

General Report from Regional Northeast Asia Wildland Fire Network and Proposals for a Global Strategy of Cooperation in Wildland Fire Management

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Abstract

The Northeast Asia (NEA) region covered by UNISDR Regional Northeast Asia Wildland Fire Network includes China, Japan, Republic of Korea, PDR of Korea and the Far East of the Russian Federation. This part of the world is highly diverse in socio-economic, ecological and nature management systems and trends, driving forces of development as well as in major problems to be solved in future. In the NEA countries in the last decade there is an observed increase in (a) scale, (b) frequency, (c) area burned by forest fires, but with great difference in countries in terms of: (d) economic damage, (e) cost of fire suppression, (f) efforts to regroup forces and attract voluntary fire fighters, (j) awareness of the general public and national/local politicians regarding fire management necessity to control wildland and forest fires. Forest and wildland fires and their negative impact continue to be a major issue in NEA; wildfires influence the quality of life, land, air and water. Unacceptable resource losses and the spread of transboundary pollutants need immediate attention by the NEA nations and their international partners. If these negative impacts are not fully addressed, they will result in loss of sustainability of forests, public health and economic opportunities. On 6 March 2004 the Korean Forest Research Institute (KFRI) and the Global Fire Monitoring Center (GFMC), with participation of the Food and Agriculture Organization of the United Nations (FAO) and a group of forest fire specialists from China, Republic of Korea, Japan and Russia founded the Regional Northeast Asia Wildland Fire Network. It was decided that the network would be coordinated by KFRI. In 2004-2006 the Network conducted three Meetings where the participants shared information and experience NEA Wildland Fire situation, research and development work; adopted a Mission Statement; continued discussions initiated during the Foundation Meeting of the Regional Northeast Asia Wildland Fire Network; elaborated plans of future work and cooperation and programming activities designed to develop regional programming initiatives; determined the needs of the regional Network for future institutional capacity building. During the last meeting in Khabarovsk (Russia) the participants produced the comments and remarks on Fire Management Code (now: Fire Management Voluntary Guidelines) elaborated under the aegis of FAO. This consideration has also resulted in proposals of international cooperation in the field of forest and wildland fire management.

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Rationale and Background

The forests in the Northeast Asia region provide space for human occupation and a basis for economic activities. Most wildfires in this region occur as a consequence of human activities. Agriculture, collection of medical and eatable plants, industrialization accompanied by recent economic growth, hiking, recreation, tourism, etc. mainly cause forest fires. The currently observed trend of global warming involves a change of regional climate patterns. According to climate models and the recent weather records an increase of temperatures as well as an occurrence of prolonged droughts has been observed in many parts of the world including North East Asia. As a consequence of climate change and fire effects the northern ecosystems, including discontinuous and continuous permafrost sites, will be extremely damaged. The countries of Northeast Asia (NEA) are experiencing growing impact of wildfires in forests and other vegetation (wildland fires) on the natural environment and on society. The fires contribute to the degradation of the soil, water resources and the atmosphere, endangering the sustainability and biodiversity of ecosystems, and threatening human populations, especially human health. NEA countries and the international community are increasing their efforts to manage the fires by reducing their occurrence and negative impacts. The problem is, however, so scaled that there is an urgent need to unite efforts and arrange bi- and multilateral cooperation in the field of fire management and to mitigate the consequences of fire. The NEA countries intend to work together with the UN and other international organizations, notably through the Global Wildland Fire Network under the auspices of the United Nations International Strategy for Disaster Reduction (UNISDR) and the Global Fire Monitoring Center (GFMC).

In this situation, in 2004, representatives from countries in the North East Asia region – including the Republic of Korea, China, Japan, and Russia – assembled and reached an agreement that they should recognize the significance of the negative impacts of forest fires and other wildland fires and consider it as a regional issue. As a first step to diminish occurrence and negative impacts of wildland fires the fire specialists from different government and non-government institutions agreed to build up the Regional Northeast Asia Wildland Fire Network for the purpose of exchanging and sharing information and resources and to establish the multilateral cooperation system in the future.

The NEA Network carries out its mandate by supporting and fulfilling research and natural resource management activities through personal and working groups or interested institutions. The NEA Network is a forum for exchanging experience and knowledge on wildland fire prevention and control; for cooperation among the Network countries to develop strategies and actions to solve policy, technical and management problems; and to actively participate with domestic and international agencies to implement and promote cooperation activities. The goals of the NEA Regional Wildland Fire Network are clearly stated in the Network Mission Statement: “The Regional Northeast Asia Wildland Fire Network advocates the interests of its members and supporters towards reducing the negative impacts of wildland fires on the environment and on societies. The network aims at realizing these goals through enhanced international cooperation in wildland fire management research, development, capacity building, sharing of knowledge and resources, and mutual

support. The cooperation is based on the principle of partnership between the participating countries and the international community.”

Milestones of the Development of the NEA Regional Wildland Fire Network

The foundation meeting of the Regional North East Asia Wildland Fire Network was held in Seoul, Republic of Korea on 6 March 2004. It was hosted by Global Fire Monitoring Center and the Korea Forest Research Institute and supported by UN International Strategy for Disaster Reduction (ISDR) and Food and Agriculture Organization (FAO). The starting meeting goal included a position expression of each country for establishing the “Regional North East Asia Forest Fire Network”. The Regional NEA Wildland Fire Network members discussed and expressed their support to develop bilateral and multilateral agreements on cooperation in wildland fire management, based on international standards as proposed by the International Wildland Fire Summit; planned to investigate the introduction of the Incident Command System (ICS) as the international standard for all wildland incident management participating in international or interagency agreements and exchanges; underlined the importance of cooperative regional wildland fire research projects and programmes; acknowledged the importance of training / capacity building in wildland fire management; community involvement in fire management; bilateral and multilateral wildland fire emergency exercises; exchange visits and programmes to share lessons learned and solving problems; considered the necessity to develop arrangements to support collection and dissemination of wildland fire information, facilitation of regular regional dialogue and joint projects between the countries, and to technically support countries in need of aerial assets and personnel for wildland fire suppression. The participants discussed the significance of forest fires in nature and society, forest fire problems in Russia, Republic of Korea, China, Mongolia and other countries, the process of monitoring fires and methods of their suppression, identified sources of possible inside and outside technical and funding assistance and support to activities related to the introduction of fire management, made a joint field trip to burned areas. The plan of work of Regional NEA Network could include consultations, conferences, and training courses for fire specialists and investigations, participation in global assessment of forest fires. The participants in hot discussion talked over the financial questions of functioning the Regional NEA Network. In general, all the participants showed their enthusiasm and support and fully agreed that the topic discussion was of utmost importance for the protection, conservation and management of the forest resources in the Northeast Asia.

The questions for discussion on network arrangements included capacity building; working time table (what and to which time each country group must do that is concrete tasks for 2004-2005); website creation and preparation of publications; the elaboration and exchange of compatible data on wildland fires; finances (funding of network projects/activities by grants, governmental assistance, etc.).

During the foundation meeting each participating country elaborated its own proposals in order to formulate the task of the Network and comply with the contents the work of this system. Summarizing the ideas it could be said that the proposals included elaboration of standard fire statistics / reporting form for the region; memorandum of understanding on cooperation between each country; exchange of

personnel and research and satellite information; ways to fund the Network; online communication, website; newsletters and books; joint wildland fire management training; cooperative research with a focus on fire weather research, as a common, unifying phenomenon; share of the products of fire monitoring system: high-resolution satellite products; enhance international dialogue and information sharing; regional network meetings, rotating by country; regular regional conferences; establishment of close relations with government, public agencies, and NGOs; establishment of focal points and working groups at national levels; publication of a book on The Status and Future of the Wildland Fire Situation in the NE Asia Region; publication of a “Regional Wildland Fire Analysis for Policy Makers”. The participants devoted much time to consider 5-year plan for the Network comprising development of a Mission Statement for the Regional NEA Wildland Fire Network; drafting a Regional Charter; reporting back to governments, FAO and UNISDR-GWFN; network member database; establishment of a Regional Database; seek funding support; regional Wildland Fire Monitoring System online; website (databases, legal regulations); participate at the 4th International Wildland Fire Conference (Sevilla, Spain); conduct the 4th and 5th Annual Meeting of the Regional NEA Wildland Fire Network in 2007 in Beijing, China, and in 2008 in Ulaanbaatar, Mongolia.

Thus, during the foundation meeting in Seoul the Regional Northeast Asia Wildland Fire Network was formed. The participating countries are Republic of Korea, China, Russia, and Japan. It is expected the expansion of participants due to North Korea and Mongolia.

The specific objectives of all meetings are to:

1. Invite experts on wildland fires the region to discuss forest fire problems and information exchange experience.
2. Identify among participants institutions and individuals interested in forest fire cooperation.
3. Further discuss the significance of forest fires in nature and society.
4. Discuss the forest fire problems in Russia, Republic of Korea, China, Japan, Mongolia and other countries and globally (with the intent to include North Korea).
5. Consider the process of monitoring fires and methods of their suppression
6. Suggest recommendations in the field of fire management
7. Identify sources of possible inside and outside technical and funding assistance and support to activities related to the introduction of fire management.
8. Approve documents

In 2005 in Japan the Network participants conducted the second meeting at Tohoku University, Sendai, 18 January 2005 and the Preparatory Meeting for the 3rd Regional Network Meeting 2006 in Tokyo, 2 December 2005. The participants discussed the next plan and an effectuated activity after the 1st Meeting including assessment of wildland fire situation in the NEA region (review of a proposed key issues and annual plan as agreed at the foundation meeting and evaluation of activities in 2004 (completed / uncompleted). The main objectives of these meetings included: Short status report on the progress of dialogue within the region and development of ways for bilateral and multilateral cooperation in the frame of the Regional Northeast Asia

Wildland Fire Network; Review of the work plan, notably drafting of the mission statement of the Network and the preparation of a comprehensive regional wildland fire analysis (book publication). The Mission Statement was presented by the Korean Forest Research Institute (KFRI), which is serving as NEA Network Coordinator. All participants agreed the Mission Statement. Furthermore the possibilities of establishing a joint training centre were discussed and it was proposed to organize an ICS training course for members of the network in order to gain first experiences. For changes and further suggestions on the Mission Statement it was decided to circulate the latest draft among the network members. The outline of the book to be written by the participants of the Network was presented and the authorship of the chapters was discussed. Again it was clearly said that the book addresses mainly non-experts on the topic and that figures and statistics should only be included when they really contribute to the comprehensibility of the given situation. It was proposed to add a chapter that gives an overview of the ecology and natural conditions of the region.

The next Consultation took place in East-Siberian Institute of Ministry of Internal Affairs, Irkutsk, Russian Federation, 8 September 2005, as a response to needs for the further international cooperation development. Following the Regional Central Asian Forest Congress “Forest Policy: Problems and Solutions” (Bishkek, Kyrgyz Republic, 25-27 November 2004) which recommended the Central Asian countries to participate in the Global Wildland Fire Network. GFMC arranged the Consultation meeting with the Regional Central Asia Wildland Fire Network and Regional Northeast Asia Wildland Fire Network in Irkutsk, 8 September 2005. The German Foreign Office sponsored the meeting. The general objective of the meeting was to overview forest fire situation in Central Asia, support and develop bilateral and multilateral cooperation in forest fire management in Central Asia and adjoining countries, elaborate recommendations, participate in field trip to burned areas near Irkutsk city. The participants received information on type of fires, their number, covered area and impacts, witnessed the consequences of fires, were introduced the possibilities of local firemen to suppress fires. The fire on the site, which was visited, happened in July 2003. It was originated by lightning and lasted several days. The people could not stop the fire it crossed the forest road of 20 m width. Weather created the extreme fire danger. Air temperature was more than 30°C, strong wind and lack of precipitation. The fire burned several country houses in the nearby village. The area affected was 16 000 ha. Half of the area was covered by crown fire. The major species affected was pine (*Pinus sylvestris*) of different age. During the field trip the participants discussed the problems of post-fire forest recovery and gave recommendations. Twenty-four participants from Mongolia (Ulaanbaatar), Republic of Korea (Seoul), Germany (GFMC - Freiburg), Russian Federation (Pushkino, Irkutsk, Tomsk, Khabarovsk, Krasnoyarsk, Novosibirsk, Izhevsk, Gorno-Altai, Chita), who were mainly government officers, scientists and experts, attended the consultation meeting. The sets of regional and national-level and international reports on forest fire problems served as the framework for discussions and recommendations.

The Third International Meeting of the Regional Northeast Asia Wildland Fire Network was organized in Khabarovsk (Russia) on 29-30 September, 2006 by the Pacific Forest Forum and the Regional Far East Forest Fire Center of Federal Forestry Agency of Russia under the aegis of UN-ISDR Wildland Fire Advisory Group / Global Wildland Fire Network, Global Fire Monitoring Center. This meeting was also sponsored by the German Foreign Office. The Regional Northeast Asia

Wildland Fire Network meeting was held - as all previous meetings - in conjunction with a forest fire conference. The III Meeting was a response to the needs for the further enhancement of international cooperation in fire management.

The general objective of the meeting was to provide an overview of the forest fire situation in Northeast Asia, support and develops bilateral and multilateral cooperation in forest fire management in the region and adjoining countries, approve Mission Statement, discuss the Fire Management Code, elaborate recommendations, and participate in field trip to burned areas near Khabarovsk city. 31 expert and specialist participated in the conference and the meeting.

The following is a summary of the outcomes of the major points discussed during the meeting:

1. Member countries should take into account the experience of fire suppression accumulated in the Northeast Asia states.
2. There is a need to ensure and strengthen national capacities for efficient and timely response to fire.
3. Northeast Asian countries should create a mechanism of joint work on fire management and information exchange
4. There is a need to harmonize definitions and terms related to fire management
5. It is expected that after the meetings and discussions participants will have a better understanding of fire situation in Northeast Asia
6. Participants request assistance and further cooperation from GFMC, UNISDR, FAO and other international organizations and the donor community.

These items, describing the “road forward” in the region, were discussed and agreed upon by the participants of the meeting. They identify and recommend actions that countries need to follow in order to improve forest fire management and international cooperation taking into account countries’ overall ecological, socio-economic, political and cultural conditions.

Further plans of the meetings include the conduction of the Fourth Regional Wildland Fire Network Meeting in China (Beijing) in 2007 and the Fifth Regional Meeting scheduled to be held in Mongolia in 2008.

During the Third Meeting the representatives of GFMC and PFF presented the draft of Fire Management Code (now called Fire Management Voluntary Guidelines) and the Strategy to Enhance International Cooperation in Fire Management, and arranged discussion. The most critical for comments and proposals were three sections of the document: principles, strategy and management. Some proposals of the meeting participants included the creation of detailed glossary since specialists must talk on the same language; clarify the participation of local population in forest fire management reasoning from the principle of keeping their health and life; necessity to plan actions on effort integration of states for a long-term period to prevent transborder fires (in conditions of increasing forest fire danger they can become a routine event), their suppression and territories restoration (creation of information centers, international fire management centers, teams of wildland fire disaster response, etc.); need to pay more attention to informational and enlightening

activities relating population taking into account interests, age, culture, indigenous experience; to take care for legal status of firefighters; to conduct a wide, even worldwide, investigation of forest fire impact on the population health, securing the compensation to population to compensate damages caused by forest fires and fire smoke to human health and property; to undertake the investigation of consequences of fires on firefighters' health and the compensation of injury or losses as a result of their participation in fire suppression; to make accent on fire peculiarities in the regions, search for new ideas in technical and managerial solution of the problems; to clarify the ideas of the Code (now: Fire Management Voluntary Guidelines in a series of seminars and workshops (courses) which can bring a useful effect (beginning from October 2007 after the end of fire season in Russia); to single out the fire management on steep slopes; to use widely economic evaluations in forestry fire work; to use mechanism of monitoring and feedback of implementing the Code; there should be a clear statement of the explicit role of the UNISDR Global Wildland Fire Network and the Regional Wildland Fire Networks in the process of implementation. The Global Fire Monitoring Center (GFMC) shall play a role in the monitoring process of implementation.

It is very significant for Russian specialists to be the part of international community and to share the ideas of international cooperation. The participants acknowledged the necessity of further work on the document and the mechanism of its implementation as well as organization of a series of workshops to train both specialists and public. The participants expressed their readiness to further take part in public discussions and new documents elaboration.

Scope and Coordination of the Regional Northeast Asia Wildland Fire Network

The Regional Northeast Asia Wildland Fire Network members are composed as follows:

- Individuals or institutions related to wildland fire research and / or an education, training in each country
- To strive for an administrative development, it is able to consider an administrative official and/or an suppression official
- Advisors: responsible person in charge of the region in the FAO Forestry Department and the GFMC

The following activities of the Regional Northeast Asia Wildland Fire Network will be implemented to diminish occurrence and negative impacts of forest fires:

- Reinforce the partnership among countries by exchanging and sharing information
- Develop common studies and programmes for forest fire management
- Establish mutual agreements for delivering mutual assistance in fire extinction and exchange of fire management resources
- Interchange the technology and resources for the restoration of damaged area

The Regional NEA Wildland Fire Network members support bilateral and multilateral agreements on cooperation in wildland fire management, based on

international standards as proposed by the FAO and the International Wildland Fire Summit; plan to investigate the introduction of the Incident Command System (ICS) as the international standard; underline the importance of cooperative regional wildland fire research projects and programmes; acknowledge the importance of training / capacity building in wildland fire management; community involvement in fire management; bilateral and multilateral wildland fire emergency exercises; exchange visits and programmes to share lessons learned and solving problems; consider the necessity to develop arrangements to support collection and dissemination of wildland fire information, facilitation of regular regional dialogue and joint projects between the countries, and to technically support countries in need of aerial assets and personnel for wildland fire suppression.

The organizations and individuals participating in the Regional NEA Wildland Fire Network intend to inform regional and national governments about the results of the Network activities to enhance international cooperation in wildland fire management.

The major steps in cooperation must be carried out on the national level including annual meetings of the Regional Wildfire Networks, joint projects implementation. The participants realize the significance of forest fires in nature and society, forest fire problems in Russia, Republic of Korea, China, Mongolia and other countries, the process of monitoring fires and methods of their suppression, identify sources of possible inside and outside technical and funding assistance and support to activities related to the introduction of fire management. The plan of work of Regional NEA Network includes consultations, conferences, and training courses for fire specialists and investigations, participation in global assessment of forest fires. The Regional NEA Wildland Fire Network is to summarize its contribution in a form of a report during the 4th International Conference in Seville, Spain (May 2007).

International Cooperation

Wildland fires are becoming a serious international problem due to their scale when a single state is unable to overcome the event and their increasing transboundary impact. It is important to prevent vegetation fires through close cooperation with the international community, and to establish safety and development of the international community. These fires have created new challenges and opportunities and have made multilateral cooperation of even greater importance. The importance of supporting the building of a strong foundation in NEA countries/regions for “good governance” is increasing. Concerning the appropriate way of international cooperation, it is increasingly becoming essential to improve network capability in NEA countries by nurturing people and building a system, in addition to providing capital and resources (capacity building). The way of thinking that, if each country promotes its domestic fire security countermeasures, we can ensure the security of each country, has already become an old-fashioned view. Within the international community where mutual dependence of nations is strengthening, in order to counter wildland fires, relevant countries must construct a system and set up countermeasures under close cooperation. Based on the above understanding, NEA Regional Wildland fire network will actively promote international cooperation in accordance with the following principles:

(1) Coordination with the international community

Network will reinforce coordination measures with the United Nations or other supporting states in close cooperation with the Global Fire Monitoring Center

(2) Strategic international cooperation for NEA countries

NEA Network will strengthen strategic international cooperation for those countries, taking into account issues such as the current international wildland fire situation and geographic relationship.

(3) Active international cooperation taking advantage of national member countries features

The Network will reinforce active international cooperation by identifying the needs of relevant countries and international organizations and by initiating proposals based on the achievements and experiences of international cooperation by member countries.

(4) Reform of attitudes of Network organizations members toward international cooperation

In order to promote international cooperation by Network, it is necessary for all members to strive to reform their attitude toward international cooperation by fully recognizing the importance and principles of international cooperation. It is also necessary for NEA Network as an organization to maintain an attitude toward participation in international cooperation activities as actively as possible. The Network members' partnership commits all of them to engage in a continuous and constructive dialogue, inspired by the need to achieve a more efficient and equitable fire management system, keeping in view the increasing interdependence of the community of NEA nations.

The directions of concrete cooperation could include the following:

- The transfer of knowledge, technology and expertise
- The sharing of research findings, lessons learned and best practices
- Compatible information and forecast exchange on fire situation
- Enhancing of governance for fire risk reduction, for education, training and awareness-raising initiatives and for capacity building
- Financial assistance to improve fire effectiveness of work of existing systems and achieve new levels of capacity building and international cooperation.

The promotion of an international wildland fire management system in the NEA countries should facilitate the integration of all members into this system. Management related activities include a creation of a domestic environment supportive of fire management system; promotion of the policy framework and the infrastructure required to improve the efficiency; development of adequate investigations for the better understanding of the vegetation fire phenomenon; promotion of a dialogue between international communities; encouraging participation of member countries in multilateral agreements; providing for international consensus in solving vegetation fire problems, especially having international character; ensuring of all sectors of civil society input in the formation, negotiation and implementation of fire management policies; creation of the appropriate legal and institutional framework to respond to new vegetation fire situation.

NEA countries must find their place in many international initiatives and projects including: Global Forest Resources Assessments; International Geosphere-Biosphere Programme (IGBP); the Global Observation of Forest Cover (GOFC-GOLD) project; development of the Global Wildland Fire Early Warning System; and initiatives addressing forest ecosystem structure and functioning; criteria and indicators; etc.

Sharing of expertise and information must support the international cooperation by enhancing funding for forest fire problem solution; ensuring adequate consideration of wildland fires in sectoral strategies and development programmes; supporting integration of wildland fire issues in national planning frameworks; improving capacity of relevant agencies; enhancing cooperation among relevant agencies.

To realize all this there must be a strategic plan including a timetable of concrete actions in fostering international cooperation. One of the important steps is the organization of the follow-up work at national level in each country. The major steps in cooperation must be carried out on the national level including annual meetings of the Regional Wildland Fire Networks, joint projects implementation:

1. The network members should actively use the positive experience accumulated in fire suppression and international cooperation by international community
2. It is clear now that results from meetings, conferences and symposia do not always reach the decision-makers and, when they do, the necessary support from higher forestry authorities is not always forthcoming.
3. Member countries should continue to strengthen their commitment to promote the joint cooperation including joint investigations, joint projects, consultations, and conferences.
4. National discussion of the Fire Management Guidelines attracted the society attention to forest fire problems in a wider aspect.
5. Education and awareness related to forest fires should be a continuing campaign by governments in order that their implementation becomes a reality in the future.
6. There is a need to continue supporting efforts to better define terms and definitions related to fire management.
7. Increased international cooperation and help from GFMC and Governments is necessary to get good results.
8. In developing international cooperation it is very useful to elaborate the recommendations to empower bodies to promote a unified forest fire management policy; to introduce and test effective information technologies, technical and legislation mechanisms.
9. The organizations and individuals participating in the Regional NEA Wildland Fire Network should inform regional and national governments about the results of their meetings and joint work to enhance international cooperation in wildland fire management.
10. NEA countries must contribute to creation of a Global Vegetation Fire Information System; use new technologies, advanced satellite systems for detecting and evaluating vegetative fires; development of a Global Fire Information Network using the World Wide Web.

Problems

What are the obstacles preventing the countries to resolve the fire problem more effectively in the region and develop cooperation actively and efficiently? The NEA Network is doing its first steps. There is a need in support of potential of some organizations and persons to develop rapid cooperation on all levels of the civil society. Not all elements of the civil society are still represented in the Network. The countries of the region so far have not yet fully shared information and have not yet cooperated sufficiently to jointly address these problems. The management mechanism of the Network itself should be adjusted since the network is subject to environmental turbulence, the consequences of stakeholder motives and behaviour, and the skills of its members. Some of the more serious obstacles to a functioning network are:

- Still Network members are to determine the circle of effective stakeholders to engage in the open exchange of views and/or demonstrate reciprocity among them;
- The search for meaning, compromise, and new knowledge is too long and sometimes rests conflict to clarify ideas;
- At last discussions must be transferred into effective actions to work together toward a shared goal by coordinating strategies and pooling resources;
- It is still problematic to demonstrate to policy makers' wide support for particular policies or programs.

Despite the benefits, building and maintaining network, and namely NEA Network, is hard work since building consensus is a time-consuming process; the network must build trust among its members; members may have previous experiences, both personal and professional, with each other, that affect their ability to work collaboratively; the larger the network grows, the more complex it is to manage its logistics though keeping all members aware of meetings, actions taken, results, and upcoming activities is important; the network must find a means of dividing up work equitably among members; the network must remain a collaborative effort among all members, rather than the possession of one or several of the most powerful members; members must agree on rules necessary for the network to operate smoothly and effectively; the network must decide how to leverage resources for its collaborative activities. To raise the effectiveness of NEA Network activities it is desired to enlarge information share among members of the network; coordinate objectives and strategies; create and follow a realistic time line; stir up a structure and leadership roles; be explicit about how decisions will be made; share responsibilities; expand the base; hold regular meetings; involve youth and keep people informed; select spokespeople who will represent the Network to the media, etc.

Many networks falter or fail because of funding. With many member organizations operating on limited budgets, the costs of travel, communications, resource development, and training can hinder efforts to build the network. Usually it is recommended to start small; identify resources among the members; use existing opportunities to meet and communicate; stay focused; remember the private sector, especially local businesses; recruit additional members to secure the objectives of the Network; etc.

Usually, the Networks are effective when they are able to leverage their capacity to produce better ideas, and interact with government partners in ways that bridge cultures, responsibilities, and processes.

Some of the problems that hinder the deployment of connectivity in the region include: weak information coordination; lack of technical personnel cooperation; information poverty and non-availability via network; minimum involvement of research institutions in network building and diffusion; language barriers; etc.

What are the possible solutions to all this?

For sure this is better coordination between members, donors, local actors and government; creation of national, regional and sub-regional forums; technical cooperation development; enhancing local interconnectivity, developing strategies to train officials and public, improve collaboration between each other and in dealing with national fire policies, etc.

Conclusions and recommendations

Now it is clearly evident that the Regional Northeast Wildland Fire Network is in the process of its fast development and gaining authority and international weight. In hot discussions during the Network Meetings and accompanied international conferences the most urgent questions of regional wildland fire situation are discussed. The results of the meetings are summarized and analyzed in the proceedings published by members of the Network. The NEA Network members' contribution to the international and national research, technical and educational programmes is increasing. The priorities of international cooperation are outlined. Some steps are undertaken to foster the works in implementing the programmes relating to national obligations in the field of fire management and international cooperation.

However, there is a need to reinforce the activities of NEA Network members in educational and instructive field; participation in international scientific projects, programmes and experiments; appearance in international arena as the united force; formation of electronic networks of interconnection and interactions; increasing the role of the headquarters in Seoul and its coordination with Global Fire Monitoring Center as a secretariat of the Global Wildland Fire Network; organization of solution concrete questions of fire management in the frames of transborder interaction; further development of participation of all components of the civil society in consideration of decisions in the field of fire management; active collaboration in the elaboration and discussions of international documents under the aegis of FAO, UNISDR, GFMC, ITTO, etc.; publicizing of NEA Network members' activities and an attraction of new members; together with the national governments the NEA members are to perfect their scientific, technical and other potentials; actively participate in introduction of the effective measures to respond on transborder fire events; developing direct ties with the members and other partners; the Seoul headquarters must elaborate the Plan of actions for the nearest five years to get sufficient resources for providing for the long-term sustainable activity of the NEW Network and consider its own needs to facilitate a powerful managing center; make more active the meetings and their role on the national level to implement the tasks of the Network; informational and analytical supplying of international joint work and consultations; forming national approaches on national level taking into account the

achievements of international practice and theory and national peculiarities; experimental solution of questions on the national level; organization of direct support of the NEA countries in urgent fire situations, proposals preparation on projects and donors; etc.

The financial support is necessary to send the NEA Network members to constantly participate in meetings and sessions of the international and UN organizations; to function secretariat and national representations; to implement Plans of actions on the national level.

As societies become ever more interdependent, individual nation states find it increasingly difficult to deal with international or transnational fire problems. It goes without saying that international fire community of the region expects the growth of the value of NEA Network as the instrument of integration of institutional efforts and formation of its national affiliates with creating a data base on wildland fires, organizations, projects, programmes, needs. The Network will contribute to stir up bilateral and multilateral consultations. The NEA Network is also an arena where various national, sub-national and regional actors try to pursue their policy, including non-governmental, regional and other international organizations.

All this will result in emphasizing consolidation, greater focus on concrete measures and fields of cooperation in fire management; dissemination of information, perfection of the education and training. The most of the experts are optimistic that international cooperation can become a driving force of integration in the region in the field of fire management. Through its promotion of closer relations between its member states, the NEA Network can help contribute to the resolution of fire management issues.

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