Forestry Department

Food and Agriculture Organization of the United Nations

Fire Management Working Papers

Community-based fire management meeting (FAO Rome, 12-13 November 2012) Report

2013

Forest Assessment, Management and Conservation Division Forestry Department	**Working Paper FM/28/E FAO, Rome, Italy**

Disclaimer

The Fire Management Working Papers report on issues addressed in the work programme of FAO. These working papers do not reflect any official position of FAO. Please refer to the FAO website (www.fao.org/forestry) for official information.

The purpose of these papers is to provide early information on on-going activities and programmes, and to stimulate discussion.

Comments and feedback are welcome.

For further information please contact:

Mr. Pieter van Lierop, Forestry Officer (Fire Management)
Forest Assessment, Management and Conservation Division,
Forestry Department
FAO
Viale delle Terme di Caracalla
I-00153 Rome, Italy
e-mail: Pieter.vanLierop@fao.org

For quotation:

FAO (2012): Community Based Fire Management Meeting (FAO Rome 12-13 November) - Report . Fire Management Working Paper 28. www.fao.org/forestry/firemanagement/en/

Content

Background

During the 5th International Wildland Fire Conference (IWFC) in South Africa 2011, organized under the auspices of FAO and UNISDR, three sessions were dedicated to community-based fire management (CBFiM), fire and development and traditional fire management and knowledge.

Related to CBFiM the 5th IWFC recommended :
Experience in the involvement of civil society in fire management through participatory approaches (community-based fire management) to successfully reduce wildfire hazards, and enhance productivity and stability of land and the environment, is calling for:

- *Creation of operational environments where community decision-making and implementation balance traditional and contemporary fire management requirements.*
- *Management of fire on its benefits, through controlled burning, to improve livelihoods and health of local populations, and reduce greenhouse gases over vast areas of the globe.*
- *Promotion of establishment of volunteer groups to assist state authorities in rural fire Management.*
- *Convention of an international conference on community-based fire management.*

A FireWise workshop during the conference recommended to:

- *Convene an international CBFiM meeting to review program implementation over the past 10-15 years (since the 3rd International Wildland Fire Conference in 2003). Requires preparatory regional workshops prior to this meeting.*
- *Formulate a CBFiM strategy, including a viable basis for support and implementation, for the next 10 years to deliver at the 6th International Wildland Fire Conference in 2015.*
- *Have CBFiM as a major focus of the 6th International Wildland Fire Conference 2015 (similar to Wildfire 2011).*

During a pre-conference meeting of the *Backyards & Beyond* - Wildland Fire Education Conference organized by the National Fire Protection Association (NFPA) (Denver, Colorado, USA 2011), international representatives of FAO, NFPA, FireSmart Canada and Fire Wise South Africa met to follow up on the discussions from the 5th International Wildland Fire conference. The group concluded that globally many initiatives are being developed in this field and although there are documents with case studies of CBFiM (FAO and FireFight 2002, 2003 and FAO 2011) there is no guidance document or tool for CBFiM implementation based on best cases or lessons learned. Developing such a tool on CBFiM and presenting it at the next IWFC was also considered as a challenge. Another challenge was establishing a CBFiM Community of Practice.

As an outcome of these discussions, participants agreed to form a Community Based Fire Management Working Group. The CBFiM Working Group proposed drafting a statement of intent, and a set of actions towards achieving a comprehensive global approach to promote implementation of CBFiM (see Annex 3: Statement of intent). The participants of the meeting in Denver also decided to organize a follow-up workshop in Rome with a broader group of CBFiM experts representing different parts of the world.

The Forestry Department at FAO was pleased to host this meeting as it is has CBFiM as a priority in its Fire Management programme and considers it an important global action contributing to the implementation of the "Fire Management Voluntary Guidelines (FAO, 2006).

The Community-based fire management workshop in Rome

Nine CBFiM experts from South America, Africa and Australia participated at the meeting as well as four FAO staff members, one of them representing the organizers of the next IWFC in Korea (see list of participants in Annex 1).

The expected outcomes of the workshop were:

- A working paper with a report of the meeting and all presentations
- An outline of a CBFiM guidance tool
- A plan towards the next IWFC in Korea 2015

During the first day of the workshop, after opening words and introduction, participants presented their experiences in CBFiM in three blocks:

- CBFiM approaches
- Some components of CBFiM
- CBFiM and traditional knowledge and management.

During day two the following issues were discussed:

- Key elements for a CBFiM tool
- Communication strategies to raise awareness of CBFiM approach among policymakers and donors
- Recommendations regarding CBFiM for the next IWFC
- Next steps till IWFC Republic of Korea 2015

See annex 2 for the programme of the workshop.

DEVELOPMENT OF THE WORKSHOP DAY 1

Introduction

The welcome words were pronounced by Mr Douglas McGuire on behalf of the Director of the Forest Assessment, Management and Conservation Division. He noted that FAO was developing a "Sustainable Forest Management Toolbox (SFM Toolbox)". The actors in forestry tend to work in the forest sector in disparate, often difficult situations and complex contexts and sometimes disconnected ways. Through discussion and arising from a request by the Committee on Forestry (COFO), FAO is seeking to create a toolbox that brings together tools, guidance and information on different topics and enables support in a more effective and comprehensive way, breaking the information, insights and understanding out of the "silos". Fire management and CBFiM are good components , subsets, to consider for the SFM toolbox. A concept note for the SFM Toolbox has been prepared. It will also consider other existing efforts such as the Forest Health e-learning tools and adopt a scaled approach from local to national to global.

This was followed by some introduction words and a presentation (Annex 4) on the FAO fire management programme by Mr Pieter van Lierop. He noted that there have been or will be a series of meetings on the topic of CBFiM, one in Rome and two more in Nepal and the Balkans. Combined efforts may enable a larger global gathering on CBFiM to be held prior to the IWFC in 2015.

For this meeting the process would be to record a couple of key elements after each presentation and consider them further in the discussion on a guidance tool. Additionally the meeting would consider some guidance for the organizers of IWFC 2015.

FAO's efforts of the past in fire management including CBFiM were outlined as well as the new umbrella program with 6 pillars:

- Integrated fire management at country level;
- Access to fire information nationally and globally;
- Understanding key elements of fire management;
- Enhancing stakeholders participation;
- Addressing emerging issues such as Climate Change
- Contributing to International coordination and communication.

The program seeks to clearly work beyond suppression considering fire management as part of sustainable forest management and sustainable development, considering fires across all land uses, developing to a landscape approach. This comprehensive, integrated approach aligns with the new FAO strategic objectives.

On behalf of the organizers of the next IWFC, Mr Chang-jae Lee presented the fire management context for the Republic of Korea and a reflection on CBFiM in Korea. He then provided some information on the progress in planning for IWFC in 2015 (Annex 5).

The Republic of Korea is a small country of ~10 million hectares, 64% forested with a population of 50 million people. The Korean peninsula has a mountain range with the bulk of its forest being pine species, reforested in recent times and very flammable. There is now some thinning being done to reduce the hazard. As with most nations 95% of the fires are human caused, 20% being due to disposal of agricultural waste and related rural activities. There have been four major fires since 1996 ranging in size from 3,762 to 974 hectares. Fires

do not only affect forests but also rural infrastructure and enterprises as well as the many temples and other cultural assets. One very old and important temple was destroyed in 2005 by a wildfire. The fire policy has been focused on prevention, detection and rapid response. Consistent with this there is a web based fire danger rating (FDR) system with dissemination of alerts by SMS to 70,000 officers, forest access is prohibited at times with high FDR 25,000 forest guards, 795 cameras, 2600 hiker checkpoints and 47 helicopters are available for rapid response. The community is engaged under the National Forest Management Act which gives local people the rights to use non-wood forest products. This process which now covers 80,000 hectares, provides an income to communities in total of USD5 million and also helps to ensure their engagement and interest in managing and protecting forest lands.

Progress towards IWFC 2015 has been good. The website will be set up in 2012 and the venue will be decided after the presidential election. The draft agenda for the conference is being developed.

Session 1 - Community-based fire management approaches

The session included four presentations and included time for discussions.

Ms Val Charlton (FireWise, South Africa) gave a presentation (Annex 6) on "Exploring the critical success factors that lead to sustained community-based fire management" in which she discussed some concepts and links between "community" and "fire management" and what differentiates CBFiM from integrated fire management (IFM). Key issues highlighted during the discussion included:

- where does CBFiM fit into IFM – the difference being the community itself;
- the need for economic data on the costs of fires was highlighted along with the lack of analyses of this sort;
- the importance of clearly defined benefits, rights and responsibilities of the local people in fire management;
- community based sanctions are equally important as incentives;
- the issue of scale or the right size for community programmes; it mustn't be too big in terms of land scale or numbers of people so that the motivation is lost and responsibility is weakened because people have an opportunity to 'opt out';
- the need for motivation at all levels – meaningful incentives for everybody and tangible to the community;
- fire adapted communities take ownership, work together and integrate with agencies recognizing that management has to be of multiple actors engaged.

Mr Petteri Vuorinen (FAO) presented some FAO fire management projects from recent years and the common elements of them: development of training, awareness raising, legal framework reviews, and development of national fire strategies and plans (Annex 7). All FAO projects have strong focus on capacity building, integrated fire management and community-based fire management. They are tailored case by case on the individual country needs using a mix of modalities and funding sizes. Mr Vuorinen highlighted the challenge of reaching social acceptance for the national fire programmes and of the use of fire as a land management tool. The motivations for agencies, communities and decision makers to participate vary. Agencies are usually technical 'service' providers or 'managers' and often not 'social' in their approach, outlook or understanding.

Mr Herbert Haltenhoff (CONAF, Chile) discussed in his presentation (Annex 8) the constant technological, social and environmental changes which the organizations and agencies dealing

with fire management have to take into consideration. They should adapt their strategies to accommodate and align with these changes. In Chile they seek to do this by changing the paradigm from control to participation.

Any strategic decision must be consistent with the context where the problem arises and what yesterday was a solution, today may be a contradiction. The persistent paradigm of fire suppression and law enforcement has not been successful. The analysis of the risk of forest fires has been directed toward understanding their physical parameters (vegetation, topography, weather, fire behaviour) while the social component has been less emphatized. Importantly we do not understand all dimension of the loss (economic, environmental, cultural and social). The new paradigm has led in Chile to focus on four areas of work:

1. Consider prevention as a basis for the solution of the problem;
2. Focus on clarifying the problem and focus on solutions;
3. Insert activities into landscape management or development (*Desarrollo Territiorial*);
4. Work on risk management.

This requires more active and systemic involvement of municipalities, stakeholders and the community, in prevention of forest fires. Prevention is framed in 8 areas of work:

- Two areas focused on the change people's perception of the fire problem and forest resources management: systematic education and awareness raising activities at the right time.
- Two areas focused towards the use and management of forest resources: regulation and improvement of the use of fire as a management tool, and preventive silviculture.
- Another area with three police actions: fire cause investigation, legal control, and civil and criminal liability.
- One area aimed at mitigating the damage caused by forest fires: management and restoration of burned areas.

This is considered a good approach to balance the four pillars of protection: prevention, detection, control and damage mitigation.

Forest fires and their impact go beyond the loss of forest and the problem of fires is different in different parts of Chile, so multiple options are needed to account for the needs of communities, indigenous people, forest companies, agriculture and agencies. Today they are a factor in the global environmental imbalance and have important social, cultural and economic impact, especially in areas where, for climatic conditions, they were not present in the past. One of the key recommendations of Mr Haltenhoff is the inclusion of fire management into rural development plans.

> *"We should not be proud to control a big wildfire which could have been prevented"*
> H. Haltenhoff

Dr. Ronald Myers (Ex. TNC, USA) discussed in his presentation (Annex 9) the link between community-based fire management and nature conservation. According to him, the following actions are crucial for integrating CBFiM with conservation goals:

- Understanding the role of fire in ecosystems;
- Understanding the needs and issues of fire users;
- Integrating ecology and fire use with the technical aspects of fire management;

- Changing the way people think about fire at all levels and then institutionalize those changes;
- Promoting appropriate fire use by providing communities and rural individuals with some incentive, e.g. payment for environmental services.

From the discussion it surged that most of these points seem to be related with good communication strategies.

Session 2 - Some components of CBFiM

The session included four presentation and included time for discussions.

Ms. Christina Seeberg-Elverfeldt (FAO) started the session by introducing FAO's "Climate-Smart Agriculture - Mitigation of Climate Change in Agriculture (MICCA)" programme (Annex 10), highlighting two programme elements:

- alternatives to slash and burn agriculture in Tanzania, and
- impacts, causes and solutions to peatland fires based on cases from Kalimantan, Indonesia.

Some of the early lessons learned from the MICCA activities in Tanzania include:

- Importance of awareness on climate change and environment are key to change behaviour on slash and burn
- Good linkages with local governments are important to support project implementation

Solutions to prevent peatfires fall into three categories:

- integrated landscape management of peatlands
- stopping drainage of peatlands and raise water tables through rewetting
- develop wet agriculture, paludiculture

Ms Lara Steil (Ibama/Prevfogo, Brazil) gave a presentation (Annex 11) on low-cost and sustainable techniques as an alternative to burning in agricultural and livestock management in the "*Amazon without fire*" programme. The most important lessons from the programme included:

- Cooperation among institutions is essential for preventing forest fires and control fire-use;
- Integration of sector activities is important and must be designed according to the needs of local stakeholders;
- Projects and actions should have goals that can realistically be achieved;
- Local technicians should develop the actions locally and multipliers should have financial and technical support to implement activities.

Mr Petteri Vuorinen (FAO) gave a presentation (Annex 12) on behalf of Mr Robin Beatty (123 Fire) on the role of prescribed burning in CBFiM in Southern Africa and what is required for sustainable CBFiM management from his experience. Some of the key issues listed by Mr Beatty included:

- Keep programmes as simple as possible - no advanced equipment or methods;
- Programmes need to be flexible and adaptable to suit local needs;
- Tap into local knowledge and use traditional and community-based management and decision making structures

Mr Pieter van Lierop (FAO) gave a presentation (Annex 13) behalf of Mr Patrice Talla (FAO Legal Office) on legal frameworks for community-based fire management. The presentation included a description of different fire management legislations, the importance of public participation and local communities empowerment, and how these should be included into legislation in order for the legal framework to support CBFiM. Some discussion took place on legal liability in case community volunteers get injured or even die, while fighting fires.

Session 3 - Local knowledge and fire management

Mr Christopher William (Tanzania) gave a presentation (Annex 14) on his study traditional fire management and knowledge in Tanzania, where he collected base line data on fire prevention, use and suppression in different ethnic communities. The study seems a good starting point for a consistent (standard) approach of assessing CBFiM but requires patience and flexibility (good timing is required between village activities and the study).

Some results of the study are:

- Communities have specific knowledge and strategies about fire prevention, use and suppression, which should be starting points for outside interventions. Instead of imposing new community-based fire management, projects should help to improve existing CBFiM.
- Different age groups have different attitudes and need to be targeted strategically – young people are an important target group;
- More data are needed on social aspects of fire use.

"Listen and look, then talk." Christopher William

Mr Carlos Pinto (FAN, Bolivia) and Ms Veronica Ibarnegaray (FAN, Bolivia) gave a presentation (Annex 15) on community-based fire management around protected areas in southern Bolivia with some general information on forest fires and traditional use of fire in Bolivia. Some of the main points of their presentation and discussion included the following:

- Extreme fire seasons occur every 2-3 years.
- Main causes of forest fires are related to traditional fire use in agricultural practices.
- Climate change is altering traditional agricultural practices and fire regimes.
- Efforts must focus on strengthening community capabilities, encouraging community participation in fire use planning and consolidate coordination among all actors and communities involved.
- Acknowledging the social and cultural dimensions is crucial when developing public policies related to fire management.

Very interesting was the variety of communities they are working with: rural peasants, indigenous communities, cattle ranchers and Mennonite communities, which all differ in how fire is used and the level of mechanization.

DEVELOPMENT OF THE WORKSHOP DAY 2

Session 4 - Critical elements for a CBFiM tool

During the discussions it was decided that there is need for at least two different tools:

- one for high level policy makers and donors to raise the awareness of the CBFiM approach ("to make the case");
- and another one for practitioners/project managers/district officers/NGO's implementing CBFiM in the field, including field examples.

It was suggested that the last one will be developed by the meeting participants and launched at the next IWFC in 2015. There was also some discussion on a possible third tool for forest owners (private or state).

After a discussion the following list of elements for a CBFiM tool for practioner was established. This list will an input to develop an outline for the tool. Elements are overlapping and the grouping below is not restrictive in any way.

Tailoring projects to local social/ecological/economical/cultural contexts
Look before you leap: information collection on fires, climate and forest; Understanding underlying causes of fires/understanding socio ecological role of fire; Listen and look, then talk; Focus on people - Meet local needs and create meaningful incentives (e.g. climate change/carbon); Clear benefits – rights – responsibilities;

Empowering local people
Understanding the meaning of community; Understanding the role of fire in rural development; Using existing structures (local leadership); Participatory planning; Tapping into local knowledge; Role of land tenure

Good and bad fires and alternatives
Training use of fire is a working tool; Adapting fire use practices to changing climate; Alternatives to the use of fire & Controlled use of fire

Focused approach;
Achievable goals for projects/programmes; Coordination mechanism amongst stakeholders; Good communication important - "social" skills for technicians; Evaluation criteria to measure project success

Scaling up and institutionalizing the projects
Fire management into the local development plans; The legal framework; Marketing and documentation; Influencing public policy – communication strategy

Long term studies/illustrated examples - building the case of CBFiM

Session 5 - Recommendations for the 6th International Wildland Fire Conference

The next International Wildland Fire Conference (IWFC) will take place in the Republic of Korea November 2015 and is being organized by Korean Forest Service. The meeting participants made the following recommendations:

For the organizers:

- To include a technically competent and good key note speaker on CBFiM in the conference. He/she should be able to "make the case" on CBFiM and present the key note early during the week to have the biggest impact.
- To include specific sessions on CBFiM in the programme of the conference, preferably not at the end to attract maximal amount of participants and attention. Similar sessions like in South Africa might be considered: community-based fire management, fire management and development, and traditional (or local?) fire management and knowledge.
- To establish a place (a corner like during the AFAC and Bushfire CRC Conference in Darwin) where participants can meet keynote speakers after their presentations to discuss and exchange as discussion with keynote speakers in plenary is often short or non-existent.
- To consider a sponsored area in the exposition space where people can meet and talk with key note speakers in an informal atmosphere

For FAO:

- To establish a booth focusing on CBFiM and invite relevant speakers there after their presentations;
- To send the results of the last and the next conference officially to the FAO member countries.

For the CBFiM expert group:

- To organize a workshop "toolbox talk" on CBFiM during the conference where various NGOs and projects could present their results. It could be a sort of stock taking and/or evaluation event of the past work;
- To organize a training workshop before the conference on CBFiM;
- To develop a video (maybe to be shown in the FAO booth) to illustrate the concept of community based initiatives, traditional knowledge and practices. Etc.

Session 6 - Next steps

Ms Val Charlton (FireWise, South Africa) explained the idea to establish a community of practice on CBFiM (Annex 3). She also highlighted that the current global economical situation forces countries to go back to basic and simple approaches in fire management instead of expensive suppression and high technology oriented approaches. This is an opportunity for CBFiM approach which should be used.

As a result of the discussions which followed it was decided that the group will look for opportunities where CBFiM can be promoted (e.g. AFAC, SAFNET and 6th IWFC) and develop together with the meeting participants a document for policy makers and donors on CBFiM to complement the tool to be developed for practitioners.

The development of the CBFiM guidance tool for practitioners, as a printed document or interactive web tool, can be planned as follows:

Early 2013 - *Desktop survey*
Mid 2013 - *Detailed design of the tool*
Early 2014 - *Final "draft"/website*
Mid 2014 - *Validation/test the concept*
Feb 2015 - *Ready and validated*
Oct 2015 - *Formal presentation at the IWFC in the Republic of Korea*

The tool will be developed by the meeting participants mainly via emails and internet. FAO will look for possible funding for meetings and publication of the tool. Peter Moore offered to explore how the tool might fit into the SFM toolkit. For the moment it was decided not to broaden the group with other participants.

The workshop was closed on the second day and participants expressed their satisfaction of the meeting and thanked FAO for organizing the meeting.

ANNEXES

Annex 1: List of participants

Ms Val CHARLTON
Managing Director
FFA Non Profit Company
Winter House
Kirstenbosch Botanical Gardens
Newlands, 7700
Cape Town, SOUTH AFRICA
E-mail: val.charlton@ffa.co.za
Mobile +27(0)823789056
Tel: +27(0)21 7975787
Fax: +27(0)865141486

Ms Verónica IBARNEGARAY SANABRIA
Fundación Amigos de la Naturaleza
PO Box 2241
La Paz, BOLIVIA
E-mail: vibarnegaray@fan-bo.org; vibarnegaray@gmail.com

Mr Herbert HALTENHOFF DUARTE
Chief Department of Forest Fire Prevention
Corporación National Forestal (CONAF)
Paseo Bulnes No. 2085, Of. 503
Santiago, CHILE
Email: Herbert.haltenhoff@conaf.cl
Tel: +(56-2)66302036-0351
Fax: +(56-2)6630210

Mr Ronald Lewis MYERS
2164 Ferndale Avenue
Baton Rouge, Louisiana 70808
U.S.A.
E-mail: rm.fuego@gmail.com

Mr Peter Francis MOORE
Management of Natural Resources, Fire and Carbon
14 Jeanette Street
East Ryde, NSW 2113
AUSTRALIA
E-mail: peterfmoore@gotalk.net.au
Tel: +61 (0) 407 163 961 Australia
Tel: +255 (0) 759 980 312 Tanzania

Mr Carlos Raul PINTO GARCÍA
Fundación Amigos de la Naturaleza
PO Box 2241
La Paz
BOLIVIA
E-mail:cpinto@fan-go.org; carlospintog@gmail.com

Ms Larah STEIL
Coordinator of Interagency and Burning Control Department of Prevfogo / IBAMa
Trecho 2 – Ed. Sede – CX.
Postal No. 09566 – CEP 70818
BRAZIL
E-mail: larah.steil@gmail.com
Tel: 55-61-3316-1857
Cell: 55-61-8189-4009
skype: lara.steil

Mr Christopher M.P. WILLIAM
Department of Geography
University of Dar-es-Salaam
PO Box 35049
Dar-es-Salaam
TANZANIA
E-mail: cmpwilliam@udsm.ac.tz; willmpc@gmail.com

FAO

Mr Chang-Jae LEE
Senior Forestry Officer
Vialle delle Terme di Caracalla
00153 Rome ITALY
E-mail: ChangJae.Lee@fao.org
Tel: +39 06 570 55866

Ms Cristina SEEBERG ELVERFELDT
Natural Resources Officer
Vialle delle Terme di Caracalla
00153 Rome ITALY
E-mail: Christina.SeebergElverfeldt@fao.org
Tel: +39 06 57052110

Mr Pieter VAN LIEROP
Forestry Officer, Fire Management
Vialle delle Terme di Caracalla
00153 Rome ITALY
E-mail: Pieter.vanLierop@fao.org
Tel: +39 06 570 54392

Mr Petteri VUORINEN
Consultant, Fire Management
Vialle delle Terme di Caracalla
00153 Rome ITALY
E-mail: Petteri.Vuorinen@fao.org
apvuorin@gmail.com
Tel: +39 06 570 52642

Annex 2: Programme

Day 1:

- Opening words (McGuire)
- FAO Fire Management Programme (van Lierop)
- Fire Management and the International Wildland Fire Conference 2015

Session 1. Community based fire management approaches:

- Fire Wise South Africa(Charlton)
- FAO – a new approach (Vuorinen)
- Focalized approach in Chile (Haltenhoff)
- CBFiM and Nature Conservation (Myers)

Session 2. Some components of CBFiM

- Alternatives for fire use (Steihl)
- Climate smart agriculture (Seeberg)
- CBFiM and legal frameworks (Talla)
- Fire as a management tool (Beatty/Vuorinen)

Session 3. CBFiM and Traditional Knowledge and Management

- Case from Tanzania (William)
- Case from Bolivia (Pinto)

Day 2:

Session 4. Outline of the CBFiM tool / Discussion of the first day

Session 5. Recommendations for FAO for the 6th International Wildland Fire Conference

Session 6. Community of practice and Next steps

Annex 3: Community-based Fire Management (CBFiM) Accord

1 August 2012

Acronyms:

CBFiM	Community-based fire management
FAO	Food and Agriculture Organisation of the United Nations
BOP	Best Operating Practice
COP	Conference of Parties
NFPA	National Fire Protection Association
ILC	Wildfire 6 International Liaison Committee
FFA NPC (SA)	Forest Fire Association Non-profit Company (South Africa)

"*CBFiM is a type of land and forest management in which a locally resident community (with or without the collaboration of other stakeholders) has substantial involvement in deciding the objectives and practices involved in preventing, controlling or utilizing fires*." [1]

Preamble

Increasingly, holistic and integrated fire management approaches are enabling communities to reduce wildfire hazards, enhance land use practices and benefit the environment. Gradually, it is being acknowledged that community-based fire management (CBFiM) is a critically important strategy to address fire management issues in a rapidly changing global environment. In recognition of this, the Conference Statement of the International Wildfire 2011 Conference at Sun City[2], South Africa declared that: *"Experience in the involvement of civil society in fire management, through participatory approaches (community-based fire management) to successfully reduce wildfire hazards, and enhance productivity and stability of land and the environment, is calling for:*

- *Creation of operational environments where community decision-making and implementation balance traditional and contemporary fire management requirements,*
- *Management of fire on its benefits, through prescribed burning based on objectives, to improve livelihoods and health of local populations, and reduce greenhouse gases over vast areas of the globe,*
- *Promotion of establishment of volunteer groups to assist state authorities in rural fire management, and*
- *Convening of an international conference on community-based fire management."*

Related to these calls was the call for:
Increase of effort to reduce unnecessary burning on croplands, fallow and other lands to reduce the negative impact of greenhouse gas and black carbon emissions on the regional, arctic and global environment.

This CBFiM Accord has been drawn up to facilitate the implementation of the Statement on CBFiM and the resolutions of the CBFiM Workshop held at the Wildfire 5 Conference.

[1] D. Ganz, R.J. Fisher & P.F. Moore (2003). Further Defining Community-Based Fire Management: Critical Elements and Rapid Appraisal Tools. 3rd International Wildland Fire Conference, October 6-8, Sydney, Australia
[2] Also referred to in this document as "Wildfire 5 Conference"

Background:

The Food and Agriculture Organisation (FAO) Fire Management - Global Assessment 2006 recommended that "all countries recognise that CBFiM offers one of the most sustainable, adaptive approaches for managing fire, especially for prevention."[3]

The 5th International Wildfire Conference at Pilanesberg, South Africa, 2011, delivered key messages that climate change will contribute significantly to increased forest and bush fire incidence in the future, and that the conventional view of fire as a destructive agent requiring immediate suppression has given way to the view that fire can be used to meet land management goals under given ecological circumstances in prescribed weather conditions. This responsible use of fire should be complemented with exploring alternatives for using agriculture fires.

In recognition of the increasing importance of community-based landscape-scale fire management, the Conference dedicated two sessions to: *Fire and Poverty Alleviation in Developing Countries*, and *Community Fire Awareness, Prevention and Survival*. In addition, a CBFiM Workshop was held at the Conference, to identify common aspects and to explore options for future collaboration around this issue. Workshop recommendations were that:

- "CBFiM should be on the agenda of the 6th International Wildfire 2015 Conference in S Korea, with an equal or even higher profile than in 2011.
- "In the interim, a greater emphasis on CBFiM internationally should be fostered through:
    - Taking stock over the next four years of CBFiM successes and impacts;
    - Collecting and distributing information on approaches, methodologies, lessons learnt, resources and materials;
    - Creating a focus on prescribed burning as a solution, in part to facilitate attitude change on the part of those who view fire suppression as the solution; and
    - Holding an international meeting on CBFiM before next Wildfire Conference."

In October 2011, the National Fire Protection Association invited representatives from organizations to attend an international pre-conference meeting in Denver, Colorado, prior to its Backyards and Beyond Wildland Fire conference. The pre-conference meeting was designed to a) follow up on discussions from the 5th International Wildland Fire conference in Sun City, South Africa; b) provide updates on the role each of each agency represented in global wildland fire mitigation issues, and c) explore potential linkages between existing and future mitigation programs and efforts. Participants included representatives from the United Kingdom's Fire & Rescue Service, CapeNature and Firewise South Africa, United Nations Food and Agriculture Organization (Forest Department) and Partners in Protection (Canada).

Participants of the meeting were.: Val Charlton <val@wofire.co.za>, Andy Elliott <andy.elliott@ic24.net>, Zane Erasmus <wze@netactive.co.za>, Paul Hedley <Paul.Hedley@northumberland.gcsx.gov.uk>, Kelly Johnston <KJohnston@kamloops.ca>, Thomas Mackenzie <firewise.coordinator@wofire.co.za>, Molly Mowery <MMowery@nfpa.org>, Pieter van Lierop <pieter.vanlierop@fao.org>, David Nuss <dnuss@nfpa.org>, Kelly O'shea <Kelly.O'Shea@NRCan-RNCan.gc.ca>, Michele Steinberg <msteinberg@NFPA.org>, Alan Westhaver <Alan.Westhaver@pc.gc.ca>, <alwest@telus.net>.

Statement of Intent

As an outcome of these discussions, participants agreed to form a Community Based Fire Management Working Group. The CBFiM Working Group proposed drafting a Statement of Intent, and a set of

[3] Fire Management - Global Assessment 2006, FAO Rome 2007.

actions towards achieving a comprehensive global approach to promote implementation of CBFiM. The following Guiding Principles and Work Plan are based on that discussion.

Goal

The overarching goal of this Statement of Intent is to shift current global wildfire practice, perceptions and thinking towards sustainable prevention and mitigation solutions by promoting the ecological, economic, and social benefits of community based fire management, rather than the existing, long-standing over-emphasis on suppression-focused solutions.

Guiding Principles of CBFiM

These Guiding Principles were drafted by the Working Group, on the basis of the agreements at Wildfire 2011. The principles complement the principles in the FAO Fire Management Voluntary Guidelines (FMVG), 2006[4], which are referenced where appropriate.

Principle 1: All countries and all sectors of society have an interest in CBFiM because it offers the most sustainable, adaptive approaches for managing fire, especially for prevention. It can mitigate the effects of climate change and offers economic benefits in one form or another to all, both rich and poor. All stakeholders, including traditional Fire Brigade Agencies have to accept and promote CBFiM as one of their core functions.

Principle 2: CBFiM requires a participatory, 'bottom-up' approach to fire management, one that is owned and driven by the community, and supported by stakeholders contributing strongly to sustainability, adaptability and durability.[5]

Principle 3: Effective CBFiM requires access to fire science knowledge and information: CBFiM initiatives are dependent on readily available and applicable fire science knowledge and information, to enable local stakeholders to collaborate in undertaking fire management planning and projects.[6]

Principle 4: Culturally appropriate solutions and approaches: There is no CBFiM approach that 'fits all'. The approach to fire management employed should be initiated from, appropriate for and applicable to the relevant community, uncomplicated, and should start by considering existing knowledge.

Principle 5: CBFiM requires a collaborative and cooperative approach to fire management, one that is integrated and holistic, multi-disciplinary, multi-scale and multi-stakeholder. It acknowledges the challenges and reality of overlapping jurisdictions with regard to wildfire management, and recognizes that all organizations have valued contributions, regardless of size or magnitude.[7]

Principle 6: CBFiM effectively addresses a nexus of socio-economic issues and impacts including sustainable livelihoods, human health and security, protecting lives and assets, ecosystem functioning and mitigating natural disasters.[8]

[4] Fire Management Working Paper 17, ftp://ftp.fao.org/docrep/fao/009/j9255e/j9255e00.pdf
[5] FMVG Principle 9: Multi-stakeholder approach. Successful fire management requires participatory approaches to leadership and management that are appropriately shared by public and private landholders, the fire services and communities of interest.
[6] FMVG Principle 11: Knowledge transfer. Access to and appropriate application of knowledge are essential in all fire management activities.
[7] FMVG Principle 10: Cooperation. Few nations and no single agencies or communities have the ability to manage every situation. As fires routinely affect multiple jurisdictions, agencies should develop cooperative arrangements to mitigate transboundary impacts.
[8] FMVG Principle 1: Sustainable Livelihoods; FMVG Principle 2: Human health and security; FMVG Principle 3: Protecting lives and assets; FMVG Principle 7: Fire effects on ecosystems.

Work Plan

Several actions were identified by the Working Group to move the process forward. The Working Group recognizes that there are other short and long-term actions that need to be identified, but the following steps create a strategy for getting started. These steps have been gathered together to form a proposed Work Plan for the period 2012 - 2015. The success will be dependent on the participation and support of members.

1. Establish the Working Group

   The Working Group will drive the process in the interim until a formal process can be constituted. Membership of the Working Group will be extended to include South America, Asia, and Australia.
2. Establish a CBFiM Community of Practice

   The CBFiM Community of Practice[9] will involve a number of aspects, including:

- Developing a series of relevant working documents. Extract key lessons and methodologies from scientific review and synthesis of case studies, in order to develop a CBFIM Best Operating Practice for peer review and publication.
- Collecting and distributing information on approaches, methodologies, lessons learnt, resources and materials;
- Exploring and developing a plan for a CBFiM Study Tour series between members' countries.
- Establishing communications tools, for example a newsletter or web page, discussion boards and newsgroups, to facilitate communication within the CBFiM community.

3. First International CBFiM Meeting

   The Working Group has proposed that a meeting be held in Rome in October/ November 2012. The goals of the meeting would include:

- Building the Community of Practice and developing a Best Operating Practice (BOP) for CBFiM
- Formalising the Working Group goals, membership and terms of reference.
- Finalising a framework for the publication of CBFiM BOP recommendations.
- Discussing, exploring, understanding CBFiM in a global context
- Building consensus for achievable, sustainable outcomes and approaches (BOP lobbying, communication messages)
- Identifying audiences, users and commonalities

4. CBFiM at Wildfire 2015 in South Korea

   The CBFiM Workshop at Wildfire 2011 concluded that the issue should be on the agenda of Wildfire 2015, with an equal or higher profile given to promoting such on the programme. While respecting that the style and content of each Wildfire Conference is dictated by the convening country, the members of the working group undertake to work towards securing this goal by developing a consolidated position and lobbying appropriately in the intervening years, including the above proposed publication, so as to provide motivation for the 2015 conveners to include a CBFiM stream in the proceedings.

Bringing more people on board...

Until now, the process has been managed by an informal group of people, styling itself the Working Group, and contributing their own resources to help take the process forward. Opportunities to become involved are being set up, including:

[9] From Wikipedia, (http://en.wikipedia.org/wiki/Community_of_practice): A community of practice (CoP) is, according to cognitive anthropologists Jean Lave and Etienne Wenger, a group of people who share an interest, a craft, and/or a profession. The group can evolve naturally because of the members' common interest in a particular domain or area, or it can be created specifically with the goal of gaining knowledge related to their field. It is through the process of sharing information and experiences with the group that the members learn from each other, and have an opportunity to develop themselves personally and professionally (Lave & Wenger 1991). CoPs can exist online, such as within discussion boards and newsgroups, or in real life, such as in a lunch room at work, in a field setting, on a factory floor, or elsewhere in the environment.

- Expanding membership of the Working Group to include participants from South America, Asia, and Australia
- Helping to establish the Community of Practice, by contributing resources and material once the web portal is established;
- Developing a communication strategy and a framework for the proposed CBFiM BOP.
- Participating and offering support in the proposed Study Tour programme
- Participating in the Rome meeting and
- Endorsing this accord – taking the message forward in each and any circle of influence.

Draft Work Plan 2012-2013:

Date	Item	Lead agents	Outcome	Funding source
June 2012	Final input on Statement of Intent and Work Plan concept docs	Molly, Val, Pieter	Interim guiding Terms of Reference for 2012 and 2013. Can be used for motivating action.	Self
June /July 2012	Wildfire 6 International Liaison Committee Meeting	Pieter, Val	Make presentation to ILC on request of COP re Wildfire 6	ILC
June 2012- September 2012.	Draft Communications Strategy for Community of Practice	All members	Outlines the strategy for the first review of communication messages towards building the case for CBFiM, and the Best Operating Practice (BOP) publication	Self. Web hosting and comms specialist input?
October /November 2012	Participation in Rome Meeting at FAO	Val	Outline to invite Expression of Interest from parties that would like to participate in the development of the CBFiM BOPs	FFA NPC (SA)
November 2013	Potential CBFIM Meeting and local study tour in U.S.	Molly	Timing has possible linkage to Backyards and Beyond	NFPA and participating countries.

Annex 4: FAO Fire Management programme

Fire Management across FAO

- Natural Resources department:
  - Global Fire Information Management System
  - Climate Smart Agriculture
- Legal Office: Legal framework revisions
- Emergency Unit: Post emergency projects
- Agriculture department:
  - Conservation agriculture
  - Rangeland management

Integrated Fire Management

applied at country level

- Beyond suppression
- Fire management as part of SFM and SD
- Fires across all landuses – landscape approach

Note: new integrated FAO strategic objectives

Integrated Fire Management

Projects (2004-2012)

Access to fire information

at national and global level

- Impacts of vegetation fires globally recognized
- Lack of information regarding trends and causes, especially at national levels
- Need for data on scope and damage to design effective strategies
- Need for more data to understand relation fires-CC

Understanding Fire Management

- Need for a body of fire expertise
- Capacity building material

Enhancing stakeholder participation

- Stakeholders involvement from planning stages on
- Community based approaches

Emerging issues
like Climate Change

- Wildfires source of emissions
- Fire management in adaptation and mitigation
- Include in REDD+

International coordination & communication

- Many actors: NGO's, forest companies, government org.
- Exchange of experience
- More efficient use of resources


FORO 21
Thank you!

Annex 5: Forest Fire Control in the Republic of Korea

Outline

I. Introduction to Forest Fire Control in ROK

II. A Case of CBFiM

III. The 6th IWFC Preparations

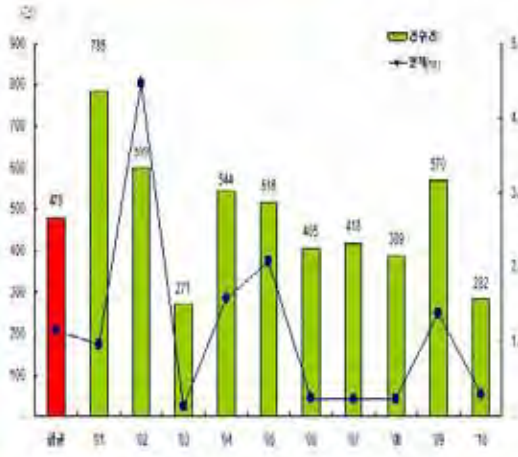
I. Introduction to Forest Fire Control in Rok

1) General Overview

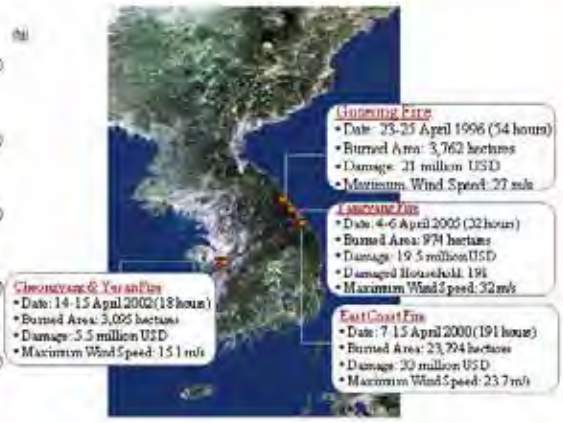
Status of forest fire

▶ 478 fires, 1,161ha of burned area on annual average

Fire status



Mega Fire



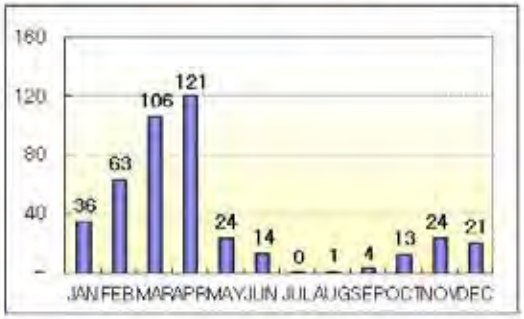
Weather

▶ "**Forest Fire Vigilant Period**": November to May

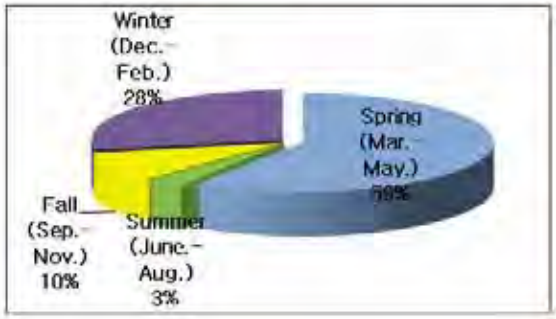
▶ **High risk forest fire period** : March to May

-9% of annual rainfall of 1,328 mm, strong seasonal wind

Monthly Fires



Seasonal Fire



Topography

- Mountain forest cover: 64% of the total land (10 million ha)
- Forest land is mountainous and steep

Forest

- 44% of pine forests that are highly flammable
- Dense forests composed with 59% of over 30yr-old trees

2) Forest Fire Control System & Practices

Forest Fire Policy

Goal

To minimize fire damage by effective prevention, early detection and initial suppression

Strategy

- **To reduce fire occurrence by practical preventions**
- **To detect early by using Hi-tech IT system**
- **To perform Initial attack by KIICS, 30 ms'AH and KMPS**

* KIICS : Korea Incident Intergrated System, AH : Arriving by Helicopter, KMPS : Korea Mountain Pumping System

Organization for forest fire control

Prevention Practices

(1) Forest Fire Danger Rating System & Forest Fire Danger Alert

- providing hourly "Forest Fire Danger Rate" to web-based service in real-time
- taking an action for forest fire prevention by deploying forest fire guards
- delivering text messages on 'Forest Fire Danger Alert' to 70,000 individuals (including heads of local districts and forest fire guards)

< Real-time forest fire danger rating>

< Forest fire information>

< Forest meteorological information>

Prevention Practices

(2) Prohibition of mountain entrance & Closure of trekking trails

- prohibiting climbing up to 30 % of forest land during the high-risk forest fire season
- distributing fire guards at the trekking trails entrances and restricted areas
- reporting unauthorized entrance of hikers

Easy-to-read web-based information service

✓ Real-time information on authorized trails to hike

✓ Solution for public complaints on inconvenience

Prevention Practices

(3) Eliminating causes of forest fire

- Pre-removal of agricultural wastes within 100m from the forest area*
- Keeping the flammable materials away from the trekking trails
- Leaving an open-space (forest-free space) close to temples and cultural heritage

< Fingerprint of Temple 'Hein-sa' project >

< The completed project>

* Some background history to be told during presentation

Prevention Practices

(4) Protecting forest reserves (e.g. sprinklers)

Early Detection Practices

(1) Running 25,000 forest fire guards during the high-risk fire season

- recruiting & distributing local people as patrol
- providing GPS devices to trace fire guards' location in real-time



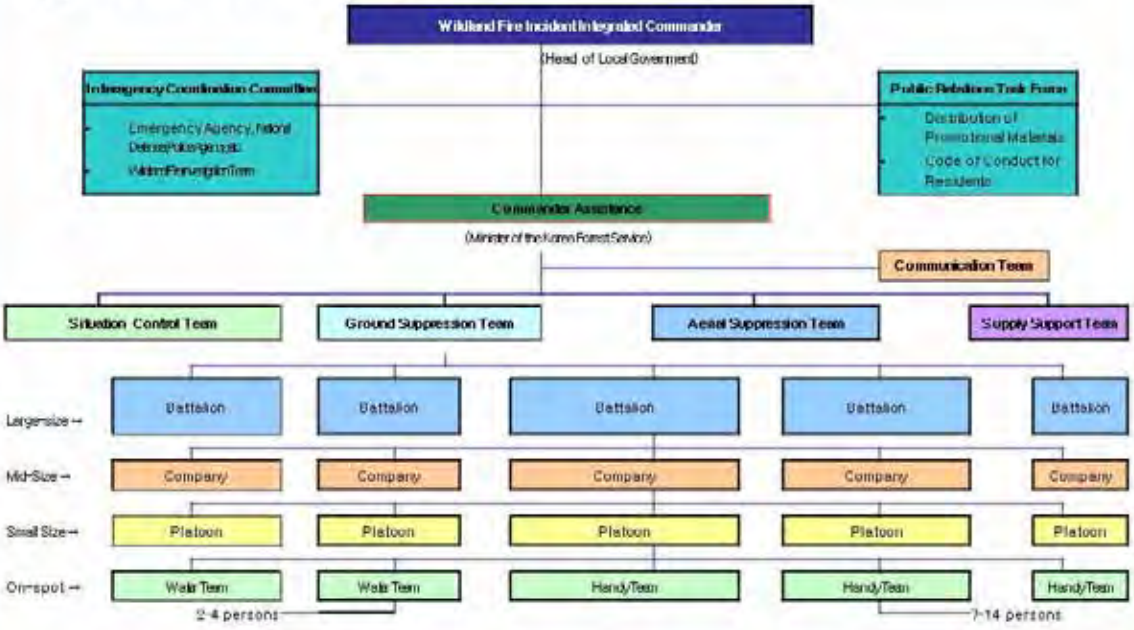

Early Detection Practices

(2) 795 surveillance cameras within 10km


(3) 2600 Hikers' checkpoint centers, 900 surveillance towers

Forest Fire Attack Practices

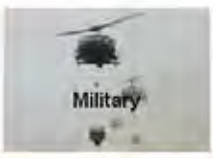
(1) Korea Incident Integrated Command System



Forest Fire Attack Practices

(2) Efficient air attack system using helicopters

- **47 available helicopters from KFS**
  - ✓ 50 additional helicopters available from local governments
  - ✓ cooperating with other government institutions (military 21 helicopters; fire station 26 helicopters)
- **on STAND-BY 24 hours reaching the fire-site in less than 30 minutes <30ms'AH>**
  - ✓ Helicopters on stand-by in 9 different aircraft stations, able to dispatch long distance



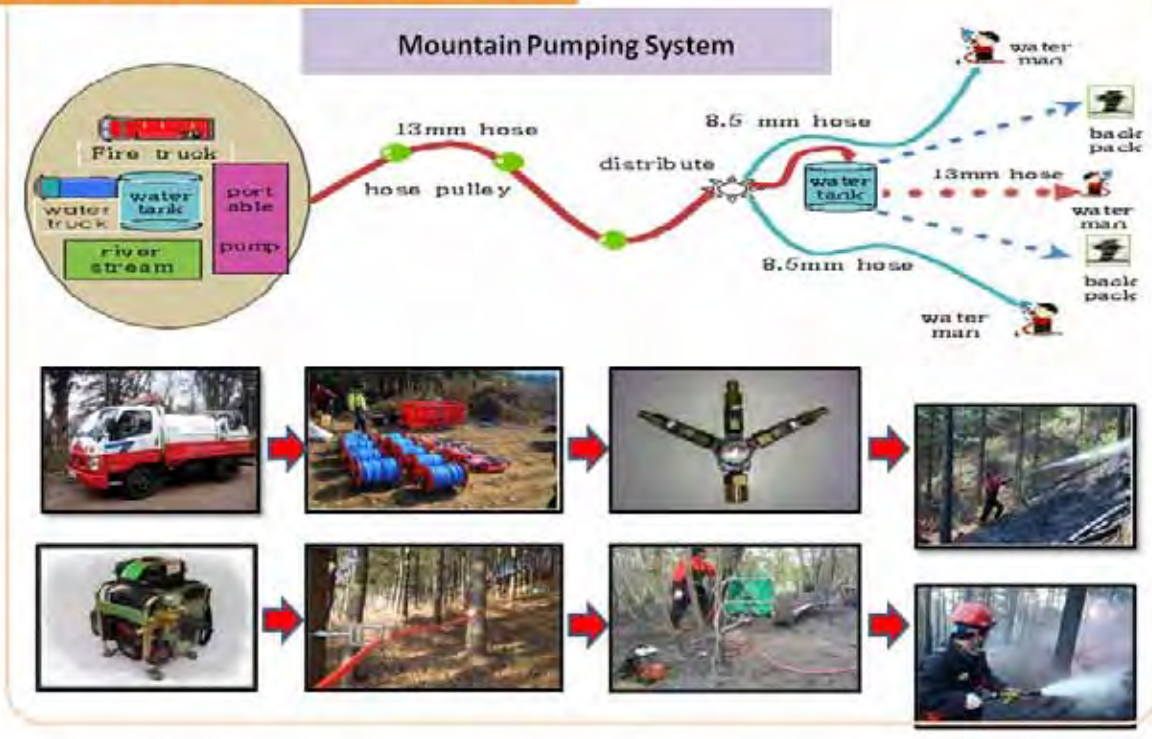
Forest Fire Attack Practices

(3) Ground fire forces with implementing Mountain Pumping System

- Initial attack: specialized forest fire prevention and suppression forces (10,000 persons)
- Mega or night stage: trans- boundary control teams (8 teams)
- Support forces: forest workers, military, volunteers (23,000 persons)




Forest Fire Attack Practices



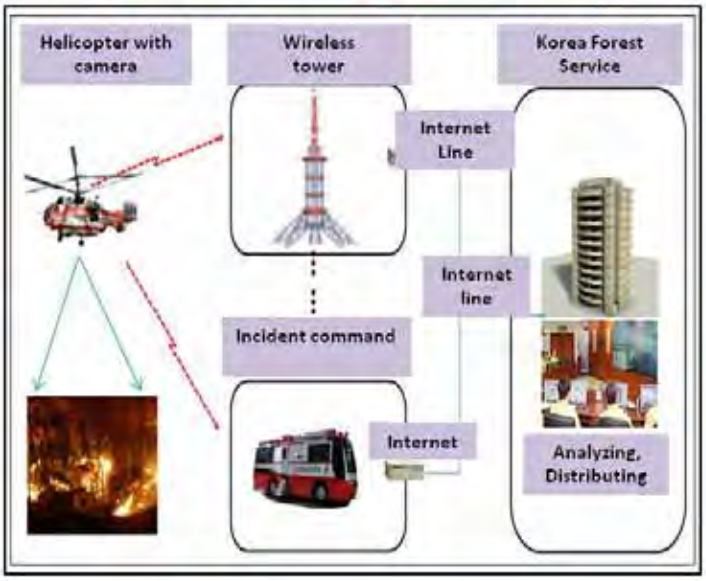
Forest Fire Attack Practices

(4) **Supporting system**

Helicopter Location Monitoring System

Carrying hoses by Helicopter to top

Real time on-spot situation monitoring system



II. A Case of CBFiM

Agreement to protect national forests

- Relevant Act: National Forest Management Act

Grant Rights to collect Non-Wood Forest Products
(mushrooms, wild vegetables, fruits, sap etc.)

Government
•National Forest Management Office (KFS Branch)

AGREEMEN

Community
•Forest Association
•Local people
•Forest Employees etc.

Impose monitoring responsibility to protect national forest From forest fire

Forest Protection & Income Generation through Grant Rights (2011)

2011	No. of Sites	Protected Areas (ha)	Production/Income Generation (1,000 $, USD)		
			Total	Governement	Community
Mushrooms	575	47123	1605	176	1429
Pine nuts	340	8099	2043	209	1834
Sap	225	11072	1340	133	1207
Vegetable	179	10483	160	11	149
Fruits	49	1358	52	5	45
Total	**1368**	**78135**	**5200**	**535**	**4664**

III. The 6th IWFC Preparations

Preparation Status as of November 2012

1) Production of logo is completed

2) Provisional website will be completed in mid-December 2012.

3) The venue is to be decided after 2012 considering political situation in the host country (presidential election in December 2012).

4) Registration fee and accounting matters will be determined after 2012.

5) Agenda Development Team for Conference Program and IWFC High-level Segment and its Operating Plan are under development.


Thank you for your kind attention.

Annex 6: Exploring the critical success factors that lead to sustained Community-based Fire Management

The Questions.....

What is Community – based Fire Management?

What makes Community –based Fire management different from Integrated Fire Management?

Where does CBFiM fit into the picture?

It starts with the *Community*.....

The Community

- Research identifies a community as ' a body of people living in one place or district … and considered as a whole'
- Between 100-200 Households - large enough for a programme and small enough for all households to be willing to be accountable.
- Includes local agency officials, planners, tribal leaders, politicians etc.

The Community

The Community

- Tangible benefits for participating communities
- Awareness of rights and responsibilities, is achieved.
- Community based sanctions are equally as important as incentives..

The Community in the Landscape

The Wildland Urban Interface

Low value /low income - wildfire can equal disaster, spiralling, deepening poverty, famine.

High value/ high income – likely insurance paid out, loss of treasured memorabilia, possible loss of income.

CBFiM CHALLENGES

Both of these community pics represent the WUI.
The level of resource support varies from nothing [above] to everything [right], across all the IFM activities.

The need for the community to be self reliant applies in both scenarios.

Fire adapted communities

- Take ownership of their fire related risks and hazards.
- Put a 'do-able' plan in place to reduce their risks of damage and danger from wildfires

Fire adapted communities

- Integrated work with agencies to reduce fire fuels in the landscape – slashing, stack burning, prescribed burning.
- Work together collectively to manage their landscape better and protect their assets during periods of high risk.


FireSmart
Canada
FireSmart Canada is a Project of Partners in Protection Association
MONTANE
Forest Management Ltd.
Yukon
Alberta
FIREWISE
FFA


FIRE
ADAPTED
COMMUNITIES
Fire Adapted Communities
Coalition

Fire Adapted Communities Coalition

USDA Forest Service | US Department of the Interior | US Fire Administration
International Association of Fire Chiefs | National Fire Protection Association
Insurance Institute for Business and Home Safety | The Nature Conservancy
National Volunteer Fire Council | National Association of State Foresters
National Wildfire Coordinating Working Group WUI Mitigation Committee

Annex 7: FAO Fire Management projects

FAO Fire Management projects

GENERAL INFORMATION

- Types of projects: TCP, GCP, UTF + others
- Budget: 300 000 - 2 000 000 USD
- Counterparts: Ministry of Forestry and other ministries (environment, education, agriculture etc.) + NGOs
- Duration: 18 months to 3 years

GENERAL CONDITIONS

- FAO contribution: Staff time, equipment, backstopping
- Country contribution: Office space, visa arrangements, steering committee, national project coordinator
- Reporting: consultant reports & final report with recommendations

COMPONENTS

Training, awareness raising & legislation

+

Fire management strategy/plan

Focus:

Capacity development, IFM and CBFiM

TRAINING

Capacity building, training of trainers, multi stakeholder approach

AWARENESS RAISING

Awareness raising material (posters, flyers), events, competitions, radio programs etc.

LEGISLATION

Updating / harmonizing

Emphasis on mandates and roles and cooperation of different stakeholders

FIRE MANAGEMENT STRATEGY/PLAN

Based on the voluntary guidelines

FOCUS ADJUSTED AND BASED ON COUNTRY NEEDS

In Bulgaria - Awareness Raising Campaign.

In Macedonia - National Fire Management Plan and legislation.

In Syria - Raise the standard living of local communities through different income generation activities.

In Zimbabwe - Training Community Fire Brigades on use of fire in project pilot villages.

PROJECTS

PROJECTS

PROJECTS

SINCE COFO 2010 PROJECTS

INVOLVEMENT OF OTHER FAO DEPARTMENTS

- Natural Resources Department:
  - Global Fire Information Management System
  - Climate Smart Agriculture
- Legal Office: Legal framework revisions
- Emergency Unit: Post emergency projects
- Agriculture Department:
  - Conservation agriculture
  - Rangeland management

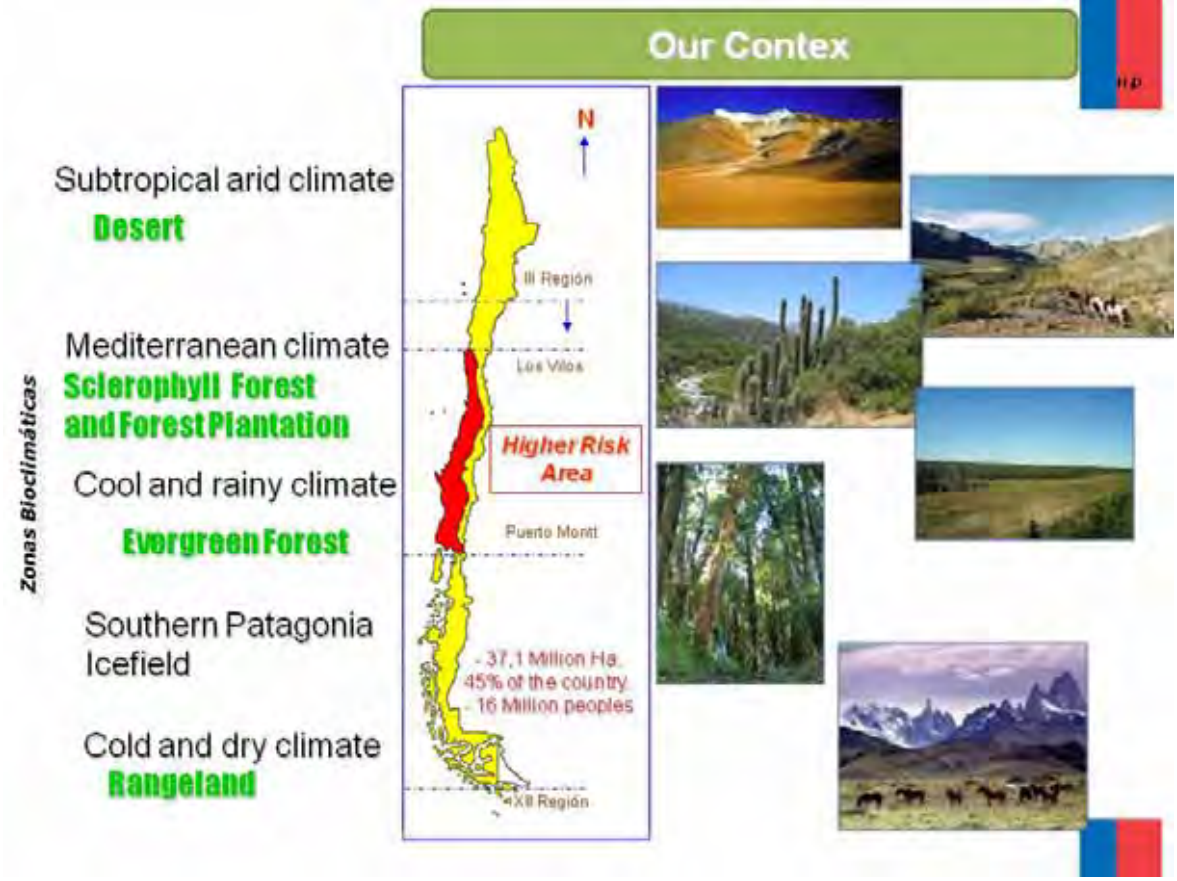
CHALLENGE

1. There is a need to improve understanding and **skills in the use of fire** as a management tool (training and education)

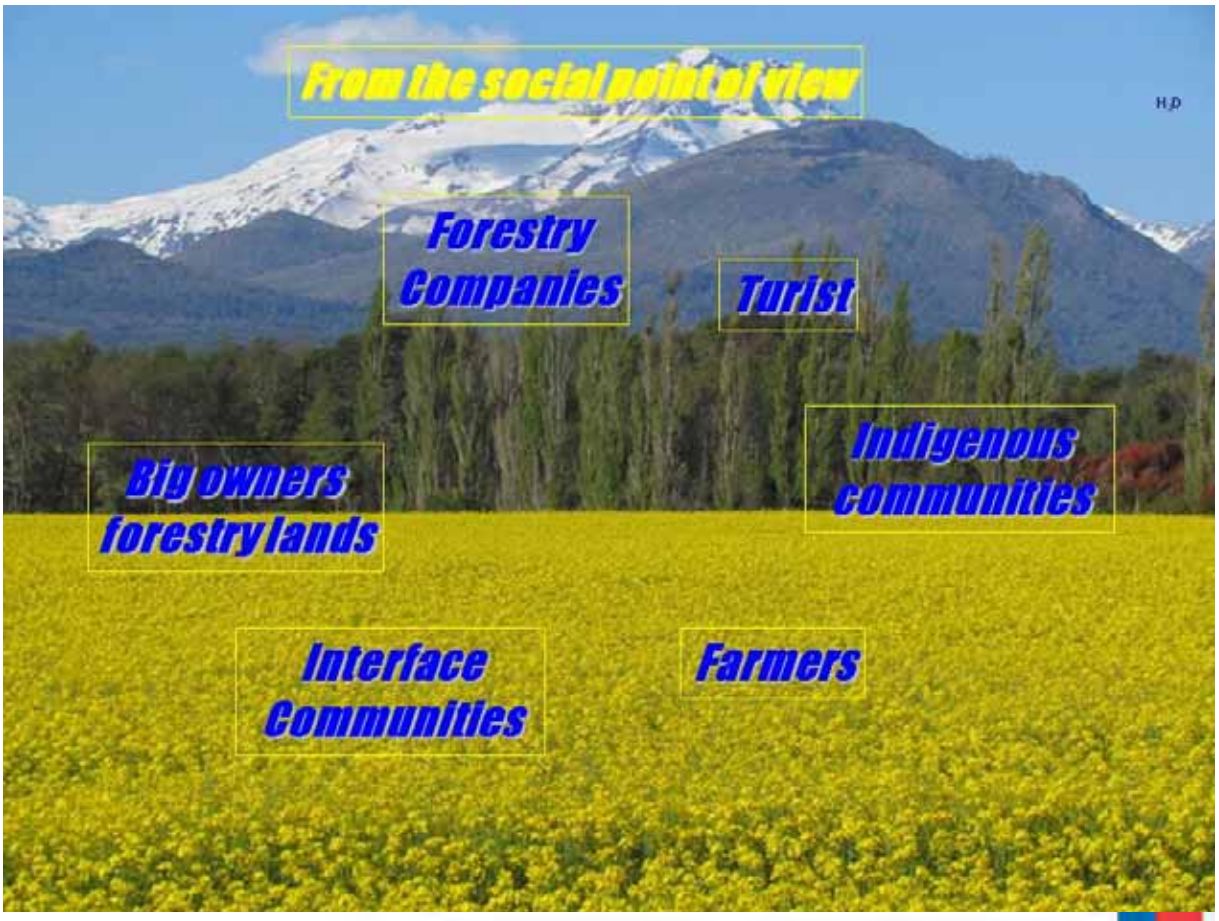
2. There is also a need to create a social acceptability of fire management programmes

THANK YOU!

Annex 8: Forest fires in Chile. Change of the paradigm: control strategies or community participation



Any strategic decision must be consistent with the context where the problem arises



Introduction

- The **look of the society** about the environment and natural resources **has changed** in recent times and your demand to the agencies responsible for their protection too.
- In this world of constant change - technological, social and environmental - must be able to stop our way, check out our paradigms and **rethink our actions**.
- Forest fires and their impact **go beyond the loss of forest**, today they are a factor in the global environmental imbalance and have important social, cultural and economic impact, especially in areas where, for climatic conditions, they were not present.
- **Whatever yesterday was a solution, today may be a contradiction**. The persistent paradigm: suppression and enforcement are the only effective ways to manage fires.

The global reality

- The analysis of the risk of forest fires has been directed toward understanding their **physical parameters** (vegetation, topography, weather, fire behavior) with significant advances in digital mapping, information networks and even legal regulations. However, the **social** component analysis has played a **very secondary role**.
- This had led to a control strategy and with an important investment in operational resources – forest fire crew, air tankers and helicopters - this latter becoming more expensive, and finding technological solutions of high-cost.
- However, we are talking, in Chile, about a **problem caused by man** and not a natural phenomenon in the dynamics of the forest regeneration.
- The **people participate by delegation**: the forests are burned and extinguished on TV.
- **We do not understand the real dimension of the loss** (economic, environmental, cultural and social).
- It requires **more active and systemic involvement** of municipalities, stakeholders and the community, in prevention of forest fires.

Magnitude of the problem

More today, forest fires are not only a problem for the "forest", but also a problem of great social impact, even resulting in loss of human life, and affects the order and internal security of the State.

Where the most affected population is of scarce resources that live in rural areas and on wild land -urban interface

Change Paradigm

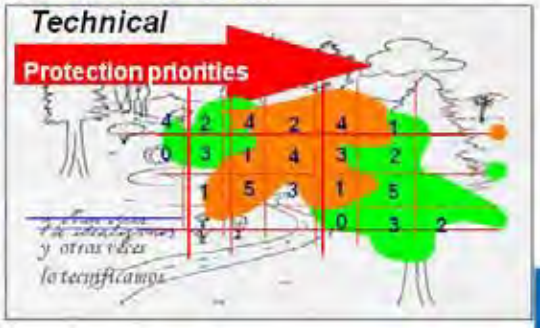
- The forest fire caused by man, the recurring big fires and the increasingly high costs of the control system has led us to rethink our strategies and change our paradigms.

- In this context, **our new paradigm has led us to focus on four areas of work:**
  - Consider **prevention** as a basis for the solution of the problem.
  - **Focus** the problem and focus solutions.
  - Insert our activities into the **Territorial Development Work.**
  - Work in **risk management.**
  - Implementation of a **Territorial Prevention Network** with the active participation of all the community.

The Forest Fire

- But there is something better to be clear, unless we are prepared to deceive: "**There is no single definition of what is a forest fire**".

We should tending towards a shared vision

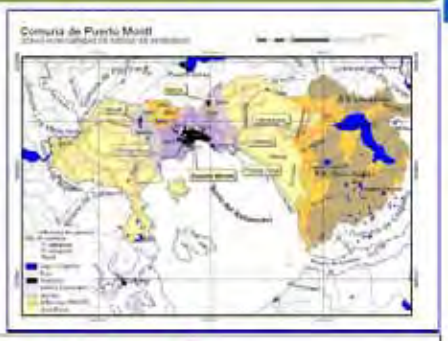


Forest Fire Prevention

- Where preventive techniques are framed in 8 areas of work:
- Two focused on the change of looking by the people about the problem and forest resources management:
  - Systematic Education
  - Awareness at critical times
- Two focused towards the use and management of forest resources:
  - Regulation and technological development of the use of fire as a working tool
  - Preventive Silviculture
- Three police action:
  - Causes Research
  - Legal control
  - Civil and criminal liability
- One aimed at mitigating the damage caused by forest fires:
  - Management and restoration of burned areas

Our vision

Global work



Focused work

Government problem

Coparticipation community

Our vision

Imminent risk

Vegetation Management

Controlled burn

Prescribed Burning

Our vision

Use of Fire

Waste Management

Single actor

Community
involved in decision making

Using the technology tools

This allows for lower costs, sharing information, sharing professional experiences, enhance corporate image, and use the current language

Forest Fire Prevention Community

Agricultural and forest burning System

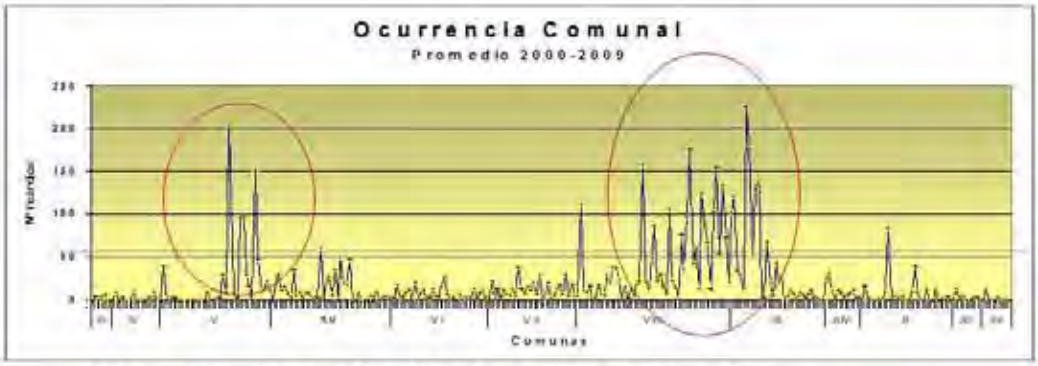
Alternatives to the use of fire

Forestin Club

The Focus

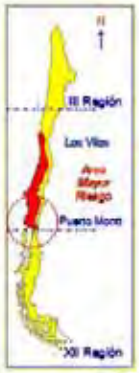
❑ **"Focus on everything and not really be focused on anything". Focus is said: "I have a large area under my responsibility. I decided to concentrate most of my attention on a small fraction of it". We must identify the weakest links, the restrictions. They are what determine the overall performance of the organization.**

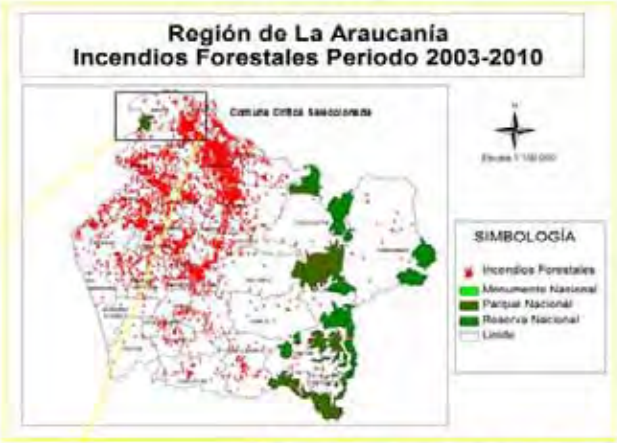
Our weakest links



29 municipalities of the 312 - have 55% of forest fires

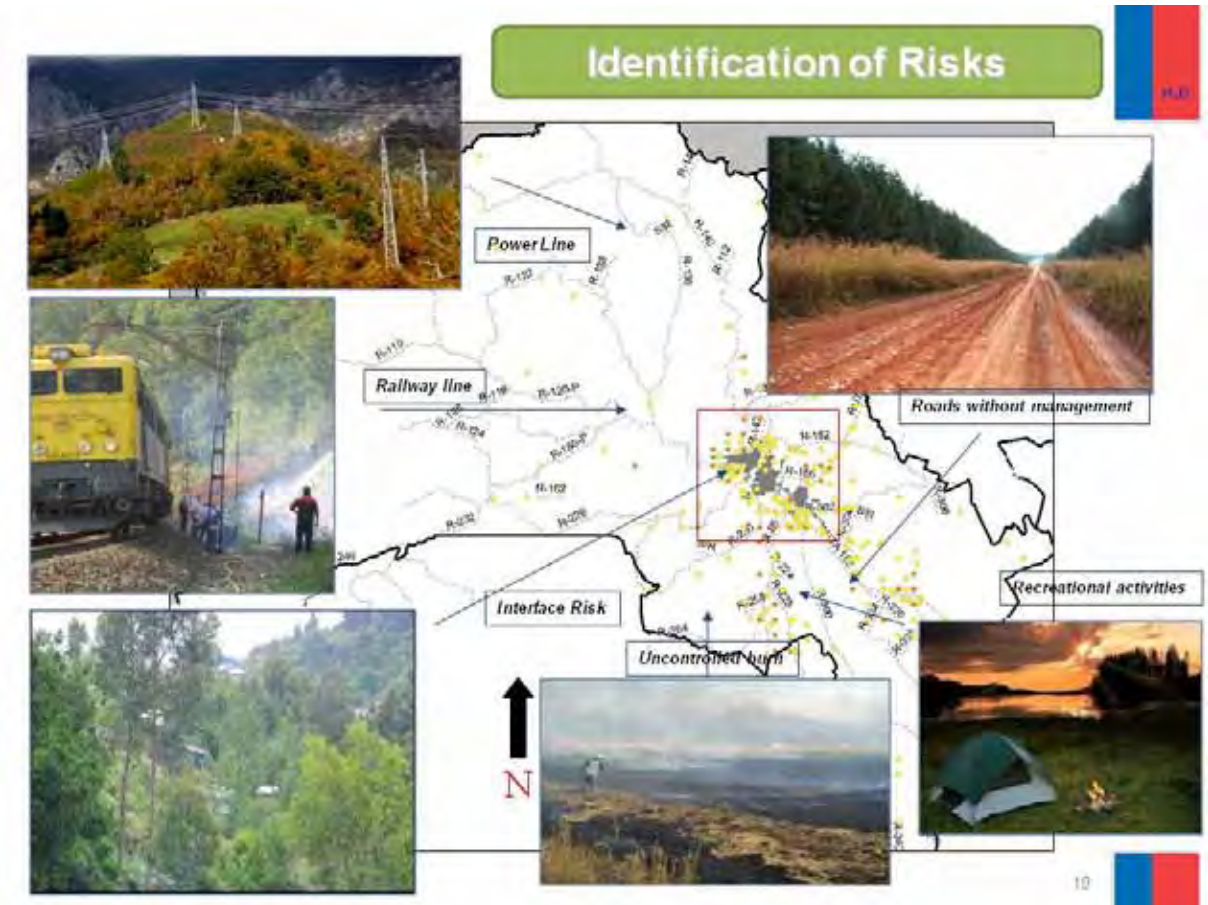
Risk Management

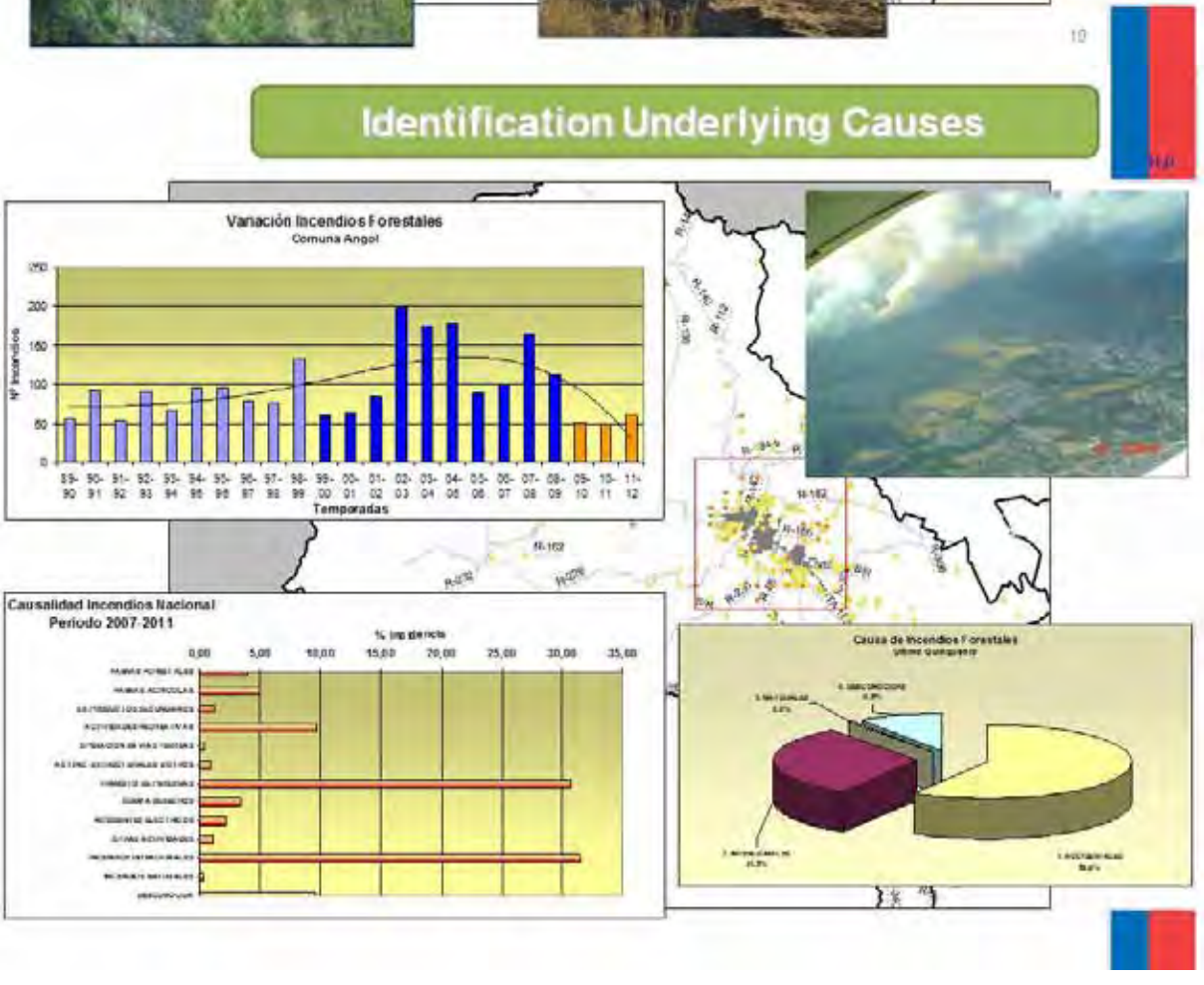




Risk Management

Technological tools allow us to have a thorough vision of the characteristics of the territory


Identification of Risks
Power Line
Railway line
Roads without management
Interface Risk
Recreational activities
Uncontrolled burn
N


Identification Underlying Causes
Variación Incendios Forestales
Comuna Angol
Nº Incendios
Temporadas
Causalidad Incendios Nacional
Periodo 2007-2011
Causa de Incendios Forestales

- The **territory** must be viewed as an **important actor in rural development** and not only as a physical and biological support. This is the expression of the organization and activity of different agents that live there and work towards their own development.
- Consequently **we should worry most about the subjects** that of objects: our main goal is tending towards a better quality of life of the community.
- You have to give value to the forest. The concepts of selling carbon credits, eco-tourism, ecologically sustainable production, corporate social responsibility and environmental social responsibility, should be integrated into the discussion of **Rural Development Plans and Protection Plans.**
- **We should not receive the community as part of the problem, but as part of the solution of the problem.**
- When integrated the community as part of the solution, it is clear that concrete results are obtained.

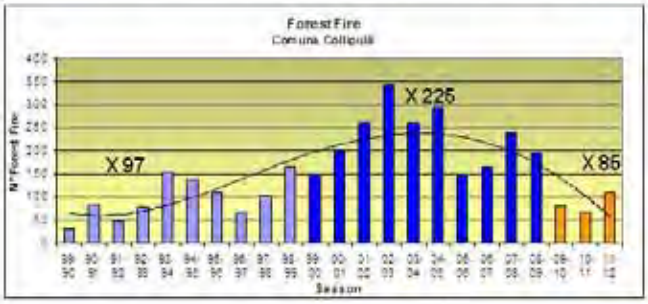
The Risk Management

- In 1980 Chile enacted Supreme Decree No. 276 which regulates the use of fire as a working tool in forest or agriculture activities, with the slogan: "**Use the fire to produce and not to destroy.**"

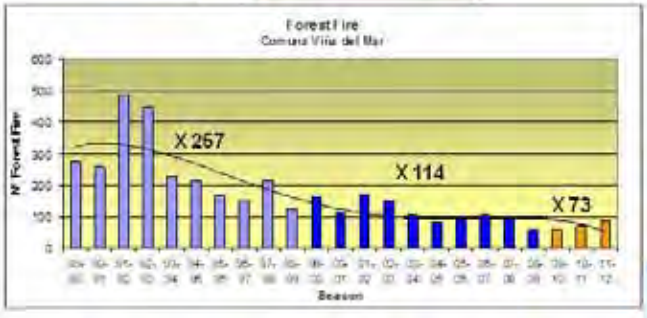
- The basic principle went to teach a farmers to using fire management techniques and identify weather conditions of lower-risk to burn.

The Risk Management

- Since the early 2000's when we started working in a targeted manner in the territorial units (municipalities) and jointly with stakeholders and the community, we have been important results. Examples of the two municipalities with most forest fire of the country.



Municipal Forest Fire Prevention Plan



There are two important concepts in this paradigm shift

- **One external:**

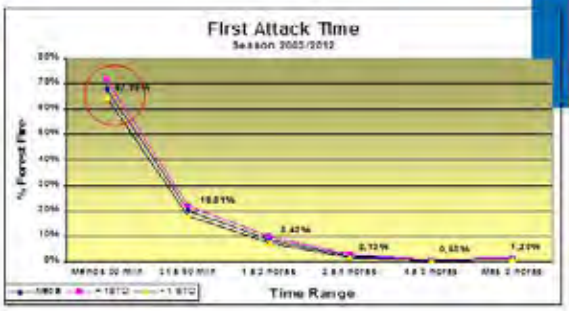
Build dialogue between the interested parties on how to manage wildfires, especially in critical areas.

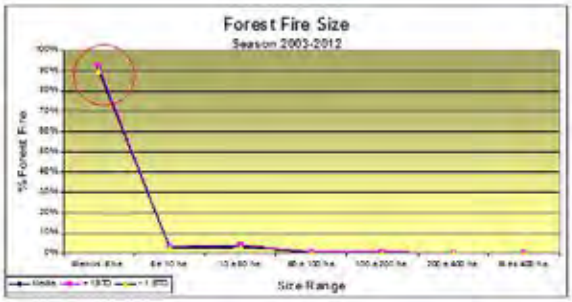
- **One internal, technical and administrative:**

Optimize the use of financial and human resources, with appropriate tactical and strategic decisions.

Results

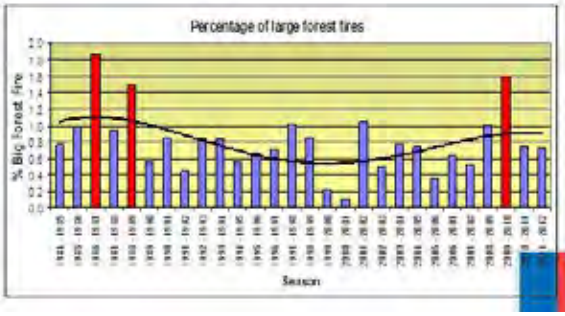
✓ *That 68% of forest fires are a first strike in less than 30 minutes and 88% a one hour.*





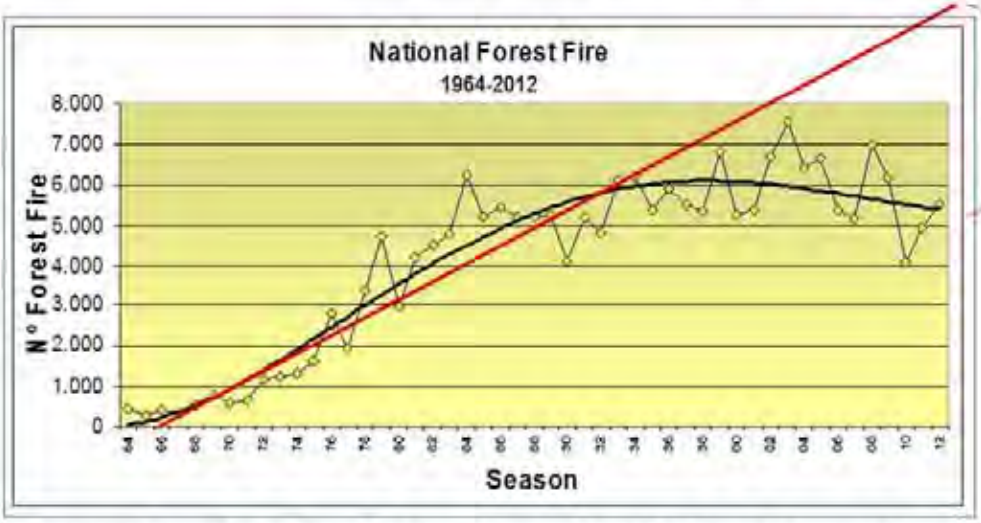
✓ *That 91% of forest fires are smaller than 5 hectares.*

✓ *That 0.8% of the forest fires has characteristics of magnitude. Over 200 hectares.*



Results

The **national forest fire risk**, has introduced an important change conditioned by: Increasing population, increasing urban-rural connectivity, increased outdoor activities, increase agricultural and forestry activities, climate change with longer dry seasons



However, the number of forest fires has decreased which tells us that prevention efforts cannot be unattended, on the contrary they must advocate the incorporation of all national community.

Recommendations

- There must be a balance between the four pillars of protection: **Prevention - Detection - Control - Damage Mitigation.**
- In our countries where forest fires are caused by man, we must work with the **rural community** and **social actors** in prevention activities. We have to give value to forest.
- **Training** in the use of fire as a working tool in forest or agriculture activities.
- **Focus** our investment and solutions in critical areas. Our weakest links.
- We must have an **active role** in Rural Development Plans and Protection Plans.
- When integrated the **community as part of the solution**, it is clear that concrete results are obtained.
- Our work must be **persistent and consistent**, we must change the behavior of the community.
- **We have not proud to control a wildfire, that could have been prevent.**

Recommendations

The problem of forest fires requires five aspects to consider:

1. The **focus of the problem** within the territory under protection, in order to optimize the technical resources (prevention, detection, control and mitigation of damages), financial and human.

2. The clarity and availability of **information** on the evolution of the fires and their territorial impact is critical for planning and subsequent decision making.

3. Identify the **underlying causes** of forest fires.

4. Identification and **Socialization** of the origin of the phenomenon among social actors so it is clear the problem and land owners take responsibility for their own protection and the surrounding community.

5. Implementation of a **Territorial Prevention Network** with the active participation of all the community.

While not connect the interests between the forest fire specialists, politicians and the rural population hardly be achieved mitigate this problem.

Commitment with the people

Lower the Im

Hope

Participation

Bibliography

- Corporación Nacional Forestal. 2006. ***Manual con medidas para la Prevención de Incendios Forestales - X Región***. Corporación Nacional Forestal. Documento de Trabajo Nº 434. Puerto Montt. 93 p.
- Corporación Nacional Forestal. 2009. ***Propuestas de líneas de acción para el trabajo de CONAF con el territorio, en el ámbito de acción de la Gerencia de Protección Contra Incendios Forestales***. Corporación Nacional Forestal, Santiago. 166 p.
- FAO. 2011. ***Community-Based Fire Management. A review***. FAO Forestry Papers Nº 166. Roma.
- Goldratt M. Eliyahu. 1994. ***El Síndrome del Pajar***. Ediciones Castillo. 1994. México.
- Goldratt M. Eliyahu. 1996. ***La Meta. Un Proceso de Mejora Continua***. Ed.Castillo. 2ª Edición. 1996. México.
- Haltenhoff, H. 1996. ***Indicadores de Gestión - Unidad de Gestión Manejo del Fuego***. Documento de Trabajo Nº 251. Corporación Nacional Forestal. Santiago – Chile. 167 p.
- Haltenhoff, H. 1997. ***Los Incendios Forestales ¿Estrategia de Combate o Modificación Conductual?.*** Documento presentado Silvotecnia 1997. Corporación Nacional Forestal. Santiago – Chile. 44 p.
- Haltenhoff, H.; Bustamante, M.; Castaneda, A. 1998. ***Cooperación Técnica Holandesa para la Prevención y Mitigación de Incendios Forestales en Colombia***. Informe Final. Ministerio del Medio Ambiente. Dirección General de Ecosistemas. Centro Nacional para la Prevención y Mitigación de Incendios Forestales. Santafé de Bogotá, Colombia. 47 p.
- Haltenhoff, H. 2001. ***Evaluación de daños ocasionados por los incendios forestales***. Proyecto TCP/0066, FAO, La Habana, Cuba. 61 p.
- Haltenhoff, H. 2005. ***Evaluación de daños ocasionados por los incendios forestales u otro tipo de situaciones de emergencia***. Proyecto FAO/TCP/GUA/2903. Uso y Manejo del Fuego en Áreas Agrícolas y Forestales Departamento de Petén, Flores, Guatemala. 86 p.
- Haltenhoff, H. 2008. ***Metodología de priorización para la protección contra incendios forestales en el ámbito nacional a escala departamental***. Corporación Nacional de Investigación y Fomento Forestal CONIF, Santafé de Bogotá, Colombia. 24 p.
- Haltenhoff, H. 2008. ***Incendios Forestales ¿Dónde estamos?***. Corporación Nacional Forestal, Santiago. 36 p.
- Haltenhoff, H. 2010. ***Los Grandes Incendios Forestales en Chile. 1985-2009***. Documento de Trabajo Nº 539. Corporación Nacional Forestal, Santiago. 79 p.
- WWF/Adena 2006. ***Grandes Incendios Forestales***. WWF/Adena, Madrid. 32 p.

Annex 9: Community-based Fire Management & Nature Conservation

Community-based Fire Management & Nature Conservation

FAO Meeting on Community-Based Fire Management
Rome, Italy
12-13 November 2012

Ronald L. Myers

Conservation & Fire Regimes: Key Principles

Ecological Role of Fire

Fire is an important ecological process.

Fire-maintained, fire-influenced, or fire-independent ecosystems

Virtually all terrestrial ecosystems have a fire regime.

A fire regime is a set of recurring conditions of fire that characterize a given ecosystem.

Fire regime characteristics: frequency, intensity, severity, scale, pattern, seasonality.

- The role of humans in affecting fire regimes is not at question.
- On any landscape we are looking at a historic fire regime not a natural fire regime.
- In many places, historic anthropogenic burning has been responsible for the conservation values we wish to maintain today.
- Goal is "ecologically appropriate/socially acceptable" fire regime.
- Ecologically appropriate fire regimes maintain characteristic biota and ecological processes.
- Alteration: Degree of departure from ecologically appropriate.
- Conservation strategies must target sources of alteration.

Key Conservation Questions

Fire as a Conservation Threat

Too much, too little or the wrong kind of fire

Fire-maintained and fire-influenced (e.g. fire-sensitive ecosystems)

An ecologically appropriate fire regime maintains a biota and ecological processes characteristic of an ecosystem or habitat.

- What fire regime characteristics are most altered?
- What is the status and trend of fire regimes in different places?
- What are the human sources of alteration or maintenance?
- How does fire interact with other threats (e.g. climate change, invasives species)?
- Who are the players and how can the conservation community cooperate?
- What action is needed and where?

Community-based Fire Management (CBFiM)

Integral to conservation goals **is the *involvement of local communities* in decisions and actions regarding the management and use of fire for ecologically sustainable products and services.**

Key Questions: Conservation & CBFiM

- What role do current burning practices play in maintaining or adversely affecting biodiversity and conservation targets?
- How can traditional or current burning practices be incorporated into the ecological needs of conservation targets?
- How can communities become part of the solution to fire problems?

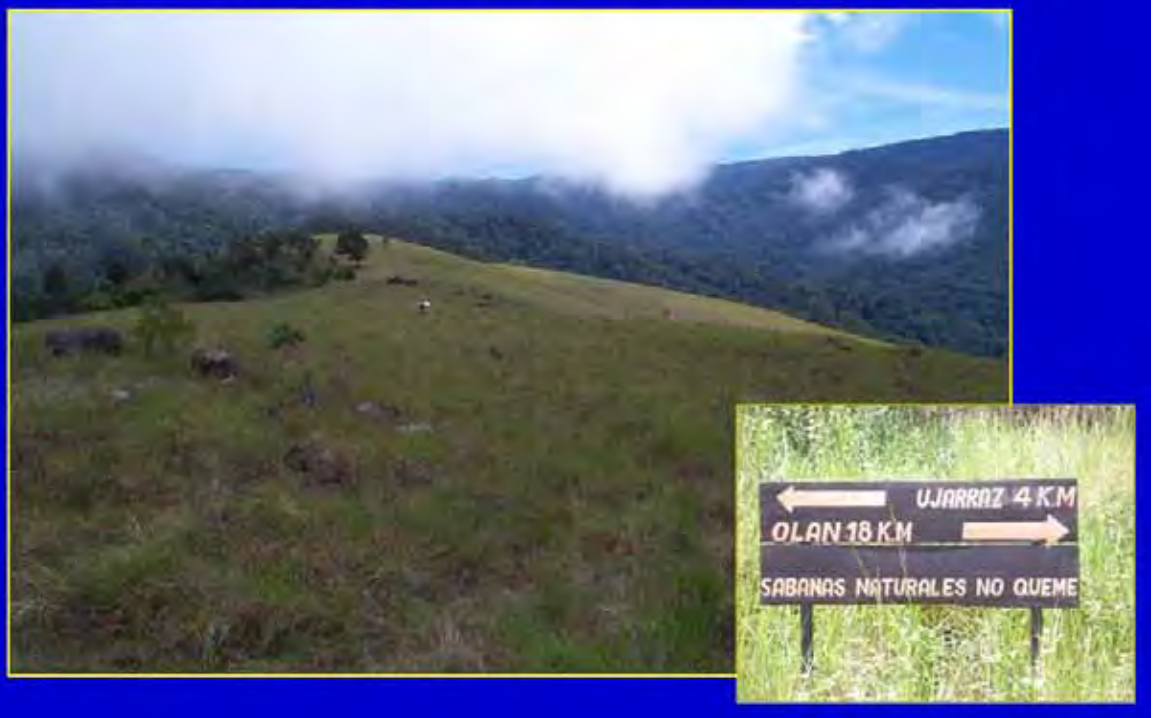
What role, if any, do human-ignited fires play in maintaining desired ecosystems?

Indigenous fire in pine savannas of eastern Honduras

Indigenous fires in the Gran Sabana Canaima National Park, Venezuela

Agriculture fires in the Peten, Guatemala.
Subtropical Moist Forest

Montane grasslands & tropical montane rainforest,
Parque Internacional La Amistad, Costa Rica



Community fire management project, La Sepultura Biosphere Reserve Chiapa, Mexico

"Two Faces of Fire" message in communities that need to use fire and/or live in ecosystems that need to burn.

Good Fire

Bad Fire

"Two Faces of Fire" activities:

Conservation Goals incorporating CBFiM

1. Understand the role of fire in ecosystems.
2. Understand the needs & issues of fire users.
3. Integrate ecology and fire use with the technical aspects of fire management.
4. Change the way people think about fire at all levels, then institutionalize those changes.
5. Promote appropriate fire use by providing communities & rural individuals with some incentive, e.g payment for environmental services.

Fire Problems and Pitfalls

- Failure to understand and appreciate the role of fire in ecosystems (fire effects & fire regimes).
- Failure to understand the socio-economic context in which many fires occur.
- Failure to understand the role of human burning in maintaining or manipulating desired ecosystem states.
- Failure to distinguish between detrimental & beneficial fires.
- Failure to understand the technical aspects of fire use.
- Counter-productive public policy & legislation.
- Lack of integrated approaches to the problem.
- Problems of scale.
- Coping with non-native invasives.
- Coping with local/regional/global climate change

Thank you!

Climate-Smart Agriculture - Mitigation of Climate Change in Agriculture (MICCA)

Alternatives to slash and burn: landscape approach
Peatland fires: impacts, causes and solutions

Christina Seeberg-Elverfeldt, NRC

Overview

- Agriculture as a driver of deforestation
- Integrated landscape approach
- MICCA- HICAP example: alternatives to slash-and-burn

Peat fires

- Impacts and causes for wildfires on peatlands
- Management solutions for reducing wildfires

Food and Agriculture Organization of the United Nations
www.fao.org/climatechange

Agriculture as a driver of deforestation

Complex issue, different reasons and underpinning drivers in different regions!

- **Global perspective**: large-scale farming causes conversion of forest lands
- **Latin America**: extensive cattle production and cultivation of soy bean
- **Asia-Pacific**: more diverse – palm oil production
- **Africa**: unsustainable smallholder land use practices linked to poverty, tenure insecurity, access rights and poor agriculture practices

How to deal with increasingly competing land uses?
→ Integrated landscape approach

- Integrated land use planning
- Integrate agricultural and rural development goals
- Adopt climate-smart agriculture approaches (productivity, resilience & GHG emissions)
- REDD+ policies need to address drivers of deforestation

Food and Agriculture Organization of the United Nations
www.fao.org/climatechange

MICCA-HICAP Example

- Hillside Conservation Agriculture Project, Uluguru Mountains, Tanzania with CARE International
- predominantly subsistence agriculture, slash & burn
- Land tenure based on clan ownership

Food and Agriculture Organization of the United Nations

www.fao.org/climatechange

Climate-smart agriculture as an alternative

Training of trainers and demonstrations

Training materials (booklets, information sheets, handbooks)

Discussing climate-smart good practices

Exchange visits

Supporting and strengthening local institutions (VSL groups, FFS, women groups)

Food and Agriculture Organization of the United Nations

www.fao.org/climatechange

Measurements of GHGs of climate-smart practices and land health

- **Measurements of N_2O, CO_2, and CH_4** along intensification gradient - 5 variations on maize production systems

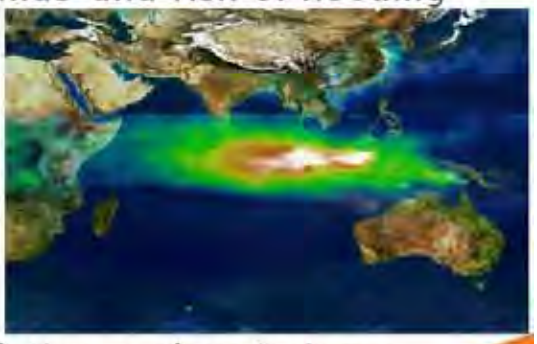
- **Assessing land health**: coupling baseline **soil and vegetation** measurement with **socioeconomic** survey results to examine **connections** between poverty, food, security and land health

Initial lessons learned

- CA **slow adoption**, as labour intensive
- **Investments** can be recovered and **yields** increase over time
- **School involvement** supports CA adoption
- **Awareness** on climate change & environment key to change behaviour on slash and burn
- Good **linkages** with local governments important to support project implementation
- Addressing **land tenure system** necessary for spreading agroforestry

Peat fires: impacts and causes

- Carbon storage: Peatlands contain **twice as much** carbon **than all forest biomass**.
- Emissions: Peat fires release 1400 Mt yr-1 CO2
- Other impacts: Haze, destruction of livelihoods, increased subsidence of peatlands and risk of flooding
- Haze: health problems (SE Asia, Russia)
- Become a yearly phenomena
- **Drained + abandoned + regularly visited** peatlands at high risk for wildfire.



- Main cause of peatland degradation and emissions: forestry, agricultural development and plantations.

Food and Agriculture Organization of the United Nations

www.fao.org/climatechange

Peat fires: Solutions

- Strategy for emission reduction and sustainable management:
  - integrated landscape management of peatlands
  - stop the peatland drainage
  - raise water tables through rewetting
  - develop wet agriculture, paludiculture
  - fire prevention and community fire fighters

- Regional cooperation is important:
  - regional nature of investments
  - transboundary impacts

Food and Agriculture Organization of the United Nations

Annex 11: Alternatives for fire use. Low-cost and sustainalble techniques as an alternative to burning in agicultural and livestock activities (Brazil)

Ministério do Meio Ambiente

1. Background

- Fire-use
  - economic and cultural logic;
  - small and large farmers;
  - fire is essential for the replenishment of soil nutrients and to combat the parasites of the pastures;
  - practical and economical for cleaning the land, especially in areas where family farming hasn´t support of mechanization, or technical support for the development of integral management of rural property;
  - Culture of itinerant slash-and-burn agriculture.

IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis

"Amazon Without Fire" Program

Ministério do Meio Ambiente

Workshop on Alternative Techniques to fire use as management tool in Rural Areas

Brasília, DF, Brazil, September, 24 to 26, 2012

When the alternative is good, Fire has no time

IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis

Ministério do Meio Ambiente

2. Objective

Reduce forest fires through the use of sustainable techniques as an alternative to fire-use, contributing to environmental conservation and to the improvement of living conditions of rural communities.

IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis

3. Strategy and Methodology

- Strengthen family farms as well as the presence of small farmers in the territory, avoiding itinerant slash-and-burn agriculture;
- Implementation of Demonstration Units, development of Municipal or Community Protocols, Training Program and establishment of Training Centers.

3.1. Municipal Protocols

- a tool for local action;
- voluntary and public instrument to develop a standard of social conduct or rules to be implemented conscientiously by the communities;
- aims to build consensus or agreements and generate civic responsability among local stakeholders in finding and conducting solutions to social and environmental problems;
- built in a participatory way.

3.2. Demonstration Units

- Demonstration Units are designed to play a role of reference for pratical application in the field;
- sustainable techniques as an alternative to fire-use can be showed pratically and discussed;
- meeting and learning place among technicians or multipliers of the techniques and community, enhancing the experience with the communities.

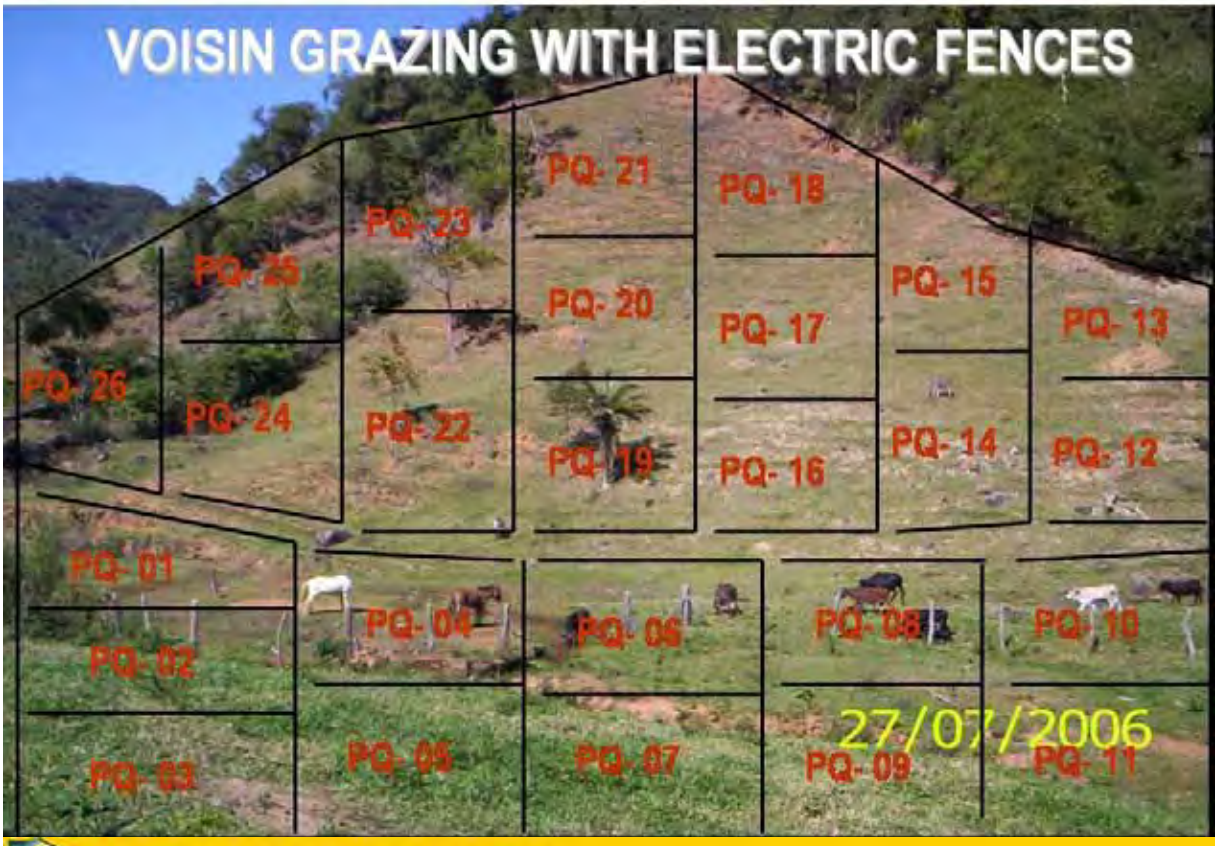
Ministério do Meio Ambiente

AFFORESTATION OF PASTURE

(Jurandir Melado)

(Jurandir Melado)

IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis



Ministério do Meio Ambiente

MIXED GRAZING

INTERCROPPING

Maize and mucuna - Embrapa

Sheep, cereal, fruit and yerba mate

Maize and sugarcane

ORGANIC AGRICULTURE

Coffee and bananas growing together.

Family-style organic agriculture

Ministério do Meio Ambiente

GREEN MANURE SYSTEM

Black Mucuna : green fertilizer

IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis

Ministério do Meio Ambiente

NO-TILLAGE SYSTEM

IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Embrapa)

Ministério do Meio Ambiente

CROP ROTATION

IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis

Ministério do Meio Ambiente

COMPOSTING

Source: Projecto Compostagem no Seixal

Ministério do Meio Ambiente

BEEKEEPING

Apis mellifera

IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis

Ministério do Meio Ambiente

SOCIAL REFORESTATION

Mahogany

Freijó

Andiroba

IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis

Ministério do Meio Ambiente

RECYCLING – CRAFT

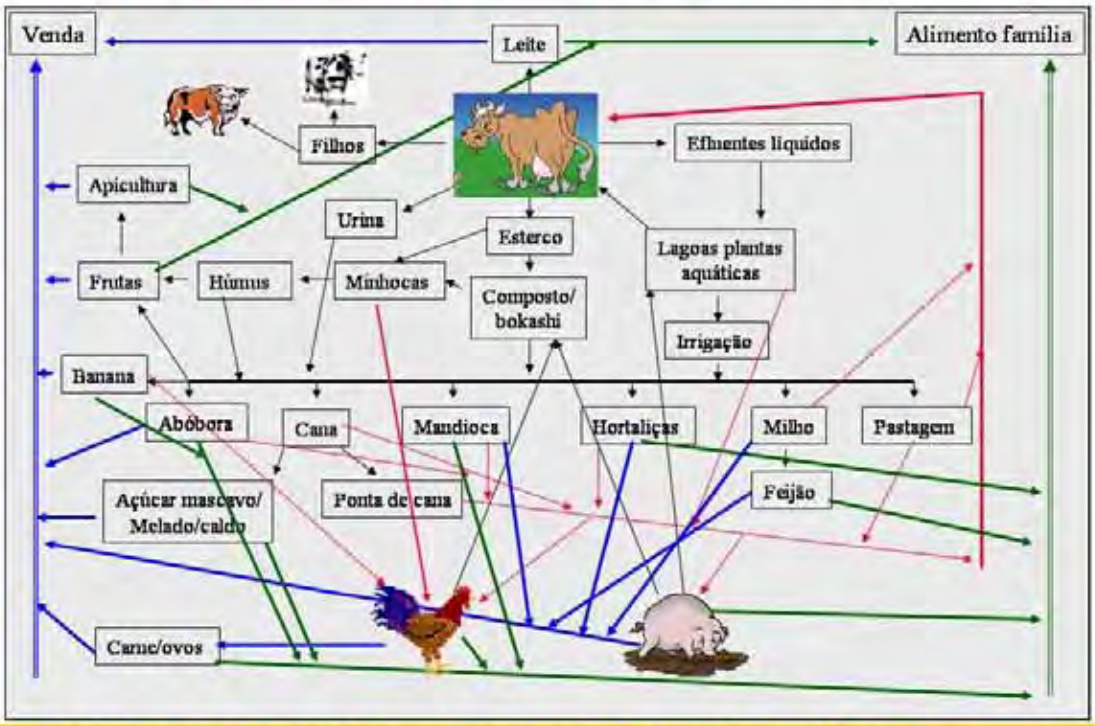
IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis

Ministério do Meio Ambiente

ECOTOURISM

Ministério do Meio Ambiente

INTEGRATED MANAGEMENT OF RURAL PROPERTY



IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis

3.3. *Training Program and Centers*

- Considering the challenge of sustentability of the program: 2007 to 2008 Training Program:
  - Ten modules in specific topics (knowledge built in the program by the technicians and rural communities);
  - Multipliers;
- Training centers: establishment of Political Pedagogic Project;
  - Spatial reference for carrying on activities already undertaken;
  - Training processes, considering the structure already established.

Ministério do Meio Ambiente

Module 1: Sustainable Development and Environmental Legislation

Module 2: Environmental Education

Module 3: Participatory Methodology for definition of public policies: an instrument for local actions

Module 4: Prevention and Combat to forest fires

Module 5: Integral management of rural property for improvement of family economy

IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis

Module 6: Soil recovery and agroforestry systems

Module 7: Techniques for improvement of pastures

Module 8: Value of the forest - alternative techniques for use of forestry waste

Module 9: Sustainable forest management

Module 10: Evaluation, systematization and setting of the program – Development of Action Plans

Ministério do Meio Ambiente

4. Lessons Learned and Challenges

- Integration among institutions is essential for preventing forest fires and control fire-use in rural areas;
- Integration of activities is also very important;
- Projects and actions must be designed according to the needs of local interests;
- Projects and actions should have goals that can be achieved in order to effectively carry them on and strengthen them;
- Local technicians should develop the actions locally;
- Multipliers should have financial and technical support to conduct and implement activities;

IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis

5. Conclusions

- Methodology can be replicated because it is participatory and the actions will come from local communities;
- Methodology must be replicated because the results are positive and strong;
- The program can change life of people from rural areas, mainly to communities based on family farming (which is responsible for 70% of Brazilian food production), enhancing their quality of life and contributing to poverty alleviation;

5. Conclusions

- Methodologies developed should be incorporated as action strategies in government institutions;
- The acctions must become a public policy.

•Article 40. The **Federal Government** must establish a **National Policy** for Management, Burning Control, Prevention and Combat of Forest Fires, and to promote institutional coordination in order to replace fire-use in rural areas, burning control, prevention and combat to forest fires, as well as fire management in protected natural areas.

Thank you very much!

Phone: 55-61-3316-1857
E-mail: larah.steil@gmail.com
www.ibama.gov.br/prevfogo

Annex 12: Fire as a resource. ‘Grass roots’ CBFiM in developing Africa

WILDFIRE • LAND USE • ENVIRONMENT

321fire FIRE MANAGEMENT

FIRE AS A RESOURCE

‘GRASS ROOTS’ CBFiM IN DEVELOPING AFRICA

By Robin Beatty

PRESENTATION OUTLINE

Southern Africa and Fire

CBFiM in Southern Africa

Fire as a Resource

Program Experiences

SOUTHERN AFRICA and FIRE

Large areas of communal land

Majority rural population <10 people / km²

Livelihoods based on subsistence farming and natural resources

Traditional use of fire

SOUTHERN AFRICA and FIRE

Average of over 1 million km² burnt / year

Uncontrolled fires in the late dry season
(August, September and October)

Slash-and-burn agriculture

Affecting life, property and natural resources = livelihoods

SOUTHERN AFRICA and FIRE

MANAGEMENT OF FIRE

Fire as a Disaster	Prevention and Suppression	Lack of Resources and capacity
		
Loss of life, property and environment	Intensive, costly and hazardous	Reliance on legislation and threat of punishment

CBFiM and IFM

Community Based Fire Management

Community decision-making and implementation

Integrated Fire Management

Balancing beneficial and negative effects of fire

Many programs in Southern Africa over last 10 – 15 years

BENEFICIAL USE OF FIRE

Controlled Burning

Rarely implemented as a land or fire management option

Limited to augment fire prevention strategies (firebreaks)

CBFiM IN SOUTHERN AFRICA

Replicates past fire prevention and suppression policies

Beyond resources available to community

Dependent on external support

(development aid / government)

CBFiM IN SOUTHERN AFRICA

WHAT IS REQUIRED FOR SUSTAINABLE CBFiM MANAGEMENT?

Without costly machinery or resources

Complement the environment, land use and people

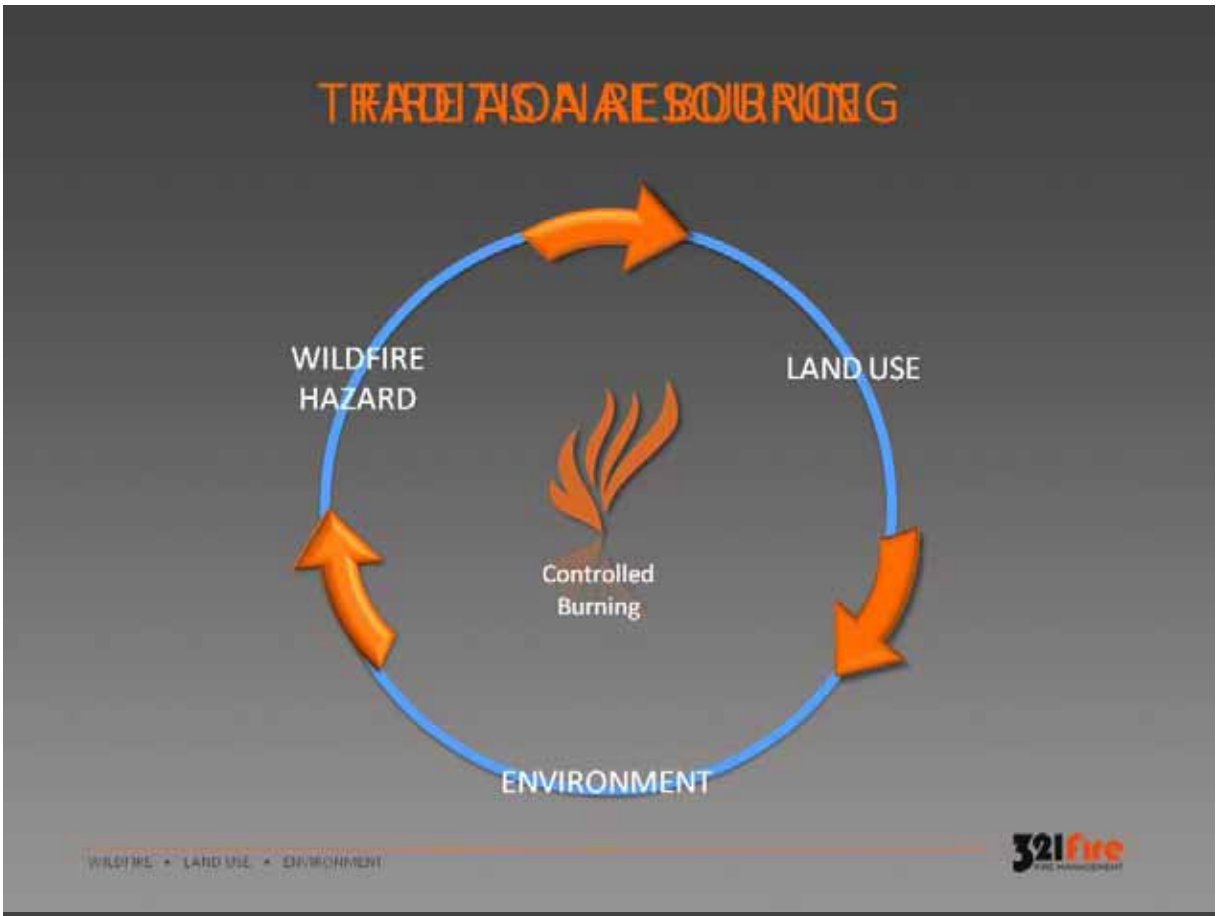
Existing skills, knowledge and institutions

FIRE AS A RESOURCE

MANAGING FIRE ON ITS BENEFITS

Key Components

- **Controlled burning**
- **Decentralised decision-making and implementation**
- **Collaborative regional fire management**



WILDFIRE HAZARD REDUCTION

Strategic Buffer Burns	Protection Burns	Mosaic Burns
		
Minimising external fires	Reducing Fuel Loads	Reducing and fragmenting fuel loads

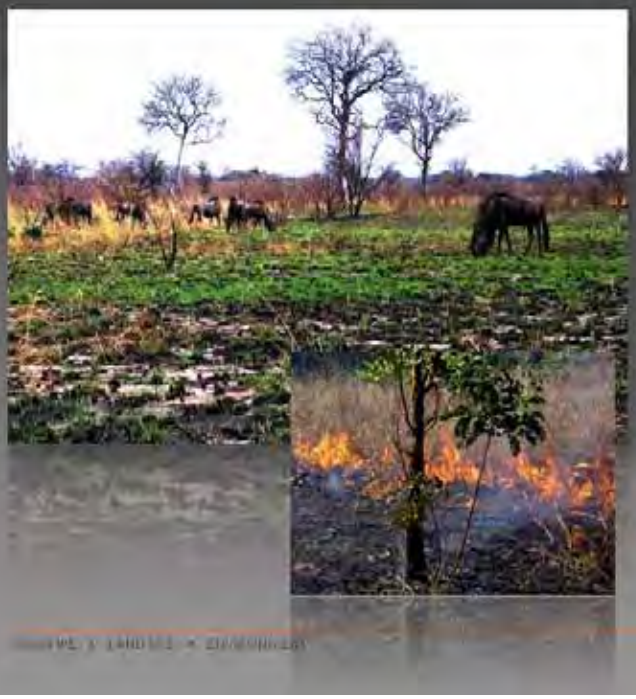
ENHANCE LAND USE

LIVESTOCK GRAZING

NATURAL PRODUCT HARVESTING

AGRICULTURE

ENHANCE ENVIRONMENT



WILDLIFE GRAZING

REDUCE FIRE INTENSITY

HABITAT DIVERSITY

FIRE MANAGEMENT DECENTRALIZATION

Decentralized

Decision / implementation at grass roots level

Property Specific

Programs tailored to environment, land use & people

Coordinated

Neighbour Collaboration

Property specific program coordination

COMMUNITY-BASED FIRE MANAGEMENT

Policy

Rights & responsibilities of fire management

Government Regulated

DIRECTORATE OF FORESTRY

Permit to Burn

Ownership

Control of when, where and how fires occur

FIRE MANAGEMENT OWNERSHIP

COMMUNITY TRADITIONAL LEADERSHIP

Community Fire Brigade	Implementation	Individual Benefits
		
Training / Skills Transfer Fire Management Area Fire Management Plan	Liaison / Coordination Controlled Burning Wildfire Management	Tangible livelihood improvements

PROGRAM EXPERIENCES

Caprivi Region IFM Program (2006 – 2010)
Namibia / ≈ 10 000 km²

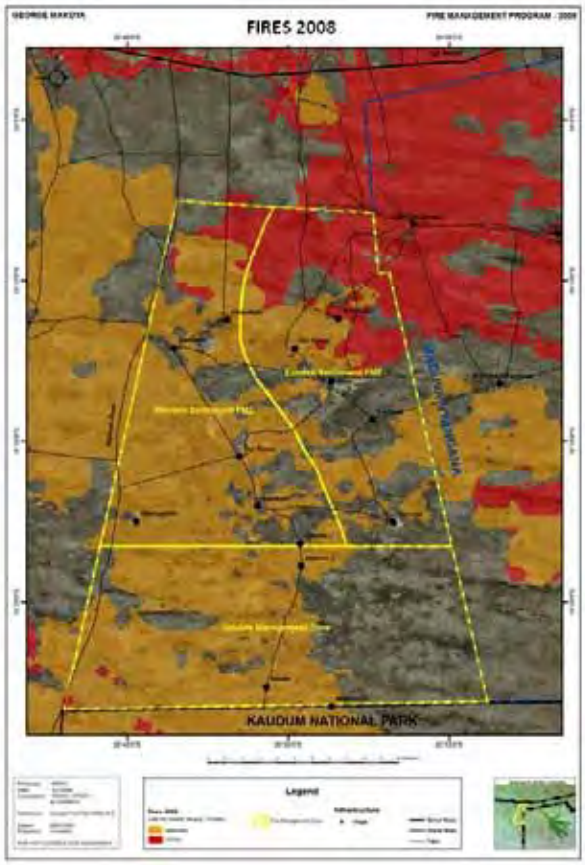
Reducing Forest Fire Emergencies Program (2008 – 2009)
Zimbabwe / 2 Provinces

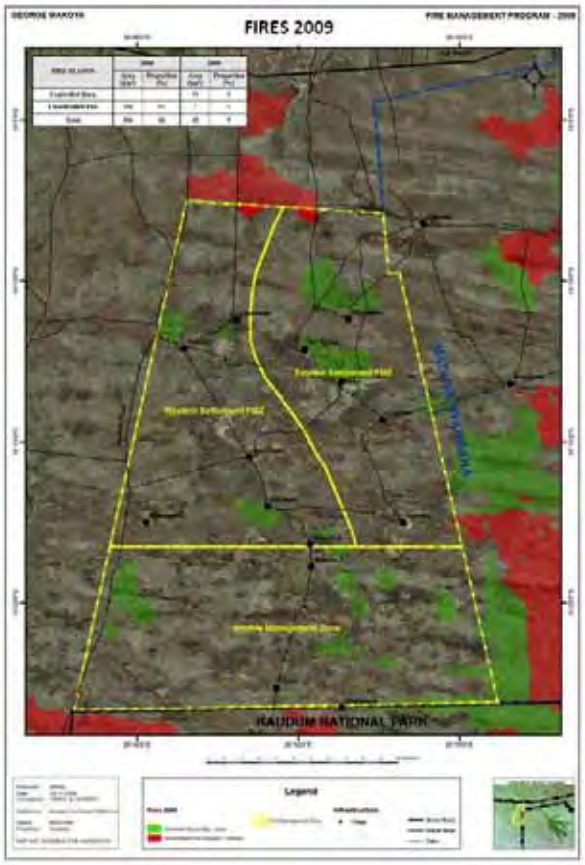
Khaudum North Complex IFM Program (2009 – 2010)
Namibia / 5 000km²

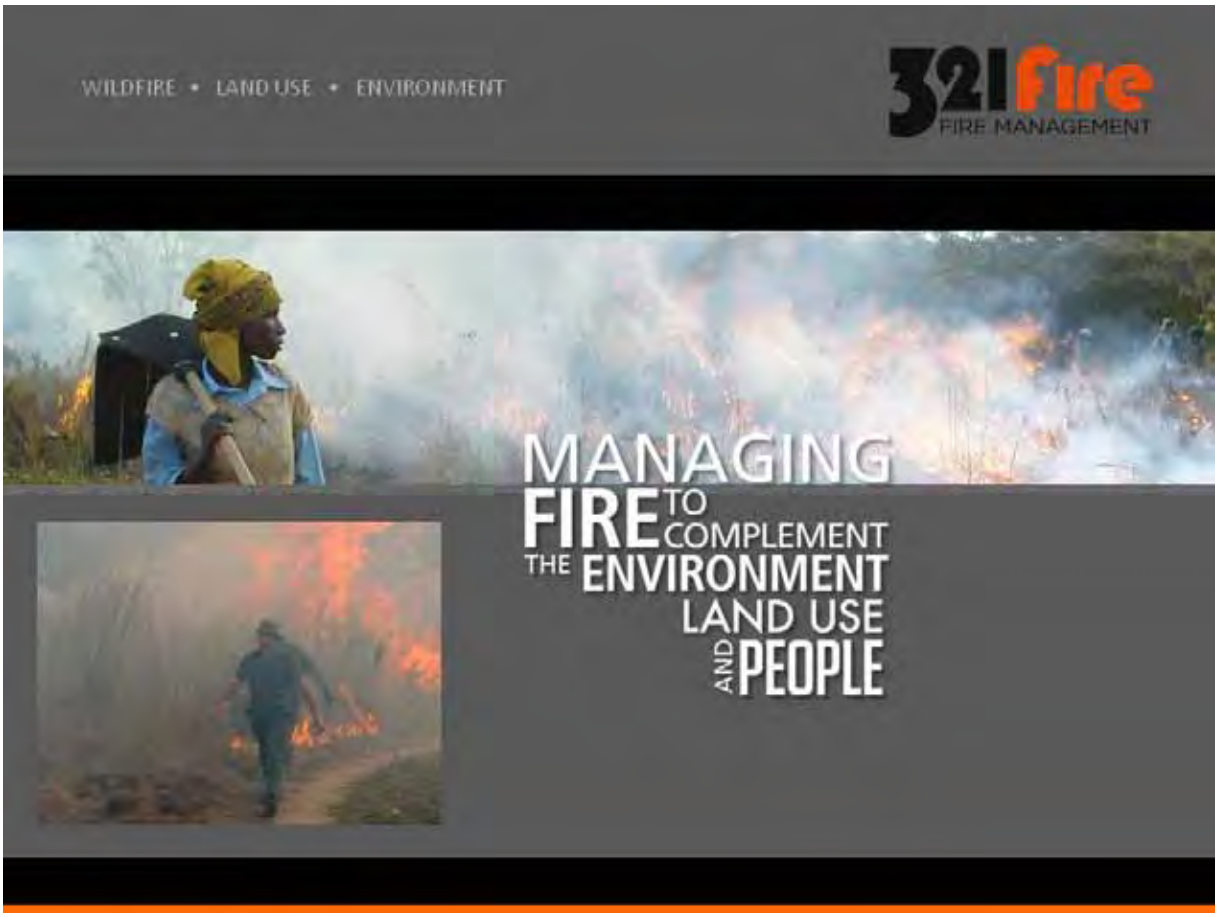
Khama Rhino Sanctuary IFM Program (2011 - 2012)
Botswana / 300 km²

PROGRAM EXPERIENCES

Year 1	Year 2	Year 3
		
Introducing Program Demonstrating Issues and Benefits	Reliance on Brigade Collaboration Uncontrolled Fires	Improved Land Use Wildfire Reduction Extension






WILDFIRE • LAND USE • ENVIRONMENT
321 Fire
FIRE MANAGEMENT
MANAGING
FIRE TO COMPLEMENT
THE ENVIRONMENT
LAND USE
AND PEOPLE

Annex 13: Legal Framework for Community-based Forest Fires Management

Legal Framework related to Forest Fires Management

- Forest legislation
- Civil protection and disaster management legislation
- Land use planning legislation
- Environmental legislation
- Wildlife legislation
- Agricultural legislation
- Protected areas legislation, and
- Criminal or civil law for penalties and compensation.

Institutional Framework

- Identification of key institutions at central and local levels involved in forest fires management
- Clear definition and distinction of their functions
- Creation of advisory bodies including representatives of various institutions and local stakeholders
- Guidance on the exercise of discretionary public by public authorities, for legitimacy and accountability purposes.

Legal and institutional frameworks and CBFiM

To facilitate CBFiM, legal and institutional frameworks should support:

- Appropriate Public Participation
- Empowerment of Local Communities' Organizations
- Prevention Responsibilities
- Formulation of Forest Fires Management Plans
- Incentive Measures

Appropriate Public Participation

- Requirement of adequate public information on monitoring activities;
- It is a duty for authorities to inform of fire status and threats to local communities;
- It is an obligation to each individual to notify competent authorities of the occurrence of forest fires;
- Communication of positive results of well managed fire and also ecological, social and economic benefits;
- Well informed communities carefully used fire and follow legal requirements.

Empowerment of Local Communities' Organizations

- Creation of local committees empowered, through specific agreements, with responsibilities on forest fire management;
- Communities are organized as response groups with adequate training and safety conditions;
- Recognition of local knowledge and experience in forest fire management;
- Recognition of leadership role of land managers in forest fire and other land uses;
- In Algeria, the legislation allows the creation of associations to contribute to the actions of public environmental bodies or be consulted by these bodies.
- In Syria .....

Prevention Responsibilities

- Agreements with forest or land owners on rights and obligations regarding measures to prevent or fight forest fires;
- Establishment or recognition of forest fire committees at local level for public awareness, fire prevention, rapid intervention on small fires;
- In Burkina Faso for example, legislation allocates responsibility for monitoring forest fires and supervising use of preventive fires to village committees or customary authorities;
- In USA, local communities are empowered to participate in the monitoring of authorized hazardous fuel reduction projects.

Formulation of Forest Fires Management Plans

- Consultation of local communities and land/forest owners in the process of adoption of forest fire management plans;
- In some countries, such as Italy, the legislation requires the adoption of forest fire management plans at local level;
- Involvement of the public and in particular local communities at the earlier stage of formulation of management plans.

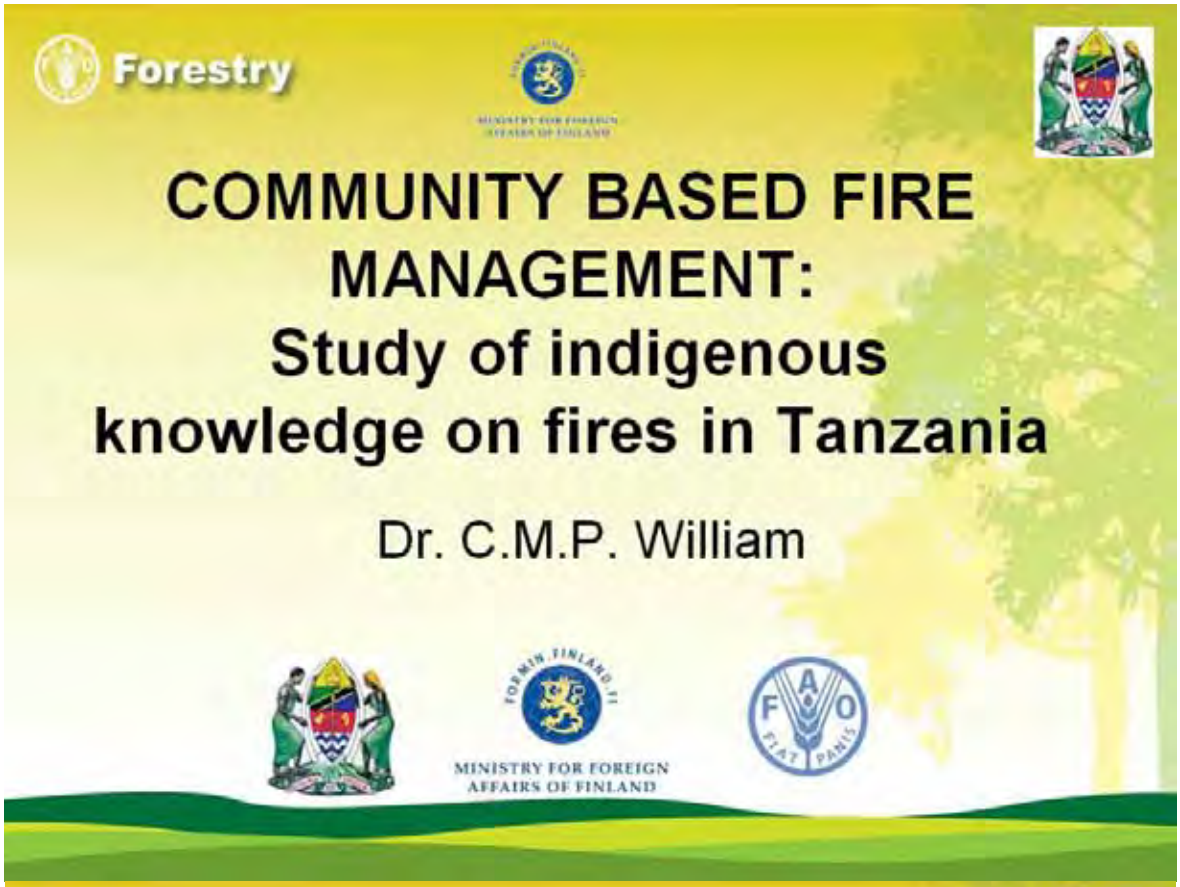
Incentive Measures

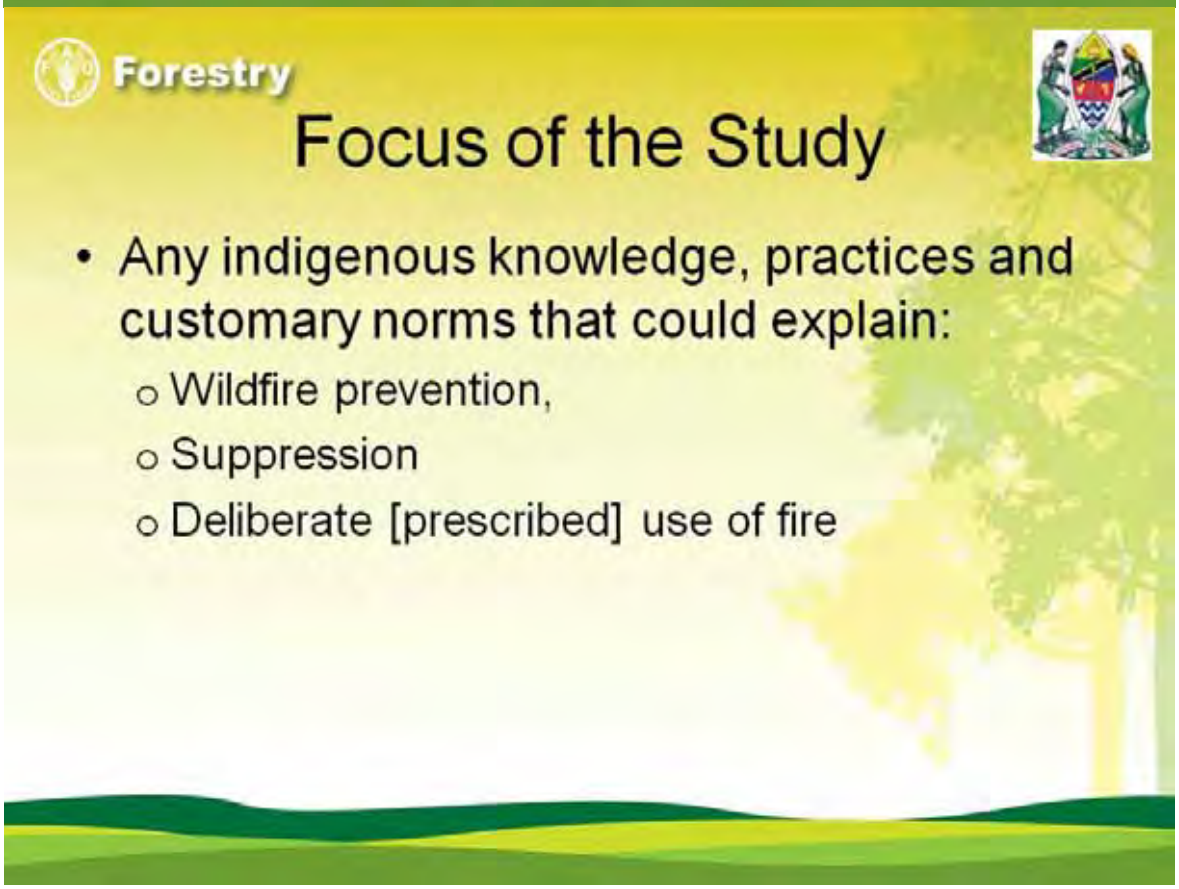
- Possible incentives for successful completion of forest fires activities;
- Local communities can be entitled to receive education, technical advice, training and support for rehabilitation activities;
- Allocation of funding for forest fire-related activities, such as community-based activities;
- In the USA, legal provisions on community wildfire protection plans, enable local communities to receive priority funding.

Thank You for Your Attention

www.fao.org/legal

Annex 14: Community-based fire management: Study of indigenous knowledge on fires in Tanzania





Forestry

Study area(s)

1. Tanga (Mzeri),
2. Morogoro (Kisaki)
3. Rukwa (Kizungu),
4. Kigoma (Kifura)
5. Tabora (Ipole)
6. Lindi (Mirui),
7. Ruvuma (Luhimba),
8. Mbeya (Mbonile),
9. Iringa (Maboga)

Forestry

Methodological Approach

- Stratification for Village Selection:
  - Based on spatial distribution, fire hotspots, NAFORMA plots
- Multiple Methods Consistent across Villages
  - In-depth interviews, FGDs, Village meetings
  - Stakeholder consultations
- Methods cross-check facts & allow comparison
- Allows testing the model

Forestry

Information Collected

- Fire context
  - Numbers of fire incidents
  - Sources of these fires
  - Spatial and temporal extent
  - Impact on lives and property
  - Fire spread pattern and frequency
- Fire Prevention, Suppression and Use
  - Knowledge, practices, norms

Forestry

Village Meetings

Mbonile village

Forestry

Mseri Village

Kifura Village

Forestry

Focus Group Discussions

Kisaki Village

Ipole Village

Forestry

Findings

- Fire Context
  - Fire incidents [not documented]
  - Magnitude difficult to quantify
- Sources of fire
  - All fires are human-induced
  - Starts with an activity:
    - Tourism (hunting), farm preparation, gathering honey, charcoal kilns, poaching, hunting of small animals

Farm Preparation Kisaki & Kituoni

Forestry

Findings

- Spatial extent
  - Mostly Localized
  - May spread from one village to the next
  - Frequent in the dry season (*Kiangazi*), worse with extreme droughts
  - Burns 'large' areas, may burn for days

Forestry

Where fires start

- Forest Reserves
- Game Reserves
- Game Controlled Areas

Moyowosi Game Reserve

Forestry

Fire Prevention

- Fire breaks (*Kufufura-Ha, kuseselela-Nyamwezi, Likwembo-Ngindo*)
- No burning in sacred groves e.g. Kifura, Haporoto (*Iganjo*)
- Fire prevention through traditional medicine men
  - *Moto wa kihami* (Luhimba-Ruvuma)
  - *Kuzinga* (Kifura, Mzeri)
- Childhood training on fire handling

Forestry

Suppression

- Fire incidents communicated through
  - *Yowe-Swahili, ng'hondo-Zigua, Kughuta/kukemekyia-Ngindo,*
- Communal/collaborative fire suppression
- Prescribed fires
  - *Kuchiira-Ha, kubhabhelela-Nyamwezi, kubhabhulila-Safwa/Ndendeule, kubabakyia-Ngindo*]
- Local tools [*mafukutu*] used [if a manageable fire], and
  - Only if fire threatens property/lives
- Non-participation in fire fighting punished

Forestry

Deliberate Fire Use

- Burn stacks when winds are weak
- Involves
  - Inform neighboring farm owners
  - Use of firebreaks [all villages]
  - Burn against wind direction [all villages]

Forestry

Similarities across Villages

- Frequent fires in dry season
- Aware that fire may be harmful if misused
- Communal/collaborative fire fighting
- Loss of lives and property
- Lack of concern on fires outside the village land

Forestry

Similarities…..

- A blame on the youth for ignoring traditions
- Burn when winds are weak
- Use of firebreaks
- Use of prescribed fires
- Chain of command exists
- Causes of fire [starts with an activity]

Forestry

Differences between Villages

- Use of medicine men to prevent fires (Kifura, Luhimba and Mzeri only)
- Tourists-induced fires [Ipole, Kifura]
- Punishments vary [traditional, legal]
- Age groups attitude on fire issues [elderly, middle(40s-50s), youth]
- Fires in Mirui [Lindi] and Luhimba [Ruvuma] strongly embedded in culture

Forestry

Analysis and Conclusions

- **Method used**:
- Good -allows for natural flow of information from the villagers in their own setting and convenience
- Starting point for a consistent [standard] approach of assessing CBFiM
- Requires proper Timing between village activities and the study
- Requires patience and flexibility

Forestry

Analysis and Conclusions

- **Findings:**
- Similarities provide a basis for common elements for a guideline
- Differences suggest appreciating the differences among communities,
- The differences should be considered in the guidelines
- Attitude variation among age groups suggest targeting these groups strategically
- Suggest studying more the villages


Forestry
Asanteni Sana

Annex 15: Community-based Fire Management around protected areas in Bolivia

Fundación Amigos de la Naturaleza

Community based fire management around protected areas in Bolivia

Community Based Fire Management Meeting
FAO-Rome, 12-13 November

Carlos Pinto cpinto@fan-bo.org
Verónica Ibarnegaray vibarnegaray@fan-bo.org

Fundación Amigos de la Naturaleza

CONTENIDO

- Forest fires in Bolivia
- Traditional fire use
- CBFiM in the Chiquitano Dry Forest
- Conclusions

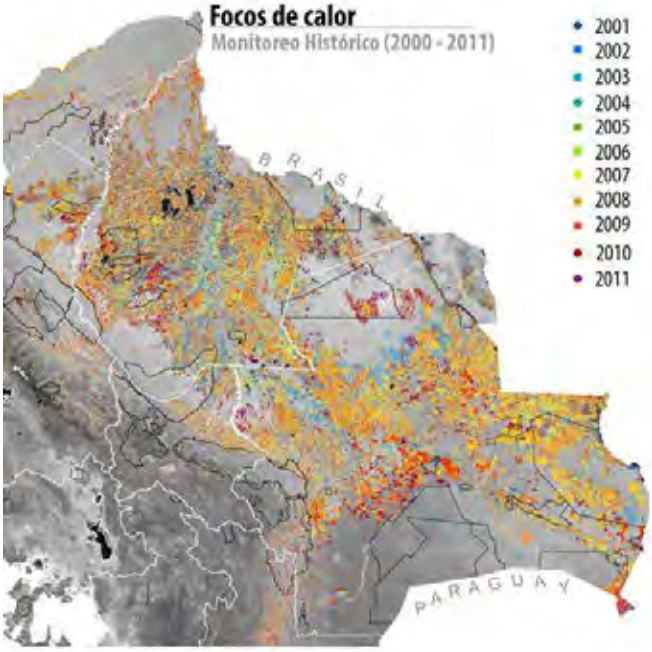
Bolivia

Fundación Amigos de la Naturaleza

- 1.098.581 km^2
- ≈ 10 M habitants
- 34% rural population
- One of the ten most biodiverse countries
- 48% of territory covered by forest
- 32 protected areas (19% of national territory)
- Rural people's livelihood depend on forests

Forest fires in Bolivia

Fundación Amigos de la Naturaleza

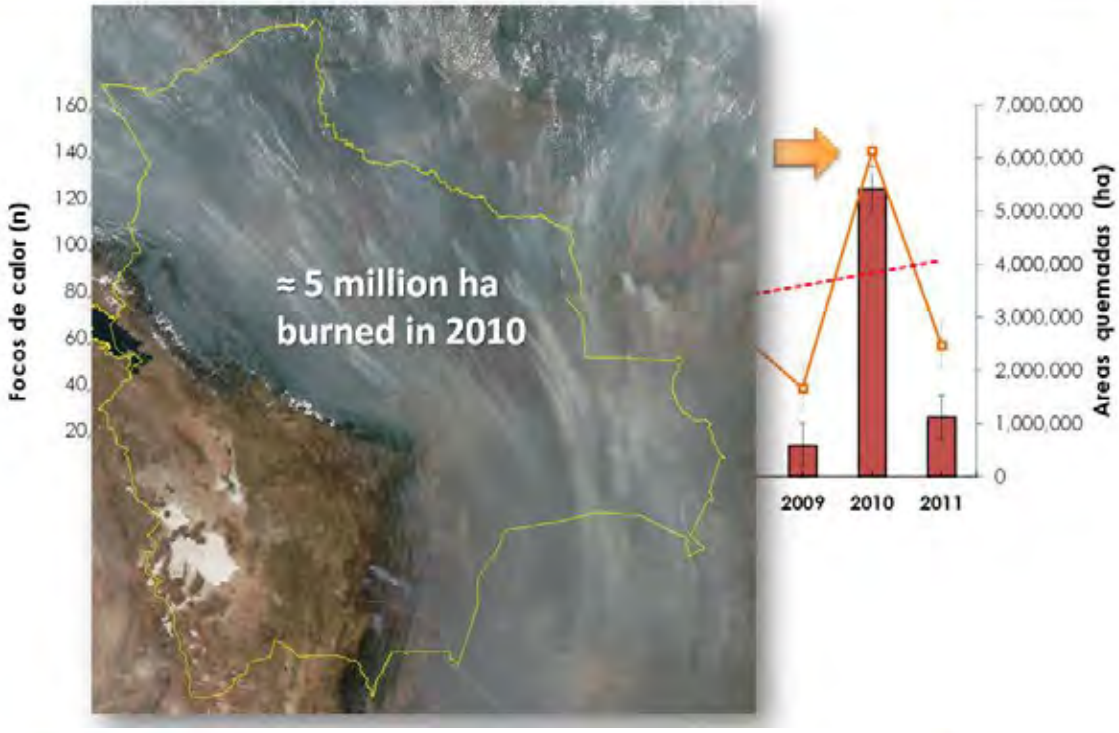


Rodriguez 2011 - FAN

≈ 23 million ha burned during the last decade

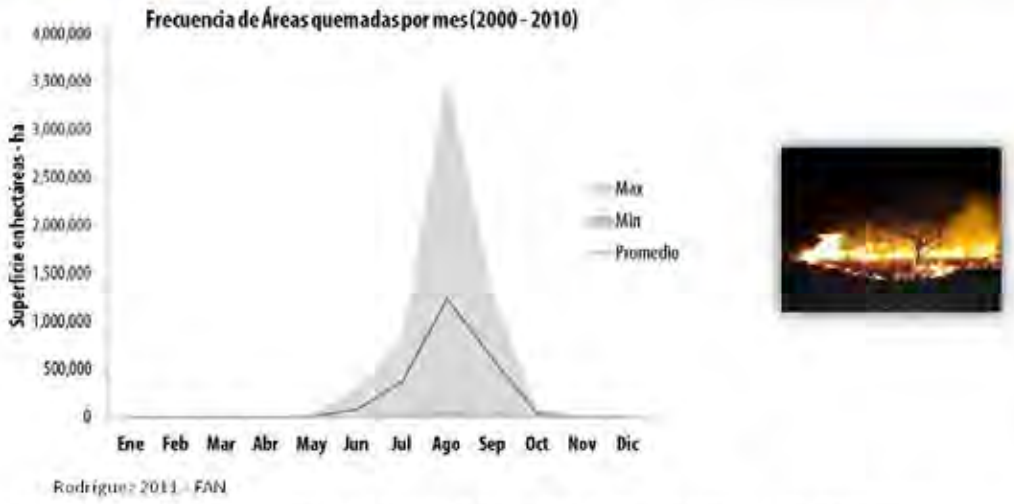
Forest fires in Bolivia

Fundación Amigos de la Naturaleza



Fire season

Fundación Amigos de la Naturaleza



Rodriguez 2011 - FAN

- Fire season historically begins in May and extends through October, with August considered the highest risk month.
- Over the last years fire season is starting later, beginning in August through early November.

Main activities related to the causes of forest fires in Bolivia

Fundación Amigos de la Naturaleza

Slash and burn (chaqueo)

Burning of grasslands

Mechanized agriculture

Use of fire for agricultural purposes

Use of fire for agriculture Slash and burn (Chaqueo)

Fundación Amigos de la Naturaleza

Use of fire for agriculture
Burning of grasslands

Fundación Amigos de la Naturaleza

Pasture burning for cattle occurs in two different times of the year: at the end of the rainy season in some regions, and at the end of the dry season in others.

Use of fire for agriculture
Mechanized agriculture

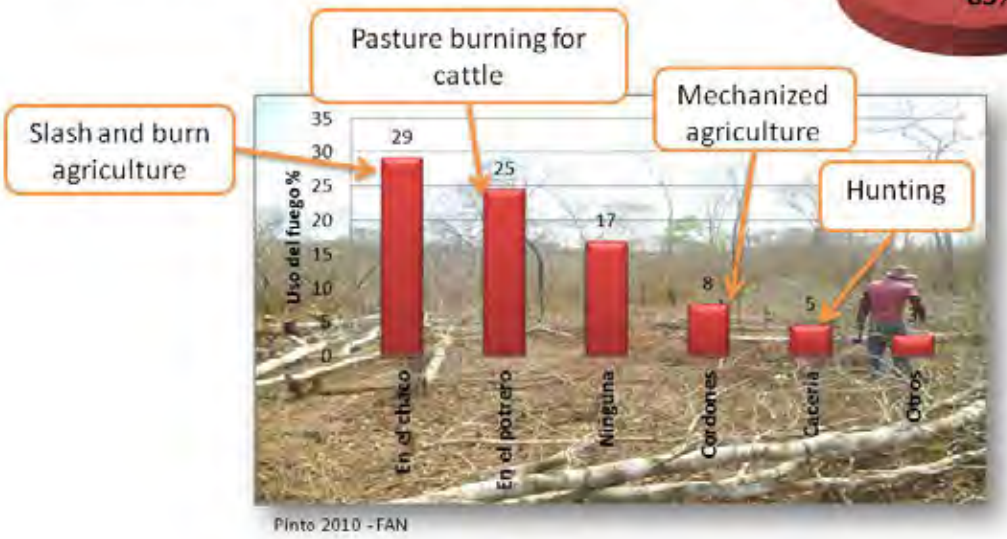
Fundación Amigos de la Naturaleza

- Burning of piled biomass from mechanized deforestation
- ≈ 10m wide /5m high/1Km long of biomass piles
- Mainly at the end of the dry season
- Mainly for soy crops

Traditional fire use in rural communities

Fundación Amigos de la Naturaleza

Use of fire in indigenous and peasant communities of the Chiquitano region



Pinto 2010 - FAN

Traditional fire use in rural communities

Fundación Amigos de la Naturaleza

- Plots of 1 to 3 ha of land
- Crop fields located around the community
- Slash-and-burn fields are used mostly for 2 years
- Main crops: corn, manioc, beans

Traditional fire use and local customs

Fundación Amigos de la Naturaleza

- Yelling to the fire to fan the flames

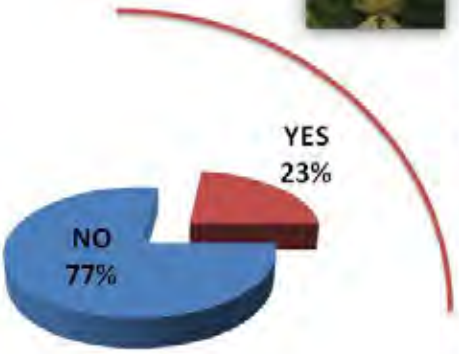
- Burning the day of Santa Rosa (August 30)

- Commending to St. Peter

- Burning in full moon

- Monitor the sun rings

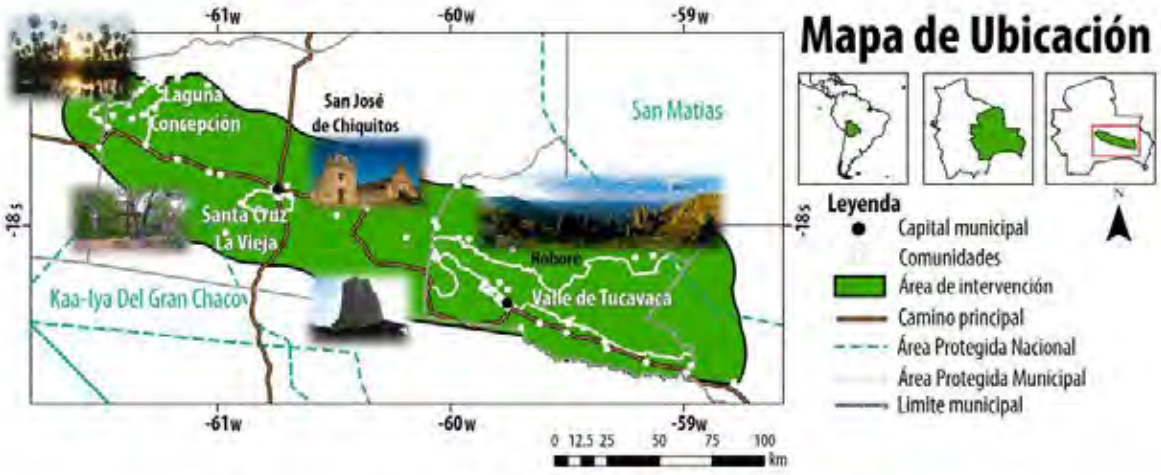
- Leaves of amaibo upside down (Cecropia sp.)



Pinto 2010 - FAN

CBFiM around protected areas in the Chiquitano Dry Forest

Fundación Amigos de la Naturaleza



≈ 2 millions Ha

≈ 2,000 families

MANEJO COMUNITARIO DEL FUEGO

CBFiM around protected areas in the Chiquitano Dry Forest

Fundación Amigos de la Naturaleza

36 indigenous and peasant communities

80 cattle ranchers

3 Mennonite settlements

Inter-community committees to promote fire management

CBFiM around protected areas in the Chiquitano Dry Forest

Fundación Amigos de la Naturaleza

Participatory mapping of communal territory and risk zones

CBFiM around protected areas in the Chiquitano Dry Forest

Fundación Amigos de la Naturaleza

Protected Area	Municipality	Community	N° chacos	Ha
Laguna Concepción	Pailón	Cerro	21	63
Santa Cruz la Vieja	San José	Pororo	20	50
Santa Cruz la Vieja	San José	Quituquiña	18	5
Tucabaca	Roboré	Limoncito	17	67,5
Santa Cruz la Vieja	San José	Private lands	16	23
Tucabaca	Roboré	Quitunuquiña	14	103
Santa Cruz la Vieja	San José	Cruz Blanca	11	22
Laguna Concepción	San José	Motacusito	10	15
Santa Cruz la Vieja	San José	Natividad	10	12,5
Santa Cruz la Vieja	San José	Pozo del Cura	10	5
Tucabaca	Roboré	1º de Mayo	10	18
Santa Cruz la Vieja	San José	Piococa	9	5
Tucabaca	San José	San Ceferino	7	7
Tucabaca	Roboré	Aguas Calientes	6	18
Tucabaca	Roboré	San Pedro	6	5
Santa Cruz la Vieja	San José	Dolores	5	5
Tucabaca	Roboré	Los Sotos	4	13
Tucabaca	Roboré	Peniel	3	15
Tucabaca	Roboré	Motacusito	3	3
Tucabaca	Roboré	Private lands	3	40
Santa Cruz la Vieja	San José	Taperita	2	5
TOTAL		21	205	500

Collecting data for fire use planning

CBFiM around protected areas in the Chiquitano Dry Forest

Fundación Amigos de la Naturaleza

Training on controlled burns

CBFiM around protected areas in the Chiquitano Dry Forest

Fundación Amigos de la Naturaleza

Community brigades for first response to forest fires

CBFiM around protected areas in the Chiquitano Dry Forest

Fundación Amigos de la Naturaleza

Fire risk early warning system at community level

CBFiM around protected areas in the Chiquitano Dry Forest

Fundación Amigos de la Naturaleza

http://incendios.fan-bo.org

Fire risk early warning system at regional level

Incidence in public policies

Fundación Amigos de la Naturaleza

Institutional platforms for fire management at municipal and departmental level

Conclusions

Fundación Amigos de la Naturaleza

- Extreme fire seasons occur every 2-3 years in Bolivia with catastrophic consecuences for the entire country.
- Main causes attributed to the origin of forest fires are related to traditional fire use in agricultural practices.
- Climate change is altering traditional agricultural practices and fire regimes.
- Efforts to address these challenges must focus on strengthening community capabilities, encouraging community participation in fire use planning and consolidate coordination mechanisms among all actors involved.
- Acknowledging social and cultural dimensions under the use of fire is crucial to better orientate public policies related to fire management.


CBFiM around protected areas in the Chiquitano Dry Forest
Fundación Amigos de la Naturaleza
Agreements and coordination mechanisms
Good practices for fire management
Fire risk early warning system
Raising community awareness
MANEJO COMUNITARIO DEL FUEGO

WORKING PAPERS SERIES ON FIRE MANAGEMENT

Fire Management Working Papers: Thematic Paper Series
In Code "Working Paper FFM/xx", "x" indicates the WP series number and a suffix E, F, R or S indicates: E = English, F = French, R = Russian, S = Spanish. No suffix indicates E only.
Available at the Fire Management web site:

Working Paper FPF/1	*Guidelines on Fire Management in Temperate and Boreal Forests*. November 2002.
Working Paper FM/2	*International Wildland Fire Management Agreements Template*. Tom Frey, Ricardo Vélez Muñoz. January 2004.
Working Paper FM/3	*Legal Frameworks for Forest Fire Management: International Agreements and National Legislation*. Fernando Fernández Arriaga, Frédéric St-Martin, Tom Frey, Ricardo Vélez Muñoz. March 2004.
Working Paper FM/4	*Community-Based Fire Management in Spain*. Ricardo Vélez Muñoz. April 2005.
Working Paper FM/5	*Report on Fires in the South American Region*. María Isabel Manta Nolasco. March 2006.
Working Paper FM/6	*Report on Fires in the North East Asian Region*. Leonid Kondrashov. March 2006.
Working Paper FM/7	*Report on Fires in the Baltic Region and adjacent countries*. Ilkka Vanha-Majamaa. March 2006.
Working Paper FM/8	*Report on Fires in the Mediterranean Region*. A.P. Dimitrakopoulos and I.D. Mitsopoulos. March 2006.
Working Paper FM/9	*Report on Fires in the Sub-Saharan Africa (SSA) Region*. Alexander Held. March 2006.
Working Paper FM/10	*Report on Fires in the South East Asian Region*. B.J. Shields, R.W. Smith and D. Ganz. March 2006.
Working Paper FM/11	*Report on Fires in the Balkan Region*. N. Nikolov. March 2006.
Working Paper FM/12	*Report on Fires in the Caribbean and Mesoamerican Regions*. A.M.J. Robbins. March 2006.
Working Paper FM/13	*Report on Fires in the Australasian Region*. P.F. Moore. March 2006.
Working Paper FM/14	*Report on Fires in the South Asian Region*. A.M. Benndorf and J.G. Goldammer. March 2006.
Working Paper FM/15	*Report on Fires in the North American Region*. R. Martínez, B.J. Stocks and D. Truesdale. March 2006.
Working Paper FM/16	*Report on Fires in the Central Asian Region and adjacent countries*. Johann G. Goldammer. March 2006.
Working Paper FM/17	Fire management: voluntary guidelines. Principles and strategic actions. 2006. FAO, Rome, December, 2006 (E, F, R, S)
Working Paper FM/18	Fire management: Review of international cooperation. FAO, Rome, December 2006
Working Paper FM/19	Fire management voluntary guidelines - Preparing for action - country and regional level methodology. Vuorinen A. P., Rosengren, L.M. 2008
Working Paper FM/20	Implementing the Fire management voluntary guidelines - Report of the regional workshop of Trinidad and Tobago, 20-23 November 2007. Vuorinen A.P. 2008
Working Paper FM/21	Implementación de las directrices de carácter voluntario - Informe del taller regional en Cuba, 12-16 Noviembre 2007.(S) Pieter van Lierop 2008
Working Paper FM/22	Fire Management Voluntary Guidelines - Preparing for action - country level methodology. Vuorinen A.P. 2008
Working Paper FM/23	Fire Management Needs and Actions in the South East Asian Region. Vuorinen A.P. 2008
Working Paper FM/24	Community Based Fire Management (CBFiM) training workshop (Northeast Asian Region). D. Johnson & A.P. Vuorinen 2009
Working Paper FM/25	Training Course on Forest Fire Management in Ethiopia. Vuorinen A.P. 2009
Working Paper FM/26	Evaluación del sistema de manejo de fuego en la Región Autónoma del Atlántico Norte (RAAN) en Nicaragua después del huracán Félix. 2011
Working Paper FM/27	FAO at the Vth International Wildland Fire Conference. Sun City, South Africa, 9-13 May 2011. 2011