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The South African Working on Fire Programme and the Regional Subsahara Wildland Fire Network (Afrifirenet)

The following contribution provides background information about the Working on Fire Programme (WoF) of South Africa, its vision and the cooperation with the ISDR Regional Subsahara Wildland Fire Network (Afrifirenet).

WoF and Afrifirenet cooperated closely for the last years, as both organisations realized the need of promoting integrated fire management in Southern Africa through integrating all role players from government and industry down to the local communities through sharing of resources, information and involving the communities, often the poorest of the poor.

On 10 November 2004 a Memorandum of Understanding between the two organisations was signed to promote integrated fire management for the whole Southern Africa Development Community (SADC) region.

- Afrifirenet will be the conduit and platform for exchange of information within the SADC region
- Afrifirenet will facilitate the flow of information between different countries and be the point of contact for organizing cross border co-operation with respect to training and capacity building.

Foci of such information sharing shall be:

- The promotion of Integrated Fire Management practice, with emphasis on community participation
- Research
- Development and implementation of Best Practice standards
- Strategy and policy development conducive to building co-operation across the SADC region
- Building a community of practice network across the region
- Standardization of training, services and integrated fire management practice across the region
- Appropriate knowledge and technology transfer through ongoing development of knowledge management systems
- Ensuring compatibility when faced with exchanging resources, training and information, especially in the case of cross border assistance
- Cost efficiencies through avoidance of duplication
- Ensuring that the capacities built through this partnership assist the regional (SADC) needs, through the New Programme for Africa's Development (NEPAD), under the leadership of the National Disaster Management Centre in the Department of Provincial and Local Government

Together we continuously strive to improve operating systems and build knowledge that can be applied in bringing fire prevention benefits to communities affected by fire. Cross-border and international collaboration with wild land fire research and development organisations results in regular reciprocal cross border training visits and workshops.

WoF Introduction

Most regions in South Africa are situated in naturally fire-prone ecosystems. The inherent fire hazard is exacerbated by the following:

- An increasing extent of the urban development interface with naturally fire-prone systems
- The escalating occurrence of extensive infestations of invading alien plants
- Fire risks associated with forestry and agriculture
- The build-up of excessive fuel loads (natural, commercial and invasive)

Budget and capacity constraints have also severely curtailed the effective management of these areas. While the natural ecological role of fire must be recognised, the exposure of communities, agriculture and business to large, devastating fires in the recent past has emphasised the need for an integrated approach to fire management in the affected regions.

The impact of wild fires in natural vegetation on the poorest of the poor, particularly the rural poor, cannot be overstated. It is those living at the margins who are always the most vulnerable. In the case of rural informal settlements (and also in the case of some of the urban settlements), these are located physically at the margin, in the transition zone between densely settled land and land carrying high fuel loads. Whether these fuel loads are the result of alien invasive plants or the lack of integrated *veld* management (including fuel reduction strategies) in the natural *veld*, the consequence is the same. It is high fire risk, and it is the inhabitants of the adjacent informal settlements that bear the brunt of such unmanaged risk. The direct losses are in terms of:

- loss of life, and disability, due to vegetation fires
- loss of housing and possessions when thatched or wooden dwellings ignite, and
- loss of grazing, crops, livestock and subsistence natural resources

Of equal – if not greater – importance is the "knock-on" effect of wild fires on rural economies. A survey of flower and thatch harvesting of natural plant resources in the *fynbos* in 1993 showed that the value of this produce amounted to R65-70 million per year and sustained 20-30,000 rural people in subsistence livelihoods. While no accurate current value is available, it is reliably estimated that the value of this industry is now at least R120 million per year, sustaining an equal number of jobs.

The extensive fire in early 1998 in the Plettenberg Bay area provides a poignant illustration of the impacts of such fires on the poor. Five *Working for Water* (WfW) employees and a sixth person lost their lives, and a further nine were seriously injured. In the Craggs area alone, as a result of the loss of forestry and natural veld resources, 150 jobs were lost in the plantation/saw milling and flower harvesting sectors. While these jobs may not all be lost permanently, there will be a hiatus of four to five years before the veld is old enough for flower harvesting can recommence. The extent to which jobs in the timber industry will be recovered is questionable. In a small rural community where the alternatives for economic activity are limited, a fire such as this one has devastating social consequences.

These large fires also impact seriously in terms of the costs to the WfW programme. In the Plettenberg Bay case, approximately 15 000 hectares of natural *veld* with alien infestations in the 25-50% density category were burnt. Fire stimulates the germination of the seed of many invasive species, including *Hakea* species (in this case). It can be reliably predicted that on at least half the area burnt, the level of infestation post-fire will exceed 75% and the cost per hectare of treat these denser infestations will rise by 60% from R 1100/ha to R 1850/ha. Note: WfW is not "giving away its money" – it is "investing" in a programme, best suited to be run by the Department of Local and Provincial Government (DPLG), to curb the massive costs for WfW through uncontrolled *veld* fires. This is real co-operative governance!

The investment in alien clearing on this land preceding the fire has been compromised and the volume of work generated by post-fire germination is too large to be manageable. This means that for a period of time the programme will be in retreat in this particular catchment, with the costs of recovery escalating continuously. While WfW recognises the importance of fire as a natural phenomenon and does not intend the above example to portray that WfW intends to suppress all natural fires, it should be emphasised that better control of large fires (when and where they occur) could have significant financial implications and allow for better planning in terms of where to focus WfW's efforts. This translates into a cost to the WfW

programme of at least R 5.5 million in additional initial clearing costs that it must fund from the Plettenberg Bay fire alone, and these costs will escalate to more than double the costs as the trees grow and spread further, if (as is the case) WfW does not have the financial and managerial capacity to deal with this new invasion.

The impact that uncontrolled wild fires have had on the mountain catchment areas of the Western Cape in recent years should not be ignored. The extensive fires in the Boland Catchments, which serve agriculture and the Cape Metropolitan Area, have significantly influenced the quality and level of stream flow feeding the major catchment dams. Dam water levels for the period 1996-2000 were the lowest ever recorded.

In addition to the above considerations, the *National Veld and Forest Fires Act* of 1998 requires that landowners take particular measures for fire protection, and that communities should establish *Fire Protection Associations* (FPAs) to address the need for co-ordinated fire management. The FPAs referred to below are those created in terms of the *National Veld and Forest Fires Act*. This must include rapid response capability if the probability of disastrous fire events in the rural landscape is to be reduced. However, resources in terms of capacity, skills and funding are limited in most of the affected areas. For this reason, the *Umbrella Fire Protection Associations* (UFPAs) are envisaged to provide the overarching, co-ordinated support, including aerial fire-fighting support, in provinces. The UFPAs will provide for over-arching services such as aerial fire-fighting support, rapid attack teams, fire weather services, and co-ordination of fire records and training.

Eight UFPAs have been set up:

- Western Cape UFPA - Working on Fire Stellenbosch Fire Control Centre
- Southern Cape UFPA – Working on Fire Witfontein Fire Control Centre (George)
- Eastern Cape UFPA – Working on Fire Ugi Fire Control Centre
- KwaZulu Natal UFPA – Working on Fire Shafton Fire Control Centre (Howick)
- Freestate UFPA – Working on Fire Bethlehem Fire Control Centre
- Mpumalanga UFPA – Working on Fire Nelspruit Fire Control Centre
- Limpopo UFPA – Working on Fire Tzaneen Fire Control Centre
- Gauteng / Northwest UFPA – Working on Fire Tshwane Fire Control Centre

The commercial sectors of Forestry and Agriculture suffer extensive financial loss every year as uncontrolled fires destroy crops, plantations, buildings and equipment. Both sectors invest substantially in fire protection measures, through the development of firebreaks, deployment of fire-fighting teams and purchase of fire-fighting equipment. A national support structure will provide the commercial sector with access to additional resources and improved infrastructure to control large fires. Government, in terms of Section 16 (i) (d) of the Disaster Management Bill 2002 (led by DPLG through the National Disaster Management Centre [NDMC]) will negotiate with the private, forestry and commercial sectors to ensure a fair and reciprocal arrangement. As this project aims to provide direct benefits to private sector bodies, it is expected that this sector will in return, support the venture in a variety of ways.

Fires of all sorts produce a mixture of gases and particles (collectively called ‘smoke’) that have detrimental effects on the global climate, air quality and human health. Vegetation *veld* fires in South Africa generate approximately 64,000 tons of methane, 76,000 tons of non-methane hydrocarbons, 39,000 tons of nitric oxide, 6000 tons of nitrous oxide and about 40,000 tons of smoke particles per year. They also produce about 12 million tons of carbon dioxide, but as a first approximation, it is assumed that the vegetation, which re-grows after the fire, re-absorbs this gas, and therefore stable fire regimes are ‘carbon neutral’. This is not true for the other trace gases, which remain net emissions. Thus a reduction in fire frequency and/or extent leads to a reduction in greenhouse gas emissions, which can be accurately quantified.

It is neither practical, nor desirable, to completely eliminate fires from natural vegetation, but a reduction in area burned per year of in the order of 25% would be achievable and compatible with other land management objectives, including the preservation of biodiversity, the control of alien vegetation, and the maximum yield of clean water.

Greenhouse gas emission reduction inherent in forestry areas where fires can occur can be funded by trades in carbon credits, with initial financing provided by the World Bank's Prototype Carbon Fund. South Africa is one of five countries identified by the Global Environment Facility (GEF) for funding specifically earmarked to address national environmental disaster management. A concept proposal has been submitted through the Department of Environment Affairs and Tourism to GEF for funding to supplement this initiative. What will be developed now is a "second phase" to this business plan, through which the resourcing of the programme can be significantly enhanced, and the scope and extent of the programme substantially increased. It is expected that such funding would only become available in one to two years' time.

The situation has focused attention on the need to establish an integrated plan for fire management. Speed of response and adequate ground support are absolutely critical factors in fighting fires. This plan proposes the development of an integrated fire management strategy through appropriate *veld* management, fuel load reduction and practical protection measures, linked to the development of the required capacity, skills and structures. These actions will be undertaken in accordance with the National Veld and Forest Fires Act. Furthermore, the achievement of the optimum cost-benefit ratios will be promoted by the reciprocal use of resources between regions.

Figure 1, WoF Handcrew assisted by a MI-8 MTV helicopter

An amount of R35 million per year will be suspended from the Vote of DWAF and transferred to the Vote of DPLG, sub-programme Disaster Management for an initial period of one year, to ensure effective implementation of the plan in eight provinces. This will include facilitating the establishment of FPAs with fire-fighting capacity (including ground crews to support aerial fire-fighting capacity and fire control teams to do prescribed burning) in areas within the eight provinces – namely Western Cape, Eastern Cape, Southern Cape, Mpumalanga, KwaZulu-Natal, Limpopo, Free State and Gauteng / Northwest – as a pilot exercise. Skills and capacity development and the creation of labour-intensive job opportunities, in keeping with the Poverty Relief Fund requirements, will be undertaken. The jobs created by this programme are estimated at 1100 for the year ending March 2005. It is expected that these pilot FPAs will provide role models that, as they are replicated elsewhere in the country, will leverage private sector investment in FPAs and their activities. In this way, the improved management of fire risks will be promoted. It could also provide successful “exit opportunities” for those workers who have gained temporary employment in the WfW programme and similar Poverty Relief Fund initiatives. The seed funding for this initiative is from the Poverty Relief Fund, through the WfW Programme to DPLG (NDMC).

What was reached by end of 2004?

Over 1000 trained men and women, 64% of them under thirty - five years old, are now employed in twenty two person *veld* firefighting hand crews and “on the ground” management, available to assist partners in preventing and suppressing unwanted fires. Most were previously unemployed and for many, this is the first regular income earned. During the period April 2004 to December 2004 a total of 164,526 person days employment and training have been created, contributing R 7,000,000 in salaries earned.

In addition to person power on the ground, six helicopters, twenty five fixed wing bombers and fifteen spotter aircraft flown by highly experienced pilots are presently co-ordinated from six dispatch centres, in conjunction with national partners. Ground and aerial support from around South Africa can be rapidly mobilized to assist with suppression of disaster or potential disaster fires, and have been deployed during the last fire season to do just this. Quantifying the damage averted as a result of rapid, well co-ordinated attack is without doubt the most difficult measurement to assess accurately, however partners have been vocal in their praise of Working on Fire aerial and ground support and contribution during all major fire incidents attended.

Figure 2. Still smiling after a 12 hours shift (Photos: Working on Fire)

Pooling of firefighting resources, fuel reduction and establishment of Fire Protection Associations are proven efficiency measures in combating unwanted fires and the Management Team can report positive progress in all pilot geographical regions, contributing towards the vision of a nationally co-ordinated approach to integrated fire management.

Figure 7, Fire Camp, exercising rapid deployment within South Africa and in case of assistance for neighbouring countries

Internationally a number of exchange training courses were organised in cooperation between the two organisations. All workshops and courses were conducted according to highest international standards.

Through these activities we have been able to establish excellent relations with our neighbours in the SADC region and are confident to proof in the future that we are working on a SADC wide wildland fire strategy, which is developed and accepted by all contributing countries, organisations and individuals.

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References

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Afrifirenet Website at GFMC: www.fire.uni-freiburg.de/GlobalNetworks/Africa/Afrifirenet.html