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Policy Brief:
Strengthening Fire Prevention Capacities in the Wildland-Urban Interface

APEC Emergency Preparedness Working Group

September 2023

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Key Messages

- Risk reduction policies must clearly define the roles, responsibilities, and relationships between economy, subeconomy, private sector, and non-governmental organizations.

- Policies should encourage, if not require, the completion of risk assessments at the most local levels possible.

- Subeconomy, private sector, non-governmental organizations and local level organizations should ensure that policies align with and are congruent with economy level policy and strategy.

- Risk assessments should be repeated at routine intervals, such as three-year cycles and following a major wildfire or disaster.

- Economy-level policies should focus on capacity-building at the state and local levels for risk assessment and land use planning.

- Technological advancements provide opportunities for more comprehensive data-drivenrisk assessments, models, and mapping; however, such resources are currently not widely available to those who would benefit most from them.

- Implementing multi-sector networks, including the private sector and non-governmental organizations, can assist in information and data sharing, capacity-building, accessing technology and resources, and sharing of good practices.

- Policies should be gender-sensitive and inclusive of historically vulnerable populations.

- Early warning systems should prioritize the highest risk areas, and be supported by community education and drills to ensure the public understands have to respond to such alerts in an emergency.

- Land use regulations should also address activities that change the composition of the land (i.e., agricultural burning, deforestation) and future development in areas where a fire has occurred.

- Unregulated camps and settlements present a growing fire hazard. Resolving the issue overall is beyond the scope of this policy brief, however, steps can be implemented to reduce the risk of fire in these communities.

- Land use regulations require provisions for enforcement.

INTRODUCTION

The intensity and increased extension of fires in the wildland-urban interface areas in recent years has generated significant socio-environmental damage and economic and human losses in various economies. Climate change and other anthropological variables further exacerbates this threat. Climate change, increased development into forested areas, and human behaviors continue to raise the threat posed by these destructive fires. Research and predictions by major international organizations paint an alarming picture in terms of the threat of wildfires as the number, frequency, and intensity are only expected to continue to increase.

The economies of the APEC region have witnessed dramatic examples of this risk in wildfires during recent years. Economies, such as Australia; Chile; Russia; and the United States of America, and have experienced fires with historic levels of damage within the past ten years. Fires continue to be more frequent and intense, with climate conditions growing drier and more suitable to promulgating wildfire activity. Economic costs associated with suppressing fires are on the rise, with economies such as Australia; Canada; and the United States of America spending over $1 billion USD annually to combat fires.

This policy brief is produced based on the APEC funded project entitled: "Cycle of Workshops to Strengthen Fire Prevention Capacities in Wildland-Urban Interface." The goal of this brief is to encourage policy-oriented discussions and action towards addressing the risk of wildfires in the region. Policy recommendations set forth in this brief are derived from a series of workshops conducted with regional experts and fire and forestry personnel from APEC economies, surveys and consultative discussions with economies and non-governmental organizations supporting APEC efforts, and research of policies, lessons learned, and good practices from around the world.

PRIORITY 1: DEFINING ROLES, RESPONSIBILITIES, AND RELATIONSHIPS OF VARIOUS STAKEHOLDERS WITHIN THE ECONOMY

The effort to build more resilient communities within an economy cannot fall upon the economy-level government alone. While economy-level government structures may have more financial and technical resources, additional planning and action is needed at the state/provincial and local administrative levels to ensure comprehensive prevention. Local knowledge is essential to fully recognizing risk and implementing sustainable and successful solutions. However, without a proper policy framework, this multi-level approach to risk management can be unsuccessful as the various partners fail to coordinate activities, duplicate efforts, or encounter bureaucratic impediments that may otherwise be resolved through an established unified effort. In addition to public government structures, the private sector, non-governmental organizations, and the individual citizen should be included in this definition of roles and responsibilities within the economy.

This policy brief has identified three action areas for defining roles, responsibilities, and relationships of various administrative levels within the economy:

1. Review and refine economy-level wildfire risk reduction frameworks to ensure that the roles, responsibilities, and relationships between economy-level, lower administrative

units (state, provincial, local), private sector, and non-governmental organizations is clearly stated.

2. Establish and empower multi-sector working groups of public, private, and non-governmental partners to exchange information, challenges, and recommendations for the prevention of wildfires.

3. Emphasize the role of the individual in the prevention of wildfires in policy frameworks, including clarifying any support the economy may be able to provide to individuals (such as grants or technical assistance) to enable them to better mitigate hazards.

Emerging and Retrospective Challenges

The challenge of clearly defining roles and responsibilities for wildfire and disaster risk reduction is a common challenge seen in many economies worldwide, not just in the APEC region. Economy-level authorities must rely upon the state and local-level administrative units for the completion of risk assessments and risk reduction projects; however, these state and local administrative units frequently lack the technical or financial resources to succeed in these projects. As a result, local administrative units can become overly reliant upon the economy-level authorities. Conversely, when the relationship and responsibilities have not been clearly defined between the economy and lower administrative units. In this instance, state and local administrative units' initiative activities that are not well coordinated with economy-level priorities and are frequently not sustainable over time.

Adding to this challenge is the need to define the roles and responsibilities of the private sector, non-governmental organizations, and the individual property owner. The private sector may have responsibilities for maintaining critical infrastructure, such as power transmission lines, that pass through high-risk forest areas. Additionally, commercial lumber or agricultural concerns have a responsibility for reducing physical, operational, and behavioral risks within their corporations and lands. Non-governmental organizations, including international non-profit groups or community volunteer organizations, are frequently relied upon for capacity building and risk reduction projects, particularly in developing economies. Finally, the individual property owner, especially homeowners and small farm owners, must understand their roles and responsibilities for implementing protective measures, such as defensible spaces or structural mitigation measures, on their private property. Protection of these areas can significantly reduce the overall risk for a community and by extension, for the economy.

With so many administrative units, organizations, and individuals sharing responsibility for wildfire risk reduction, it is critical for success that the economy ensures plans and policies reflect these entities. Finally, it is not good enough to simply state these roles, responsibilities, and relationships in the policies, these entities must be educated on their expectations and a coordinated effort set forth throughout the economy.

Recommendations and Prospective Agenda

Ensuring that these parties have a clear understanding of their responsibilities in risk reduction requires first confirming that such roles, responsibilities, and relationships are clearly defined within economy policies. Consultative reviews of economy policies, focus area workshops, and simulation exercises are an effective way for economies to achieve this. Such actions should be taken at each administrative level of government as differing entities may be involved at each level.

Many economies have had success with the development of standing multi-sector working groups to promote information sharing, technical knowledge, and resources for wildfire risk reduction. Australia, for example, has implemented the National Bushfire Information Capability. This working group unites ministries and departments from the economy and sub-economy levels, private sector, academic and scientific institutions, and other non-government organizations. The structure allows for the exchange of best practices, lessons learned, critical data sets for geospatial information systems and risk mapping, and the increase in collective prevention and preparedness for the economy.

Finally, by emphasizing the responsibilities of individuals to plan and implement mitigating actions for themselves, their families, and properties the wildfire threat can be greatly reduced thereby limiting overall risk. For individuals, if the rationale for their involvement in risk reduction is properly delineated and they are provided with guidance and cost-effective strategies to implement, compliance will increase. The economy should also evaluate what resources can be made available, such as financial grants or other technical assistance, to facilitate property owners in high-risk areas to implement preventative measures to encourage support. By encouraging all levels of economy, government, commercial interests, and individuals to collaborate and team as part of a cohesive effort it is less likely that individuals and property owners become complacent or reliant solely upon economy resources to resolve all risks..

PRIORITY 2: DEVELOPING MORE ACCURATE RISK ASSESSMENTS FOR WILDFIRES

Assessing and defining the risk of wildfires is one of the most important steps in preventing them. No two economies have the same wildfire risk; similarly, no two communities within an economy have the same wildfire risk. Identifying high-risk areas can help to better direct limited technical and financial resources to areas when they may have the most benefit. Additionally, risk assessments allow for better emergency planning, including evacuation planning, mapping of critical infrastructures that could be threatened, and identifying concentrations of vulnerable population groups. To properly assess risk, economy-level policies must include the local communities. This policy brief has identified the following four action areas:

1. Increase the capacity of the local communities to conduct risk assessments.
2. Define requirements for repeating risk assessments in economy-level policies and legislation.
3. Incorporate available technology from economy-level ministries and departments, private sector, academic and scientific communities, and other non-governmental organizations into risk assessment.

4. Incorporate gender and historically vulnerable populations into community-level risk assessments.

Emerging and Retrospective Challenges

According to a survey conducted in October 2022 as part of the EPWG 05 2021 A project entitled "Cycle of workshops to strengthen fire prevention capacities in the wildland-urban interface", risk assessments are most frequently performed at the economy-level within the APEC region. There is inconsistency among economies regarding performing these assessments at the state or community-levels. It is important that these be performed within the communities as well as there are numerous variables that change risk at the local level. Such variables include differences in forest type, soil, interface characteristics, critical infrastructures, population characteristics (i.e., average age, socioeconomic status, concentrations of disabled persons relative to interface zones, etc.), and even micro weather patterns. Local experts often know their communities better than economy-level experts; therefore, they should have a prominent role in the assessment of risk.

Another finding of the survey was that there is inconsistency among economies in regard to how often these assessments are performed. Some economies reported routinely repeating assessments, while others reported only performing them once.

The incorporation of new and emerging technologies can be an opportunity and a challenge for economies. Opportunity lies within the advancements of modeling, satellite imagery, mapping, and other tools that can greatly enhance the decision-making process at each level of government. The challenge is often that these tools may not be readily available to some communities for risk reduction activities.

Finally, risk assessments in the APEC region frequently do not incorporate concepts such as gender and historically vulnerable communities, such as those with disabilities, children, the elderly, those who identify within the LGBTQIA+ community, homeless, indigenous groups, or those of lower socioeconomic status. Such groups have been shown to suffer more disproportionately than the rest of the community during disasters. Frequently, policies are developed that, while well-meaning, can present further challenges for these groups. Some examples may be, evacuation plans for wildfire may not take into account the reliance upon mass transportation in some of these vulnerable populations, or early warning systems may not be accessible to everyone.

Recommendations and Prospective Agenda

A key recommendation for economies is to increase the capacity of the state and local-level authorities to perform risk assessments. Economy-level authorities frequently have the technical knowledge to perform these, so that knowledge should be imparted to community-level personnel to increase the effectiveness of risk assessment for the economy as a whole. Capacity can be built by implementing or expanding existing training programs to increase the number of people available to perform these, as well as developing standardized methodologies and templates for use across the economy to ensure consistency.

Risk assessments need to be repeated at routine intervals to ensure they are current. Economies should establish a standard for how often these assessments should be routinely performed. For example, an economy may choose to have these assessments performed every three years. Additional provisions should be incorporated for repeating assessments after significant disasters. For example, the impacts of catastrophic flooding on a community may change its risk profile for wildfires depending on the damage incurred to vegetation in the area. Some economies have had success encouraging the completion of these routine assessments by linking the completion of the assessment to grants or financial aid. The United States of America has made the completion of an annual hazard and risk assessment a requirement for receiving federal funding for emergency management and homeland security grants.

Incorporation of emerging technologies can have profound implications for risk reduction. Many economies in APEC, such as Chile and Japan, are currently incorporating or working towards incorporating artificial intelligence and machine learning to better model fire behavior and evaluate risk. Other economies, including China and the United States of America, are integrating unmanned aerial vehicles to monitor and identify fires or to assist with prescribed burning for fuel management in hard-to-reach areas of forest. Satellite imagery and other data sets are improving risk mapping for hazards, allowing planners to better identify critical infrastructures threatened or estimate populations that could be impacted. A final example is a system of artificial intelligence in the United States of America that rapidly analyzes satellite imagery at near real time to recognize hot spots or other indicators of wildfire, then immediately alerts fire managers thereby enhancing early warning. As previously mentioned, however, such technologies are not always available at the community-level. Or, if these are available, the community-level planners frequently lack the knowledge to interpret the data. Therefore, economy-level policies should be developed to promote the use of technology as well as incorporate those private sector, academic or scientific bodies, or non-governmental organizations that develop or employ these technologies into community-level planning. Multi-sector working groups, as described in Priority 1, are a good practice for achieving this.

Mainstreaming gender and historically vulnerable populations into risk reduction policies begins with understanding the issue. Though the concept has been around for quite some time, it is still not well understood throughout disaster and wildfire management institutions. Many organizations, including the United Nations Development Programme, have developed resources for educating risk reduction and emergency management personnel on the concept of gender responsive risk planning[1]. Such resources can be used to begin educating risk reduction planners, emergency managers, and emergency responders. Consultative working groups should be developed with representatives and advocacy groups for these segments of the population so that the economy and subeconomy administrative units and planners can gain a better understanding of the unique challenges faced by these communities during a wildfire. Policies should also stress the importance of disaggregating information, such as community populations and wildfire

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[1] UNDP, *Training of Trainers Manual on Gender Mainstreaming of Disaster Risk Management*. Government of India & UNDP (June 2008) https://www.undp.org/india/publications/training-trainers-manual-gender-mainstreaming-disaster-risk-management

impacts, by useful categories (i.e., gender and age). Such disaggregation can help to better define the disproportionate impacts suffered by specific groups.

PRIORITY 3. ENHANCE EARLY WARNING SYSTEMS IN HIGH-RISK AREAS

All economies are striving to implement the most effective and comprehensive early warning systems, and this should continue to be a policy priority. Early warning systems will be greatly enhanced by the following four action areas:

1. Utilize risk assessments to prioritize highest risk areas for coverage of early warning systems.
2. Review how social media and other forms of information exchange are most effectively utilized within the economy.
3. Incorporate technological advances into the early warning systems.
4. Educate the public on the early warning systems and expectations during an alert.

Emerging and Retrospective Challenges

Early warning systems are an integral part of a risk reduction program. The public must be provided with warning, information, and directions on what to do as early as possible during a wildfire. Clear, accurate, consistent, and easy to access directions will greatly reduce confusion and increase overall safety of the public.

Implementation of a comprehensive, multi-faceted warning system can be a financial challenge for any economy, but particularly the developing economies with more limitations on available funding for such projects. It is therefore critical that planners utilize the aforementioned risk assessments to identify and prioritize those areas of highest risk to focus efforts.

As technology increases, so do the options and impediments for early warning systems. Previously, traditional television or radio could be relied upon to reach a wide population. However, streaming television and radio services, satellite radio, and accessibility of music, podcasts, and audiobooks on personal phones has pulled many viewers and listeners away from these traditional forms of media used for early warning. Social media presents additional benefits and challenges in the field of early warning and public information. Multiple platforms of social media tend to attract differing audiences, and the unique characteristics of each platform change the way in which messages should be crafted to be most effective. Additionally, the freedom of expression enjoyed by those on these platforms can contribute to the spread of incorrect or intentionally misleading information, as demonstrated during the global experience of the COVID-19 pandemic.

Early warning systems are only as good, however, as the capacity of the public to receive and understand these warnings. The members of the community must understand how they will be notified of an emergency, what that notification means, and what is expected of them once the notification has been received. In the 2022 survey, few responding economies reported that they have conducted early warning system education and drills with the public.

Recommendations and Prospective Agenda

The community-level risk assessments discussed in Priority 2 need to be performed in order to properly identify those areas of highest risk. This will enable decision-makers to use sound evidence to prioritize what systems to use and where they should be placed for maximum benefit.

Identifying the most effective approaches to early warning should include focus groups with various segments of the population to better understand the differences in how information is received and consumed. For example, elderly populations may not use social media at all, while younger groups are likely to use social media exclusively for information. Focus groups may also identify regional or generational preferences for social media platforms. How messages are crafted will also change based on social media platforms and users, with some users responding better to infographics while others may require more detailed information. Economy-level ministries or departments responsible for early warning should explore the services of a social media consultant, or even younger interns to develop effective social media strategies for warning.

Early warning systems work best when they can leverage a multifaceted approach. Reliance upon one form of warning will not provide successful results. Technological advances should be incorporated to maximum benefit. For example, in Korea, developers designed a smart phone app that can be used by emergency officials for warning, but also allows the public to report fires and post pictures for earlier recognition. In the United States of America, the Integrated Public Alert Warning System allows economy-level and state-level emergency response agencies to isolate the cellular towers in a specific geographic area, or geo-fence, and send relevant messages to all cell phones in that specific area. This can help to overcome the challenge presented by the general public using streaming services or other forms of entertainment that cannot be reached by traditional TV and radio news alerts.

Having the systems in place is not a guarantee that the public will understand what is expected of them in an emergency. Community-based education must accompany the installation of early warning systems so that individuals understand how they will be notified in an emergency, what the alerts mean, and what they should do if they receive an alert. Economy-level policies and outreach campaigns can greatly assist in this education. Additionally, drills or simulation exercises are needed to evaluate the operational status of early warning equipment and to assess the public's understanding of the systems. Economy-level policies should establish requirements for the types of drills or exercises and the frequency with which they should be performed.

PRIORITY 4: INCREASE AND SUSTAIN COMMUNITY OUTREACH AND EDUCATION PROGRAMS

Priority 1 referenced the responsibilities of the individual citizen must be considered in policies and citizens should be provided with the resources and knowledge to perform these duties. Individuals are more likely to be compliant with requirements if they have an understanding of mitigation benefits, accept they are part of a unified effort and given the proper tools to ensure compliance. Finally, a prepared public is a more resilient public. To increase the effectiveness of community outreach and sustain the initiatives already in place, this policy brief recommends the following seven steps:

1. Align community outreach initiatives with risk assessments.
2. Develop partnerships with non-governmental organizations with interests in forestry, fire prevention, or disaster risk reduction.
3. Provide standard and consistent educational materials and public messaging across communities in the economy.
4. Identify community influencers to strengthen messaging.
5. Incorporate indigenous knowledge into community preparedness programs.
6. Leverage volunteer networks, including Community Emergency Response Teams, to deliver and sustain community outreach programs.
7. Include education of young children in risk reduction through school programs.

Emerging and Retrospective Challenges

Individuals within the community can often feel overwhelmed by the amount of disaster preparedness information provided to them by officials. Frequently, generalized preparedness programs can provide a lot of information that is not relevant to a particular community in an attempt to try to cover all aspects of disaster preparedness. Risk assessments provide a valuable tool for public understanding of awareness to threats and allows focus that is most relevant to specific audiences. .

Economies may not have the financial means or number of experts to adequately sustain community outreach in all the high-risk areas. Sustainability will become a challenge if the economy or the community do not have the resources or funding to continue these programs.

Finally, the messaging itself may be developed and delivered in ways that do not "reach" the public, using formats, terminologies, or approaches that simply do not connect with the audiences and impress upon them the need for community involvement. Without a clear understanding of why and how to take action, the public will be less likely to positively respond to the outreach efforts.

Recommendations and Prospective Agenda

Utilizing the results of risk assessments can help to better inform the public of the wildfire threat the community faces. This can also allow economy and community outreach staff to prioritize those areas in greatest need when allocating resources and funding. Policy should emphasize the need to implement and sustain public wildfire education and outreach programs in high-risk areas.

Non-governmental organizations, including the United Nations Office of Disaster Risk Reduction, United Nations Development Programme, International Tropical Timber Organization, and the International Federation of Red Cross and Red Crescent have been used in the past in many of the APEC economy to support community-based risk reduction and capacity building programs. Non-governmental organizations are important sources of technical expertise, funding, advocacy experts, and funding that should be explored at both the economy and community levels. Economies such as China, the United States of America, and Japan, frequently invest in

development programs, including wildfire risk reduction. Smaller community actions and conservation groups are equally important to form partnerships with to sustain wildfire prevention efforts.

Educational materials and guidance should be standardized within the economy to ensure consistency across the communities. Two important areas to standardize are the recommendations for property owners and critical infrastructure operators for creating defensible space around buildings and the building materials used for new construction.

Community influencers are important partners to identify. Traditional leaders within the community, such as religious or community leaders, can be helpful in gaining the trust of their followers. Similarly, celebrities and other social media influencers can be as effective, if not more effective in reaching wider audiences to spread the message of prevention and preparedness.

Indigenous knowledge should be incorporated whenever possible into community education. Many indigenous communities have been managing the risk of wildfire and often using burning of vegetation in cultural ceremonies for centuries with great success without the benefit of modern technology and practices. Therefore, it is highly recommended that such knowledge be explored and incorporated into the more modern approaches. This can lead to better inclusion of indigenous groups while also strengthening individual education programs.

Volunteer groups within a community, particularly those focused on forest conservation or disaster response, can be leveraged to sustain community outreach. Many economies in the APEC region have community-based disaster or civil protection volunteers, such as the Community Emergency Response Team model. During times in which no disasters are taking place, these highly motivated volunteers could be used to lead preparedness and prevention education programs for their fellow citizens.

Finally, it is widely believed that preparedness education focused on school-aged children has major benefits for the community. Educating children through engaging classes, videos, orcartoons can not only increase their knowledge, but also encourage them to bring the message home to their families.

PRIORITY 5. CONSIDERATIONS FOR LAND USE PLANNING AND OTHER REGULATORY FRAMEWORKS

The final priority is for policies in this brief is concerned with implementing regulations at the economy and community-levels for land use and other areas that will improve wildfire prevention. Land use planning reflects ordinances, decrees, and other restrictions on development in high-risk areas. This priority will also address additional regulations to consider, such as restriction of agricultural burning during times of peak fire conditions. The following action items have been identified for this policy brief:

1. Ensure that land use planning experts are consulted in the development of preventative guidelines.
2. Implement provisions for enforcement of land use and other restrictions.

3. Address the development of unregulated settlements in high-risk areas.
4. Provide guidance for land change planning.
5. Develop guidelines for post-fire development.
6. Restrict agricultural or commercial burning during peak fire conditions.

Emerging and Retrospective Challenges

A common challenge historically faced around the world is inadequate enforcement of land use regulations. Authorities at all administrative levels of the economy frequently lack the staff, funding, or legal power to monitor compliance and administer some form of consequence. As a result, there is often continued development in areas that repetitively see wildfires, development of unregulated camps or settlements in high-risk areas, and continuation of destructive practices, such as unrestricted use of agricultural burning or other land clearance practices that increase fire risk.

Unregulated camps or settlements are on the increase in many of the economies, such as Chile and the United States of America. Usually, these are populated by people who are homeless or impoverished. Settlements are most often built of tents or hastily fabricated shelters of flammable wood. Such settlements are being seen on the fringes of developed land, frequently within the wildland-urban interface area. Overcrowding impedes access by emergency vehicles, and lack of regulation greatly increases the wildfire risk.

With the current trends in climate change, it is anticipated that wildfire seasons will become longer than previously experienced. Conditions will be drier and warmer, further contributing to wildfire risks. It will therefore be important to tailor policies and regulations to address high-risk human activities, such as agricultural or commercial burning, during times of the year when conditions are conducive to wildfires. Longer seasons could mean that farmers and others using controlled burns will have less time throughout the year to employ these methods for land clearance or preparing for growing seasons.

Recommendations and Prospective Agenda

Development of any land use regulations should include consultation with land use planning experts. Such experts could be found in the economy-level forest management or disaster management authorities or found in academic or non-governmental organizations. Inclusion of such experts will ensure that policies, legislation, and other regulations are relevant, achievable, and effective. Legislative frameworks can provide the legal backing required for enforcing land use planning. Economy-level policies and legislation should be developed that specify provisions for non-compliance with land use and other wildfire prevention regulations. Capacity-building efforts should also be implemented by economy-level authorities to increase the capability of state and community-level entities to monitor and enforce these prevention regulations.

Addressing unregulated settlements and camps will be a complex endeavor for economies that will require a multi-sector approach to solving. Many such actions necessary to resolve the issue are

well beyond the scope of this policy brief. However, the risk posed by these camps cannot be understated. Efforts should be made to implement policies to restrict the development of these, or potential relocation of settlements and occupants to areas of lower risk. Community outreach may also prove helpful, utilizing advocacy groups to assist in educating occupants about preventative actions they might take to reduce the fire risk.

Land use regulations should also address land change actions. Actions taken by farmers or industry regarding forests and undeveloped land can have profound consequences on the risk of wildfire. Such actions, including the deforestation of areas to build new construction, unregulated growth of large timber plantations, or the burning of agricultural waste from a harvest to ready the land for the next growing season, can alter the soil, damage critical vegetation, and drastically increase risk of wildfire.

Land use planning policies should address the development in areas after a fire has occurred. Changes to soil and landscape following a fire may render the area unsuitable for new development for some time, as well as make the area more prone to other disasters, such as flooding or mudslides.

As previously mentioned, the use of controlled burning to reduce harvest debris or clear land for construction should be tightly regulated. Policies should include guidelines for issuing permits or timeframes in which such activities are permissible. These policies must also include provisions for complete banning of such activity during periods where the weather conditions are prime for promoting wildfires. Human action is the leading cause of wildfires in several of the APEC economies, and therefore must be addressed with economy-level policies.

CONCLUSIONS

Creating economies that are resilient to wildfires requires a coordinated effort at every level of government, as well as involvement of the private sector, non-governmental organizations, and the individual citizen. In order to achieve this resilience, wildfire prevention initiatives require the proper policy support, technical expertise, technological resources, and funding. Such initiatives must be informed by proper risk assessments, integrated at the community-level, supported by subject matter expertise, sensitive to gender and other forms of historical vulnerabilities, and sustainable over time.

This policy brief highlights the need to develop information sharing networks with public and private sector partners, academic and scientific institutions, and other non-governmental organizations. Major technological advancements, such as the use of artificial intelligence, are creating new and exciting opportunities for risk assessment and mapping, promising to create more risk-informed and data-driven policies and mitigation efforts. This technology is not widely available at the present time to those who would benefit most from access to it. Therefore, these information sharing networks will be crucial in linking community and economy-level planners with the developers and operators of these technologies.

Community outreach and engagement remains one of the most successful approaches to risk reduction when implemented with consistency and sustainably designed. This is excellent

opportunity for partnership with non-governmental organizations, including smaller community action groups. Non-governmental organizations have extensive experience in capacity-building, developing, and sustaining outreach, recruiting and retaining volunteers, and frequently have access to resources, expertise, and funding that communities do not.