees outside forests including ambiguities concerning shifting cultivation, rubber plantations, linear tree formations (such as windbreaks and living fences), agroforestry and urban trees.

Discussions in the paper are organized around seven themes on trees outside forests that are linked to the FRA themes: extent of resources, biological diversity, health and vitality, productive functions, protective functions, socio-economic functions, and legal, policy and institutional framework.

The paper presents four key recommendations: that countries should carry out an assessment of trees outside forests based on the methods suggested in the report; the role that the FAO-FRA should play in assessing and reporting on trees outside forests; that in preparation for FRA-2015, definitions related to trees outside forests should be clarified; and that a clear way forward should be developed for assessments of trees outside forests including through workshops on the main report themes and by establishing a step by step agenda to meet global objectives.

The State of food insecurity in the world 2013: The multiple dimensions of food security

The *State of food insecurity in the world 2013* presents updated estimates of undernourishment and progress towards the Millennium Development Goal (MDG) and World Food Summit (WFS) hunger targets. The latest assessment shows that further progress has been made towards the 2015 MDG target, which remains within reach for the developing regions as a whole, although marked differences across regions persist and considerable and immediate additional efforts will be needed.

Facing the challenges of climate change and food security: the role of research, extension and communication for development

In 2010, a study was carried out to assist the Research and Extension Branch in FAO to position itself strategically in meeting needs and demands that arise as a consequence of climate change. The goal of the study was also to assist other global and national agencies meet these needs. This resulted in the report *Facing the challenges of climate change and food security: the role of research, extension and communication institutions*.

Entrepreneurship in farming

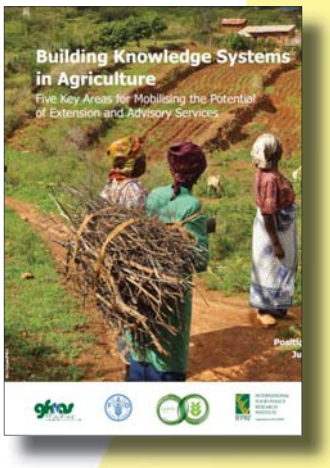
The purpose of this guide is to provide a better understanding of the concept and practice of entrepreneurship. This guide has been prepared for people who want to start a farm business for the first time and for farmers that want to make changes to their farming systems by introducing high value enterprises directed to the market. This guide can also help extension workers be better able to help farmers develop the skills and spirit of an entrepreneur. It is part of a series of booklets on farm business management designed to help extension workers support farmers.

Realizing the potential of agricultural innovation in family farming

This brochure aims to share with institutions, organizations and possible donors the activities that FAO's Research and Extension Branch (OEKR) is developing in the field of agricultural innovation systems in family farming. It is designed as a folder with a general description of OEKR work and definitions of agricultural innovation systems and family farming.

Building knowledge systems in agriculture

For the Rio + 20 meetings GFRAS together with FAO, Farming First, IFPRI and WFO published a position paper entitled *Building knowledge systems in agriculture*. Knowledge sharing is critical to supporting the three dimensions of sustainable development (social, economic, and environmental). Extension and advisory services are crucial knowledge-sharing institutions and key for linking scientific research, field-level innovations and innovators, markets, education, and other service providers.



All publications are available at http://www.fao.org. •

New publications

Agroforestry, food and nutritional security

The World Agroforestry Centre (ICRAF) announced the publication of a working paper, titled *Agroforestry, food and nutritional security*, which highlights the contribution of agroforestry to food security and the policies required to maintain and enhance this contribution.

The publication notes four links between food security and agroforestry, namely the direct provision of tree foods, increased farm incomes, the supply of cooking fuel, and the provision of ecosystem services that maintain other food sources.

With regard to policy needs, the paper calls for further policies to support agroforestry including reform of tree and land tenure, the establishment or improvement of systems for the provision of agroforestry inputs, and encouragement for additional investments in agroforestry.

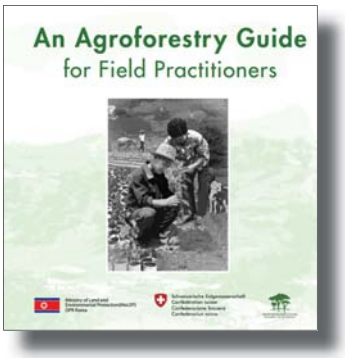
The paper also highlights a number of research needs including support for increased yields through tree domestication, and stability in agroforestry food systems. (Available: http://www.worldagroforestry.org/)

An agroforestry guide for field practitioners

The World Agroforestry Centre (ICRAF) has released a publication titled *An agroforestry guide for field practitioners*, which is based on 10 years worth of experience in land management within the Democratic People's Republic of Korea. The guide introduces the concept of agroforestry and its potential benefits for production and the provision of ecosystem services.

The publication highlights factors impacting agroforestry development in the country including policy and incentives, land tenure, technical support, market access, agroforestry practitioner profiles and biophysical conditions. The guide also outlines a six-step process for implementing agroforestry: determining the objectives, assessing current practices, designing field practices, implementing agroforestry actions, measuring and sharing results, and scaling up good practices and refining implementation.

The guide profiles specific examples of income generation from agroforestry including bee-keeping, silk production, resin harvesting, fish farming, livestock and fodder production and non-timber forest products. The manual also provides information and advice on becoming an extension officer. (Available: http://www.worldagroforestry.org/)



Conservation agriculture: global prospects and challenges

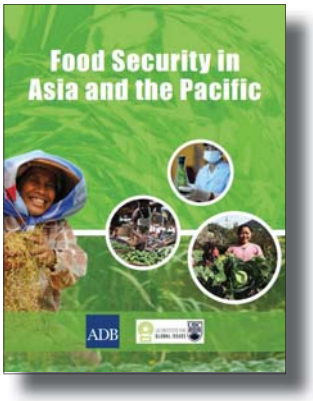
Edited by R. Jat, K. Sahrawat and A. Kassam of the International Crops Research Institute for the Semi-Arid Tropics, the book covers the spread of conservation agriculture (CA) to regions including Brazil, Argentina, Canada, Australia, Europe and emerging CA destinations in Asia and Africa. Topics covered include the various components of CA, and how their individual and combined implementation influence productivity, soil health and environmental quality under diverse edaphic and climatic conditions. The book will be useful to teachers, researchers, extensionists, farmers, and students interested in environmental quality. (Available: http://bookshop.cabi.org/)

Food security in Asia and the Pacific

Strong income and population growth, industrialization, and urbanization continue as driving forces behind the fundamental structural change in global food production and market systems. While Asia's economic growth and ongoing structural transformation deepen the complexity in managing the limited natural resources required for food security, many pockets of Asia continue to struggle with high levels of poverty and poor nutrition.

The main findings from project background studies to highlight key food security issues across the region showed three major themes:

- ensuring the sustainability of global food systems, to meet growing food demand without sacrificing the resources of future generations; improving the efficiency of food production and delivery; and maximizing the benefits of international trade;
- reducing poverty and vulnerability to food insecurity, to ensure the ability to purchase sufficient and nutritious food; reducing the price impact on real incomes of poor households; and providing effective social safety nets for those bypassed by rapid



economic growth and poverty reduction efforts; and
- establishing risk management systems and tools, to provide food-based safety nets that offer immediate relief to disadvantaged groups during crises; building adequate emergency food reserves and relief systems as a buffer to natural and human-made disasters; and introducing risk management systems and tools such as crop insurance and futures contracts to help mitigate the effects of price volatility and crises.

This synthesis report is the result of close, collaborative research initiated by the Asian Development Bank in partnership with Foreign Affairs, Trade and Development Canada; the Asia-Pacific Economic Cooperation; and the Liu Institute for Global Issues at the University of British Columbia. (Available: http://www.adb.org/)

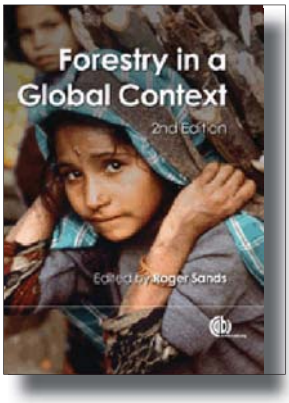
Forestry in a global context

From the time of hunter-gatherers to the present day, forests have played a vital role in the development of humanity and society.

Edited by R Sands, New Zealand School of Forestry, and University of Canterbury, New Zealand, this broad introductory textbook sets world forestry in a social, environmental, historical, and economic context. The development of forests, grassland and humans is described from the Devonian through to the Age of Agriculture, covering the factors determining the distribution of forests, the classification of forest types, the value and benefits of the forest and the products of the forest and their associated trade.

The book also explores issues such as sustainable forest management, current patterns of deforestation and reforestation, and future challenges facing our forests. Fully updated throughout and with new contributions from international experts, this second edition includes new chapters on climate change and international forest policy, and expanded coverage of forest products and bioenergy production. (Available: http://www.amazon.com/)

Irrigation management: principles and practices



In many countries irrigated agriculture consumes a large proportion (70%) of the available water resources. There is considerable pressure to release water for other uses, and as a sector, irrigated agriculture will have to increase its efficiency and productivity of water use.

Written by M. Burton, this book offers knowledge for the management of irrigation and drainage systems, including traditional technical areas of systems operation and maintenance, and expanding managerial, institutional and organizational aspects. Chapters provide guidelines to improve management, operation and maintenance processes, which move management thinking out of traditional public-sector mindsets to a more customer-focused, performance-oriented service delivery. (Available: http://bookshop.cabi.org/)

Managing water and agroecosystems for food security

Water protection, food production and ecosystem health are worldwide issues. Changes in the global water cycle are affecting human wellbeing in many places, while widespread land and ecosystem degradation, driven by poor agricultural practices, is seriously limiting food production. Understanding the links between ecosystems, water, and food production is important to the health of all three, and sustainably managing these connections is becoming increasingly necessary. Edited by E Boelee, Water Health, the Netherlands, this book shows how sustainable ecosystems, especially agroecosystems, are essential for water management and food production. (Available: http://bookshop.cabi.org/)

Thinking about water differently: managing the water-food-energy nexus

The water-food-energy nexus is emerging as a critical issue in Asia and the Pacific. It is clear that solutions must be found to assure water security, thereby eliminating the immediate–and increasing–risk to food security, energy security, and economic growth and stability: water must be recognized as an economic as well as a social good. Governments need to be encouraged to think differently about water, take the longer-term view, and be mindful of the strategic and economic value of this limited resource.

This publication is the result of a scoping study initiated by the Asian Development Bank to better understand the issues associated with the water-food-energy nexus in Asia and the Pacific. It provides high-level guidance on the choices available to address the region's water security issues. (Available: http://www.adb.org/) •

Useful websites

Asia-Pacific Association of Agricultural Research Institutions (APAARI)

http://www.apaari.org/

APAARI aims to promote the development of national agricultural research institutions through regional collaboration on priority programs, information networks of centers of excellence, capacity building, policy advocacy, technology transfer, resource generation and publications. The site offers information on publications, events, memberships and networks, and databases on agricultural research development.

2014 International Year of Family Farming

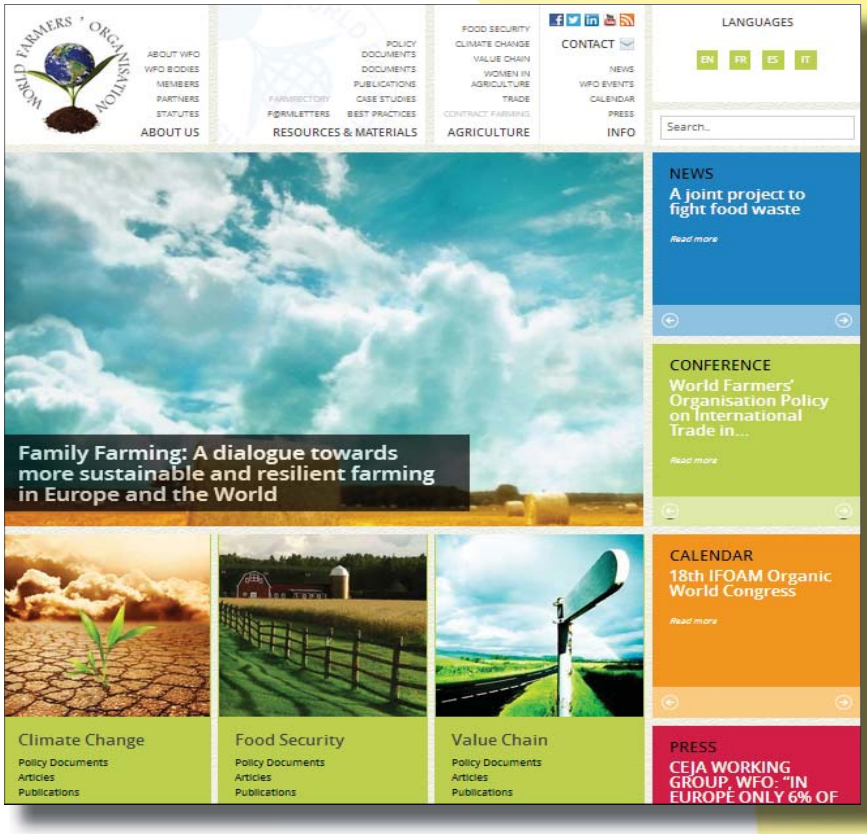
http://www.fao.org/family-farming-2014/en/

The celebration of the *International year of family farming 2014* aims to become a tool to stimulate active policies for sustainable development of agricultural systems-based farmer families, communal units, indigenous groups, cooperatives and fishing families. The site offers information on the concept of family farming, related research and initiatives and campaign events.

World Farmers Organisation

http://www.wfo-oma.org/

The World Farmers Organisation is an international organization of farmers for farmers which aims to bring together all the national producers and farm cooperative organizations to develop policies that favor and support farmers' causes in developed and developing countries around the world. It aims to strengthen farmers' positions within value chains, with a particular focus on smallholder farmers. Focus is on forestry, aquaculture and fisheries, environment, trade, extension, research and education. WFO encourages farmers' involvement in sustainable rural development, the protection of the environment and facing other emerging challenges, such as climate change, generational renewal, and gender equality.



World Vegetable Center

http://avrdc.org/

The World Vegetable Center is committed to alleviating poverty and malnutrition in the developing world through the increased production and consumption of nutritious and health-promoting vegetables. The Center disseminates improved varieties and production methods in developing countries to help farmers increase vegetable harvests, raise incomes in poor rural and urban households, create jobs, and provide healthier, more nutritious diets for families and communities.

Call for Contributions

We are inviting contributions for the 44th and 45th issues of the Asia-Pacific Agroforestry Newsletter (APANews) on or before 28 February and 30 June 2014, respectively.

Contributions may focus on activities that highlight agroforestry research, promotion and development, and education and training.

Topics of particular interest are on:

- agroforestry and poverty alleviation;
- agroforestry and rainfed agriculture;
- agroforestry, organic farming, soil and water conservation practices/measures;
- agroforestry and livelihood;
- agroforestry and farmers' income and livelihood;
- agroforestry enterprises and/or marketing
- agroforestry and mining area rehabilitation;
- agroforestry and climate change;
- agroforestry and biodiversity conservation;
- agroforestry and desertification; and
- other key development issues in agroforestry.

Announcements on new information resources, useful websites, and upcoming relevant events are also welcome.

Interested contributors must keep the articles straight and simple to cater to as many audiences as possible. Limit your contributions to 1 000 to 1 500 words. Include good-quality photographs scanned at 300 dpi and attached as original photos (jpeg, bmp, png) files that are properly labeled and referred to in the text. Indicate your complete contact details, especially your E-mail address in the article, for readers to contact you should they have further inquiries about your article.

Send your contributions through E-mail to the UPLB Institute of Agroforestry, 2/F Tamesis Hall, College of Forestry and Natural Resources, UP Los Baños, PO Box 35023, College, 4031 Laguna, Philippines; Fax +63 49 5363809; E-mail fao_apanews@yahoo.com and apanews0718@gmail.com.

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