



# Disseminating underutilized species as a foundation of resilient farming systems

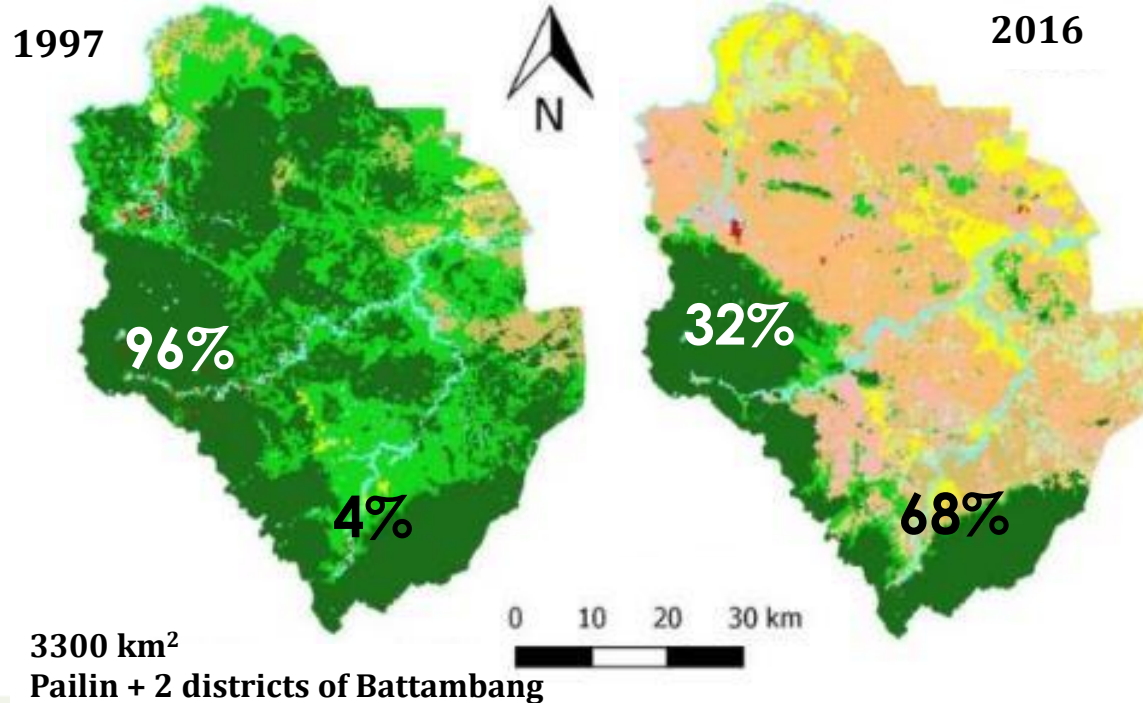
*Presented by Son Sovanda  
Conservation Agriculture Service Center*

*Regional Forum Agroecology Futures, 6-8 November 2018, Siem Reap, Cambodia*



# Soil restoration: the engine of economic development, transforming rural communities

-200,000 ha of forest in 20 years in NW Cambodia



Kong et al., forthcoming. *Applied Geography*



**Land rehabilitation is extremely important** for maintaining the possibilities for vulnerable communities to earn a livelihood from natural resources management.



# Sustaining healthy soils and agroecosystems



**Different elements should be combined (no-tillage, permanent soil protection, diversified cropping system) ...**





# Sustaining healthy soils and agroecosystems

... **plant and cropping systems diversity are the engine** that drives soil-crop interactions and enhances ecosystem services.



*Examples of cover crops – Need for genetic materials and seeds!*



# Four main areas of intervention



Preserve and maintain seed banks



Empower smallholder farmers and communities on seed production,



Disseminate knowledge and know-how



Share plant diversity and provide support to smallholder farmers

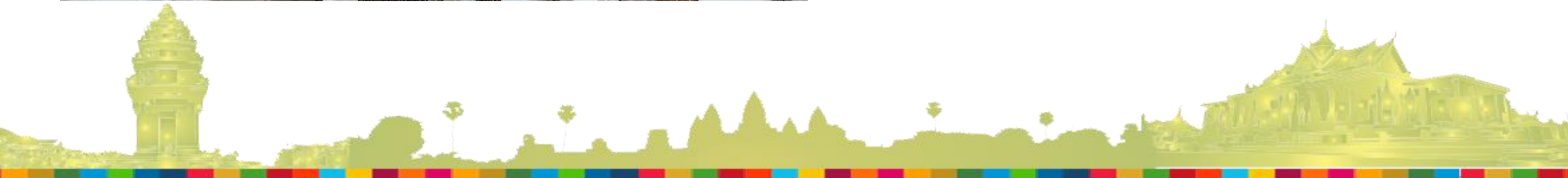




# Bos Khnor Genetic Bank - A large diversity of species



- Preserving > **50 species** representing 335 varieties
- Improving seed saving
- Disseminating knowledge and know-how
- Sharing: 9 tons will be shared this year to farmers and development practitioners across the country





# Main species tested and promoted

Mix of sorghum + sunnhemp +  
kenaf + sesbania + cowpea



## Grasses

- 1 Brachiaria brizantha
- 2 Brachiaria decumbens
- 3 Brachiaria humidicola
- 4 Brachiaria ruziziensis
- 5 Brachiaria mullato
- 6 Brachiaria mutica
- 7 Eleusine coracana
- 8 Zea mays
- 9 Panicum maximum
- 10 Pennisetum typhoides
- 11 Pennisetum purpureum
- 12 Sorghum bicolor
- 13 Tripsacum laxum

## Others

- 38 Amaranthus cruentus
- 39 Corchorus capsularis
- 40 Hibiscus cannabinus
- 41 Hibiscus sabdariffa
- 42 Sesamum indicum
- 43 Helianthus annuus

## Legumes

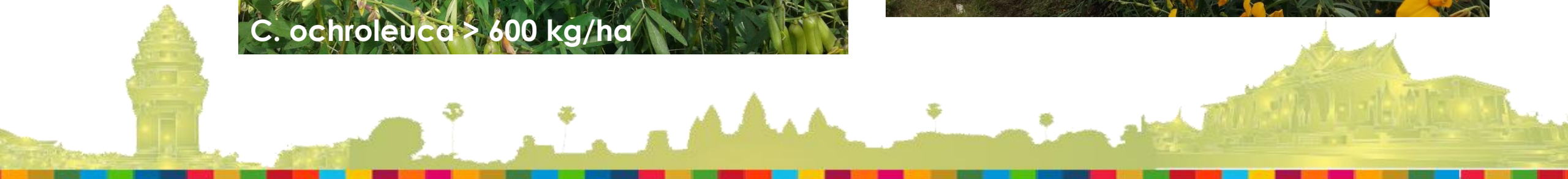
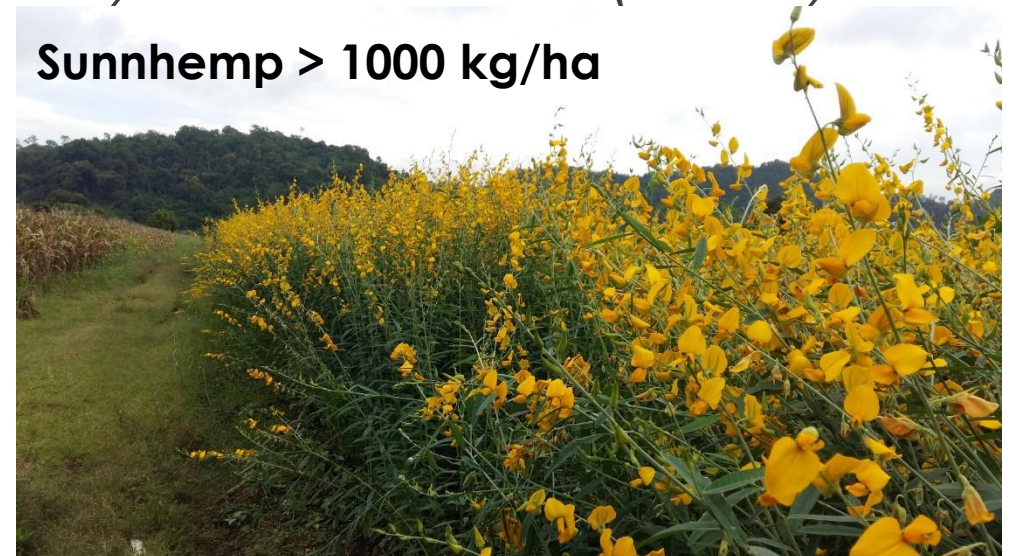
- 14 Arachis pintoii
- 15 Arachis repens
- 16 Cajanus cajan
- 17 Canavalia ensiformis
- 18 Centrosema pascuorum
- 19 Crotalaria juncea
- 20 Crotalaria ochroleuca
- 21 Crotalaria atrorubens
- 22 Crotalaria zanzibarica
- 23 Desmodium intortum
- 24 Desmodium ovalifolium
- 25 Dolichos lablab
- 26 Glycine max
- 27 Macroptilium bracteatum
- 28 Macrotyloma axillare
- 29 Mucuna pruriens
- 30 Neonotonia wightii
- 31 Pueraria phaseoloides
- 32 Sesbania grandiflora
- 33 Sesbania rostrata
- 34 Stylosanthes guianensis
- 35 Vigna radiata
- 36 Vigna umbellata
- 37 Vigna unguiculata





# Empower smallholder farmers into seed production

- In Battambang and Kampong Cham provinces, 12 farmers produce seeds of cover crops covering 34 ha with *Crotalaria juncea* (14 ha), *Crotalaria ochroleuca* (3 ha), *Stylosanthes guianensis* (12 ha), *Centrosema pascuorum* (3 ha), *Sesbania* sp. (0.2 ha), *Sorghum* (1.2 ha) and Pearl millet (0.5 ha).





# Floodplains: Cover/relay crops open ways to diversification after rice ... on residual soil moisture

700,000 ha of floodplains around the Tonle Sap Lake, bare soil during the dry season, free roaming cattle → production of protein and sustain soil fertility

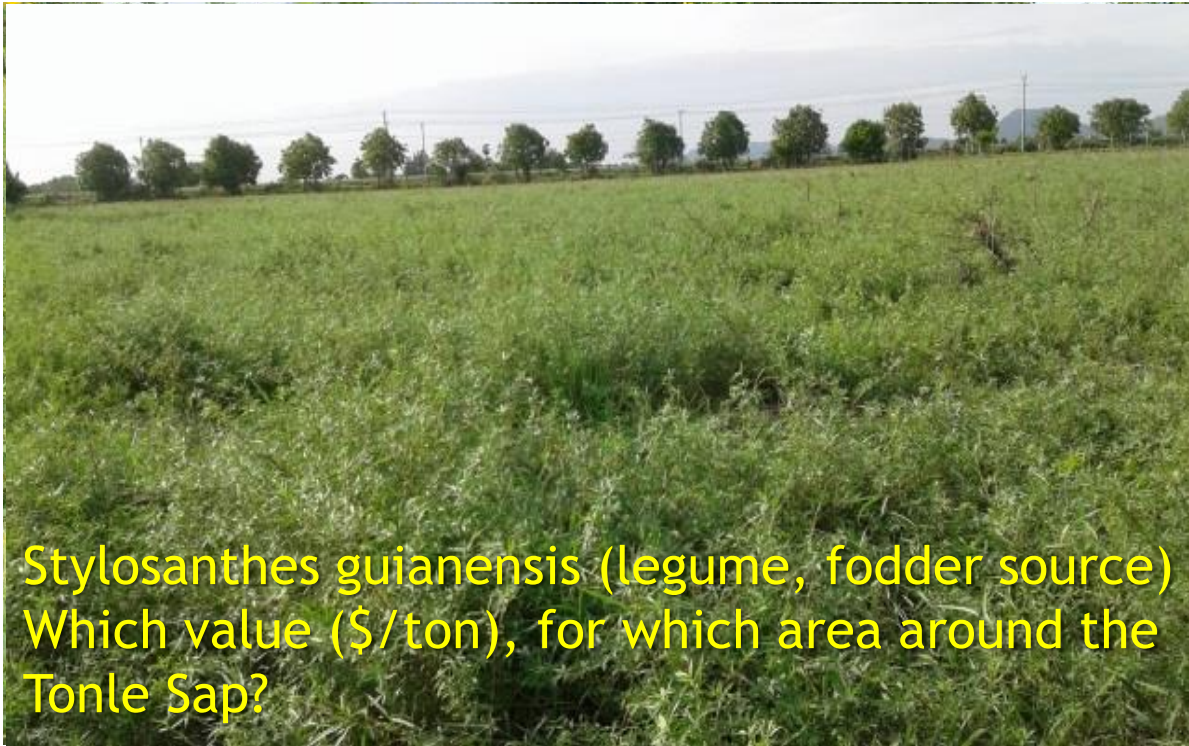


Generate new income, markets, transforming rural communities





# Floodplains: Cover/relay crops open ways to diversification after rice ... on residual soil moisture



- Increase yield of rice up to 1 ton/ha when using mix of cover crops (jasmine rice).
- High demands to use cover crops during dry season both for soil fertility management and fodder sources.
- Expected area of cover crops in 2018: >150 ha (Banan district, Battambang).
- Huge opportunity to produce grains and protein in the dry season on the residual soil moisture transforming the land management with productive animal husbandry.





# Collective learning and use of cover crops as a tool to communicate

- Process of collective learning and sharing seeds among the community.
- Flowering stage, 5600 people took selfie and photos.
- \$750 of net profit in 2 days.









# Advocacy, advertise

YouTube Channel



Recent activities



អ្នកស្រី ផល សុវណ្ណី កសិករដាំ  
ស្ពៅតម្រូវដី ចង្រៃស្ពៅ ស្រែក  
រតនៈមណ្ឌល បាត់ដំបង  
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4 days ago



ទំនងដីកសកម្មអភិរក្ស VS. ដី  
កសិកម្មទំលាប់ក្នុង Block soil  
CA vs. CT  
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កសិកម្មអភិរក្សលើដីស្រែតំបន់  
ទំនាប/Conservation  
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ហេតុអ្វីចាំបាច់ដាំដំណាំតម្រូវ  
ដី/Why we need to  
grow cover crops ?  
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Cover crops and rice  
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Destruction of cover  
crop/ ការកិនគ្រាប់ដំណាំ  
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