

ICAR Avalanche Commission
Issues And Suggested “Best Practices” For Avalanche Safety Programs

Preamble: Avalanches threaten human life, and survival times for persons buried in avalanches are short. Minimizing loss of life from avalanches requires a combination of rescue and prevention programs that are tailored to the unique legal, cultural and environmental circumstances of each country. Within any country it is unlikely that a single organization can provide all of the programs required for optimal avalanche safety. There are important and complimentary roles for government, non-government, private sector and volunteer organizations. To achieve our humanitarian goal of minimizing loss of life from avalanches our collective responsibility is to create a network of organizations within our respective countries that work together to deliver comprehensive, effective avalanche safety programs.

Intent: A working group from the International Commission for Alpine Rescue (ICAR) Avalanche Commission developed a survey to collect evidence of current issues and practices for avalanche safety in ICAR member countries. The goal for the survey is to share observations and experiences, learn from each other, and use these survey results to identify ways to improve the avalanche safety programs within our respective countries.

Methods: In the fall of 2006 the working group developed a series of questions that were posted to an internet survey site. National representatives to the ICAR Avalanche Commission were invited to respond to the questions. Initial results were shown at the Avalanche Commission meetings at Pontresina, Switzerland in 2007. Following this meeting survey respondents were requested to review their information and revise it for accuracy and clarity. These revised results were then collated so that all respondents could see their information in the context of all other replies to each question. In the spring of 2008 the collated survey results were sent once again to all respondents, inviting them to make any final changes necessary. The finalized results from the spring 2008 reviews comprise the “evidence” used to prepare this report.

Limitations: The evidence collected is empirical, provided voluntarily by knowledgeable respondents from ICAR member countries. Bias, knowledge gaps and factual errors likely exist. Despite these constraints, the working group believes these results help to broadly identify current international issues and “best practices” for avalanche safety programs.

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SUMMARY OF SURVEY RESULTS

This summary of survey results was compiled empirically using recurrence of responses (both numerical and thematic) as the primary criteria. See the accompanying document *ICAR Avalanche Commission – Best Prevention Practices Survey Results* for the detailed responses.

Common Issues and Context – Avalanche Safety Programs for Backcountry Recreation

- A. Estimated % change, exposure to avalanche risk in the past 20 years**
- >50% increase in ski touring, off-piste skiing, snowmobile riding activities
 - <20% increase in resort (on-piste) skiing, alpinism
 - Steady or decreasing exposure to avalanche risk on roads and in buildings
- B. Where avalanche forecasts are available, approximately 50% of winter backcountry users check the avalanche forecast before their trip.**
- C. Estimated % of people carrying safety equipment (transceiver-probe-shovel, floatation devices)**
- 51-75% of backcountry skiers
 - 16-30% of off-piste/free-ride/out of bounds skiers
 - 0-15% of snowmobile riders (in countries where this recreation is permitted)
 - Resort skiers, users of roads and buildings do not use avalanche safety equipment
- D. Estimated % of avalanche fatalities involving foreign tourists**
- 0 - 10% Croatia, Norway, Romania, USA
 - 11-20% Germany, Iceland, Italy, Switzerland
 - 21-30% France, Canada
 - 41-50% Austria
- E. What is the greatest avalanche safety-accident prevention challenge for backcountry users in your country?**
- Unaware, untrained, unequipped off-piste and backcountry users.
- F. What is the greatest avalanche safety-accident prevention success for backcountry users in your country?**
- Steady or decreasing avalanche fatality rates among backcountry users, due to:
 - avalanche forecasts & warnings;
 - avalanche awareness training, workshops;
 - mountain culture and safety traditions.

DRAFT Suggested ICAR Best Practices – Avalanche Safety Programs

1. Public Avalanche Forecast Programs

A credible professional organization issues scheduled public avalanche forecasts for popular winter mountain recreation areas of the country:

- Avalanche forecasts are usually produced by government agencies, or NGOs with some government funding.
- National and/or regional avalanche forecast centres are the norm. Ski resorts can provide useful local information.
- Avalanche forecasts are updated daily.
- Avalanche forecast regions are often <500 sq. km. and usually <5000 sq. km.
- Forecast centres use "push" (fax, email, radio, TV, newspapers, trailhead postings, MMS) and "pull" (phone, website) methods to communicate avalanche information
- The avalanche forecast season runs from late fall into late spring

2. Avalanche Training for Amateur Recreation

Avalanche training courses for non-professional backcountry users are readily available.

- There are courses of varying lengths and levels for different target audiences
- Awareness programs or courses specifically targeting tourists and youth are increasing
- Courses have well designed curriculum, standardizing content is a goal
- A process exists for certifying the instructors that teach these courses
- Courses are perceived as "useful" and attract high numbers of participants annually

3. Avalanche Safety Programs for Public Facilities

Comprehensive programs exist to protect villages, transportation corridors, ski resorts and other highly used "public" places from avalanches

- Avalanche hazard assessments and zoning are required by law
- Avalanche control measures are delivered by government agencies and/or private sector contractors and companies
- Protection from avalanches is achieved by a combination of engineered structures (fences, galleries, etc) and active avalanche control measures (explosives, closures, etc)
- In many alpine countries in Europe there is a legal requirement for avalanche disaster and evacuation plans to be in place. This legal requirement is less common in other jurisdictions.

Common Successes

- Europe - hazard zoning and engineered avalanche protection measures
- N. America - use of artillery, explosives to control avalanches along transportation routes and inside ski resorts

Common Challenges

- Europe – expense of building and maintaining engineered protective structures; some public facilities remain unprotected
- N. America - no standard legal requirements for avalanche hazard assessment / zoning across jurisdictions; continued access to explosives and military artillery

4. Safety Programs For Avalanche Workers

Workers responsible for avalanche related decisions affecting the safety of others (avalanche professionals) require specialized training / credentials / certifications.

- Competency benchmarks exist for persons with high levels of decision responsibility, or persons in “high risk” occupations
- There is a hierarchy of training courses from basic to advanced, with different courses for specific work (mtn. guides, highway workers, rescuers, etc)
- Recurrent training and continuing professional development are mandatory
- Regulations exist to enhance worker safety; workers voluntarily adhere with “best practices”

Common Successes

- Effective programs for worker training;
- Successful delivery of avalanche protection services for the public

Common Challenges

- Motivating a safety culture among workers
- Standardization of training programs, curriculum
- Information and knowledge exchange
- Risk management, risk communication
- Wide range of competency of people managing or exposed to avalanche danger in their workplaces
- High fatality rates among avalanche workers???

5. Organized Avalanche Rescue

Organized avalanche rescue services exist for all avalanche prone areas of the country

- Rescue team members receive comprehensive initial and recurrent training
- Avalanche rescue teams are equipped with modern avalanche SAR technologies
- Avalanche rescue dog training and certification programs exist; search dogs are fully integrated into avalanche rescue teams
- Avalanche rescue teams are fully integrated with helicopter services
- The average time from alert to dispatch of a rescue team for avalanche response is <20 minutes

Common Successes

- Avalanche rescue operations with live recoveries
- Effectiveness of SAR teams; coordination, integration, cooperation
- Transceiver proficiency classes for backcountry users

Common Challenges

- Developing, maintaining technical capacity and motivation in SAR teams, especially volunteers
- Interoperability within and between organizations

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SURVEY RESPONDENTS BY COUNTRY

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Reference document:

ICAR Avalanche Commission - Best Prevention Practices Survey Results – FINAL (25 pages)

Internet Hyperlink: <http://www.avalancheinfo.net/MemberPublic/ICAR%20Avalanche%20Commission-Best%20Prevention%20Practices%20Survey%20Results-Final.pdf>