Essentials To Efficient and Effective Search and Rescue Missions. Recommendations from Lessons Learned

Richard Smith

PUBLIC INQUIRY RESPECTING GROUND SEARCH AND **RESCUE FOR LOST AND MISSING PERSONS NEWFOUNDLAND AND LABRADOR** 2021

Bio Richard Smith

- 5 years Active Service Canadian Intelligence Corp, Army Reserves. 1970 – 1975
- Royal Canadian Mounted Police 1975–1999
 Search and Rescue Co-ord.
- Clearwater County Public Safety 1999–2006
- US Department of Homeland Security, Southeast Florida Domestic Security Task Force, Miami Urban Area Initiative 2006– 2011
- Alberta Justice and Solicitor General, Security Operations Branch 2012 - 2018

SAR Bio Richard Smith

- 1977 1999 RCMP SAR Missions, Div. D, O, G, K.
- 1986 present SAR Volunteer. Rocky Mountain House SAR, Mountain View SAR.
- 1992 present ERI International, SARI Canada.
- 1999 2006 Emergency Management, Public Safety Manager, Clearwater County Alberta.
- 2006 2011 Emergency Management US Florida.
- 2012 Present Search and Rescue Alberta,

SAR Volunteer

2018-present: ongoing work with the CSA Group, SARVAC and Public Safety Canada to research and develop core competency and accreditation standards for Canada in search and rescue. Anticipated completion of study by 2022.

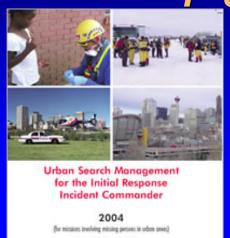
2009-present: Sundre SAR member: trainer, team leader, and manager

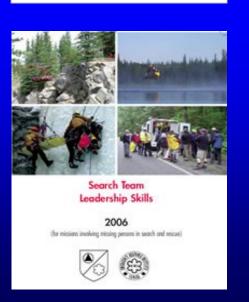
2009-present: Didsbury SAR member: trainer, team leader, and manager

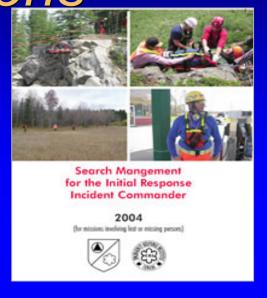
1992-present: presenter and lecturer at National (SARSCENE) and International Search and Rescue Conferences, including:

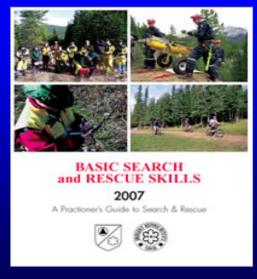
- SARSCENE;
- Washington State SAR Conference;
- England Mountain Rescue Association;
- Irish Mountain Rescue Association;
- Iceland International Conference; and
- Syrotuck Science symposium for research and development of papers to the advancement of search and rescue

Search and Rescue **Publications**









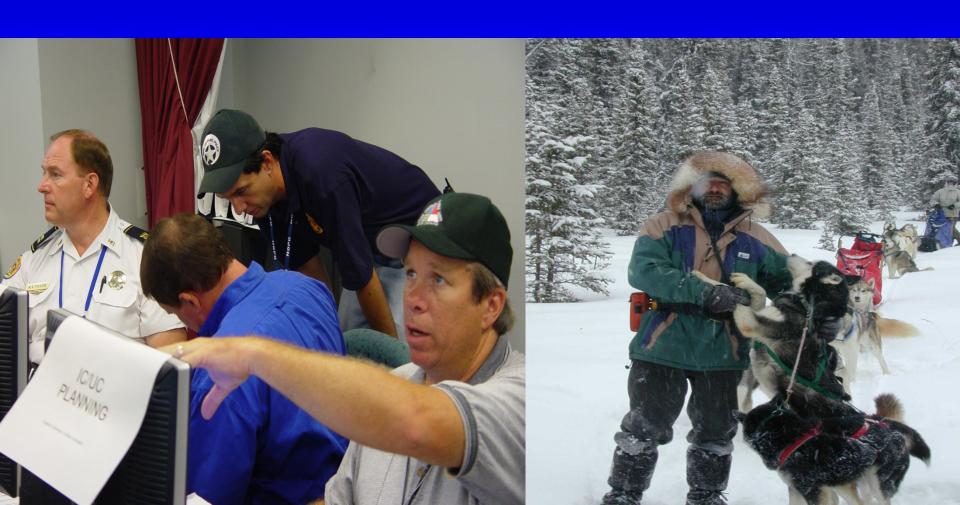
Education Training and Knowledge Proficient, Competent and Creditable



Command and Control Management Leadership Decision Making



T.E.A.M. Together Emergencies Are Managed



Law of the Land

- Due Diligence
- Responsibility
- Accountability
- Canada Labour Code
- Provincial Labour Codes
- Occupational Health and Safety
- Incident Command System



After Action Reports Corrective Action Reports

- Hurricane Katrina
- BP Gulf Oil Spill Enbridge, Michigan
- Andrew Warburton SAR, Nova Scotia, July 1986
- Jessie Rinker SAR, Alberta. May 1986
- Mount St. Helens, WA.
- Public Inquiry, Newfoundland and Labrador

Hurricane Katrina

- David M. Walker
- 125 Lessons Learned
- Lack of Clear and Decisive Leadership
- Exercise Planning, Design and Implementation
- Capacity and the Capability

BP - Enbridge Incidents

- Command and Control
- Training, Incident Command System
- Exercises, Worst Case Scenarios
- Multiple Agency Response
- Multiple Operational Periods
- Multiple Incident Action Plans
- Incident Management Teams

COMMON DISASTER PROBLEMS

William M. (Bill) Lokey
Mount St. Helens

- Communications
- Ambiguity of Authority
- Convergent Volunteers
- Misuse of Special Resources
- Media

SAR Rinker, Warburton, GSAR
Inquiry
May, July 1986, September 2021
SAR Education

- Training and Knowledge
 - Resource Management
 - Command and Control
- Information Flow and Co-ordination
 - Interoperability

Command and Control

A <u>standardized</u> system:

Lends consistency

Fosters efficiency

Provides direction

KEY: Have the Command and Control System in place <u>before</u> a Critical Incident occurs.

INCIDENT COMMAND SYSTEM

"The combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident."

NIIMS ICS PUB 120-1, Operational System Description

ICS is a Command and Control System!

COMMAND and CONTROL

"Command and control is the means by which a commander recognizes what needs to be done and sees to it that appropriate actions are taken."

COMMAND and CONTROL SYSTEM

"The Command and Control System is an arrangement of different elements that interact to produce effective and harmonious actions. The basic elements of a command and control system are people, information, and the command and control support structure."

COMMAND and CONTROL SYSTEM

"The command and control <u>support structure</u> ... includes the organizations, procedures, equipment, facilities, training, education, and doctrine which support command and control. ... The components of the command and control support structure do not exist for their own sake but solely to help people recognize what needs to be done and take the appropriate action."

COMMAND and CONTROL SYSTEM

"Information is the words, letters, numbers, images, and symbols we use to represent things, events, ideas, and values. In one way or another, command and control is essentially about information: getting it, judging its value, processing it into useful form, acting on it, sharing it with others."

EFFECTIVE SEARCH AND RESCUE MANAGEMENT

Requires:

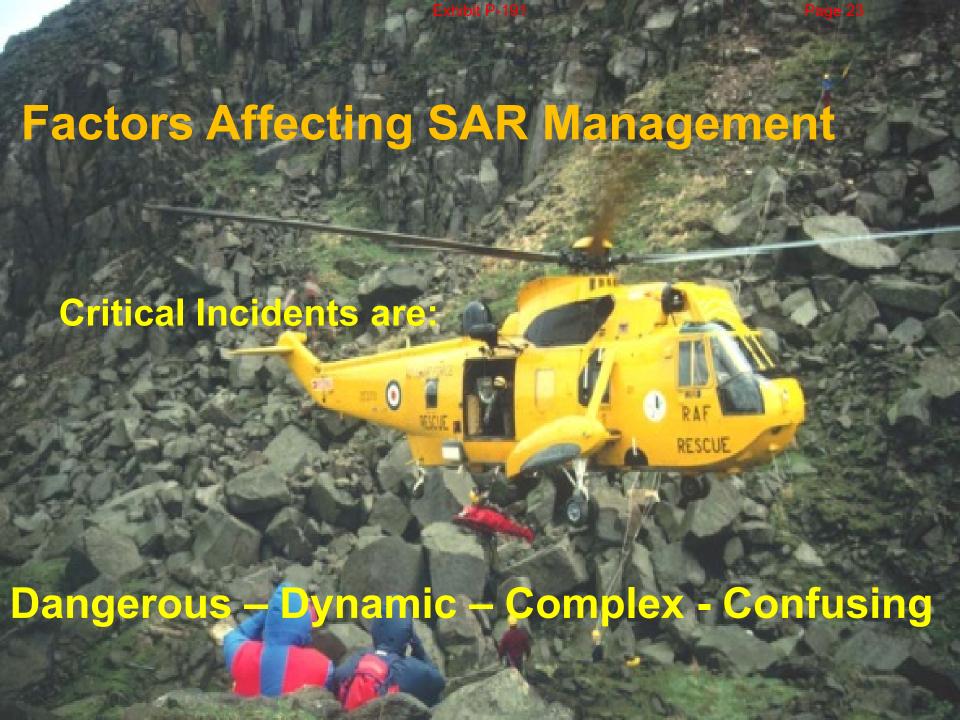
Establishing objectives.

Setting priorities.

Assigning resources.

EFFECTIVE SEARCH AND RESCUE MANAGEMENT

- Requires:
- Maintaining Situational Awareness
- Information Flow and Coordination,
 Documentation
- Decision Making



FACTORS AFFECTING SAR MANAGEMENT

Response to emergencies involves a degree of *danger* or risk including:

Threat to responders

Threat to citizens



FACTORS AFFECTING SAR MANAGEMENT

Emergency situations are dynamic:

- Constant changes may occur
- Information is incomplete and difficult to gather
- Available time is limited

Result: Changes in Operational Modes and Priorities

FACTORS AFFECTING SAR MANAGEMENT

Multifaceted incidents with complex problems:

- Severe weather rescue incidents.
- Mountain rescue.
- Winter search and rescu
- Air and Marine incidents
- Mass casualty incidents.
- Multi Agency responses.
- Natural disasters.



FACTORS AFFECTING SAR MANAGEMENT

Confusion often occurs when:

- Conflicting reports received.
- Unanticipated events occur.
- Adequate information is not gathered/relayed.
- Communication is not established.

FACTORS AFFECTING SAR MANAGEMENT

Basic Incident Priorities:

#1 Life safety.

2 Incident stabilization.

#3 Property conservation.

FACTORS AFFECTING SAR MANAGEMENT

Failure to gain control of a critical incident creates the potential for:

- Injury or loss of life
- Property damage
- Environmental damag
- Impact on agency



"You must control the situation or it will control you."

FACTORS AFFECTING SAR MANAGEMENT

Controlling critical incidents requires:

- Risk Assessment
 - Pre-planning
 - Prior Training





Eleanor Roosevelt

You gain strength, courage, and confidence by every experience in which you really stop to look fear in the face... the danger lies in refusing to face the fear, in not daring to come to grips with it... You must make yourself succeed every time. You must do the thing you think you cannot do.

GSAR Inquiry, Review of NLSARA Teams (Goals and Objectives)

- Develop an appreciation and understanding of the capacity and capability of NLSARA teams throughout Newfoundland and Labrador.
- Interview members of the executive (NLSARA) and SAR team coordinators.
- Review previous SAR missions through mission reports.

GSAR Inquiry, Review of NLSARA Teams (Goals and Objectives)

- Participate in the Public Inquiry Hearing Process and gather information from the testimony of SAR responders at the hearings.
- Understand the role, responsibility and duties of tasking agencies, assisting and cooperating agencies through the hearing process.

GSAR Inquiry, Review of NLSARA Teams (Goals and Objectives)

- Synthesize the information to assist in the SWOT Analysis.
- Develop recommendations from the goals and objectives for presentation at the Policy and Procedures Hearing.

GSAR Inquiry, Review of NLSARA Teams

- Questionaries and interviews with SAR team Coordinators throughout Newfoundland and Labrador.
- Questionaries and interviews with RCMP, RNC SAR Coordinators.
- Attended NLSARA SAR team facilities participated in discussions with team members and executive members.

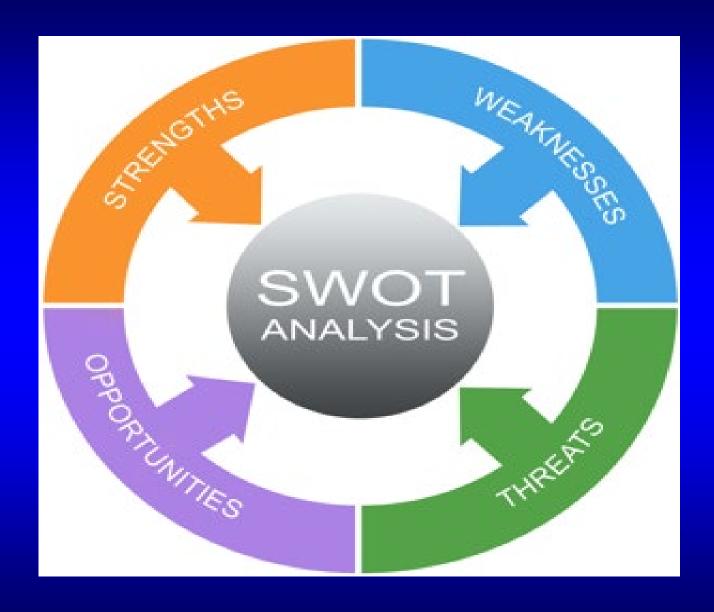
GSAR Inquiry, Review of NLSARA Teams

- Review of documents and exhibits submitted from the government of Newfoundland and Labrador.
- Review of documents submitted by legal counsel.
- Review of documents submitted by the RCMP, RNC, Department of National Defence.
- Attend meetings and discussion with the Inquiries legal counsel.

NLSARA Ground Search and

Rescue Teams

The term volunteer sometimes brings with it a lack of recognition that the phrase SAR Responder, SAR Provider and SAR worker often does not. Search and Rescue teams from Nain to Makkovik, from Corner Brook to the Avalon Peninsula deserve credit were credit is due. Search and rescue members of NLSARA are some of the best trained SAR responders in Canada and have often pushed the limits on physical endurance to risk their lives to save the life of another. This presentation takes that into account and respectfully submits that we can all improve in some way or another by being modern, progressive and proactive in the field of search and rescue. "These Things We do, That



SWOT ANALYSIS

Internal		External	
Strengths	Weaknesses	Opportunities	Threats



Search And Rescue SKILLS

<u>INTERNAL</u>

- Strengths
- Years of training, % of SAR responders greater than 10 yrs.
- Experienced instructors, 15 to 20 years with team.
- Creditable responders, high % respond to missions and maintain skills with outdoor activities.
- Team equipment, high % of teams have group equipment.
- Exercises, teams participate in exercises.
- New technology, use of tactical tracking radios, InReach.
- Members in Training, MIT's

Search And Rescue SKILLS Internal

Weaknesses

- Lack of funding for training and personal equipment.
- SAR member participation, only so many hours in a day.
- Mentorship, difficult on occasions to work together.
- Understanding of skills, refresher training, hands on.
- CISM Stress Injury, access for programs and counseling.
- Position Task Book, Maintaining competency.

Search And Rescue SKILLS

EXTERNAL

- Opportunities
- Training with Mandated Agencies, involve RCMP, RNC, CCG, Parks Canada in all levels of courses.
- Police GSAR Training, RNC, RCMP officers courses.
- Joint field exercises between NLSARA and SAR partners.
- New equipment from GPS to Apps for Smartphones, Stoves.
- New training on new equipment, CASARA, Advanced Medical Wilderness Responder.

Search And Rescue SKILLS

EXTERNAL

- Threats
- No sustainable funding for training or equipment.
- Lack of cross training with SAR sector stakeholders.
- Multiple Agencies and Policies, difficult to follow.
- Field exercises with stakeholders lacking or not enough.
- Recruitment, competing interests, CCG Aux, Canadian Rangers, CASARA and local Fire Services.
- Civil ligation liability potential for emergency

LEADERSHIP

The process of persuasion and example by which an individual influences others to accomplish the objectives of the team by providing purpose, direction, and motivation.

Search And Rescue Leadership INTERNAL

Strengths

- Years of training, SAR leaders have had a number of SAR courses.
- Experienced in SAR, greater number of missions and years on the job.
- Proficient, Creditable and Competent in SAR Skills
- Team orientated, consider the team members first.
- Experience with outside resources, number of years working with outside agencies.
- Use of new technology, InReach, GPS, other satellite systems.

Search And Rescue Leadership INTERNAL

Weaknesses

- Lack of funding to sustain leadership skills.
- Lack of SAR leaders, requirement to make more leaders.
- Mentorship, time management to complete mentoring.
- CISM in team members, lack of adequate programs and counseling.
- Position Task Book, Maintaining competency as a leader for succession planning in search and rescue.

Search And Rescue Leadership EXTERNAL

Opportunities

- Training with SAR teams, train with other teams and who you will be working with in the field.
- Police GSAR Training, participate to increase the understanding of SAR leadership operations.
- Increase joint field exercises between NLSARA teams.
- New leaders required, the job of a leader is to make more leaders, consider diversity.
- New training from outside agencies.
- Develop a mentorship program from SAR responders.

Search And Rescue Leadership EXTERNAL

Threats

- No sustainable funding for training new leaders and maintain a mentorship program.
- Lack of outside training from a wide variety of agencies.
- Multiple Agency recognition, leaders need to be recognized for years of service to outstanding contributions.
- Lack of exercises with SAR sector stakeholders, train in the field with who you will be working with.
- Recruitment, find good people who will step up to lead.

MANAGEMENT

Accomplishing organizational objectives through effective and efficient use of people and resources.



Search And Rescue Management

- Strengths
- Years in SAR, most members have the greatest number of years in SAR.
- Experienced in leadership from SAR worker to SAR leader.
- Proficient, Creditable, Competent with SAR management.
- Team orientated working in a Command Post with an overhead team.
- Has a greater number of missions than most SAR members.
- Technology, use of incident management system, GPS, tactical mapping systems.

Search And Rescue Managament

Weaknesses

- Lack of funding for additional training and refresher courses to maintain competency.
- Number of SAR Managers, require additional SAR managers for incident management teams and additional operational periods.
- Develop mentorship program in the command post and group.
 SAR coordinator acting as SAR manager untrained.
- Better documentation during the initial response phase with an Incident Action Plan and documentation to support decision making and transfer of command.
- Position Task Book to maintain competency.
- Participation After Action Reviews with tasking agencies

Search And Rescue Mexagement

Opportunities

- Training with Mandated Tasking Agencies, tabletop exercises and SAR Management courses.
- Increase Police SAR Management training for police IC and Detachment Commanders.
- SAR management field exercises, scenario based with SAR teams.
- New training for SAR managers, Incident Management Systems, lost person behavior and initial response.

Search And Rescue Management EXTERNAL

Threats

- Some misunderstanding by police of role of NLSARA SAR managers. Advice on mission, approve IAP and resources.
- Lack of cross training with other managers from other regions and agencies.
- Multiple Agencies and Policies
- Higher level of Incident Command System training. I 300
- Recruitment and mentorship identified as difficult due to responsibilities. SAR members want to stay in the field.
- Civil ligation liability that comes with the position for planning and overall conduct of the mission.

Language is the Calculus of Communications

STRATEGIES FOR SAR

ENHANCING THE EFFICIENCY AND EFFECTIVENESS

- Developing a provincial SAR strategic plan and the implementation of this strategic plan across all organizations in the sector.
- Reviewing funding for the sector to identify the most efficient, effective and economic use of public funds in the interest of public safety (SAR).
- Developing service agreements between SAR providers and assisting and cooperating agencies (MOU).

STRATEGIES FOR SAR

ENHANCING THE EFFICIENCY AND EFFECTIVENESS

- Fostering internal and external communications (provincially and national) through the development of a provincial communications strategy (Satellite, repeaters, VHF-UHF).
- Creating a Centre of excellence for the support of all Newfoundland and Labrador SAR (Stakeholders).
- Provincial Emergency Operations Center (EOC) tasking numbers, off site support (Resources)

ACHIEVE A CULTURE OF "ONE SAR BODY"

- Developing a culture that focuses on the best results for the potential survivors.
- Creating meaningful forums for all stakeholders and organizations to produce and address strategic SAR issues (quarterly).
- Reviewing partnerships, relationships between SAR organizations and promoting joint training.

ACHIEVE A CULTURE OF "ONE SAR BODY"

- Promoting the sharing and standardization of resources (Kind and Type).
- Developing a modern, proactive and progressive education stance.
- Developing a provincial public relations, education strategy. (PSAR)

PROMOTE CONTINUOUS IMPROVEMENT

- Developing meaningful performance measures and setting motivational performance targets. (Position Task Book)
- Establishing provincial SAR training benchmarks based on CSA standards (Policy).
- Develop and support independent operational audit teams. (AAR)

PROMOTE CONTINUOUS IMPROVEMENT

- Promoting business excellence throughout all SAR organizations.
- Promoting research and development throughout the SAR sector (POD, LPB, tech).
- Formalize a feedback and debrief system supplemented by information gathered from people who use the SAR service. This system to be based on a positive learning experience for SAR providers (Police, NLSARA).

MAXIMIZE THE POTENTIAL OF SAR PROVIDERS

- Reviewing volunteer issues in the SAR sector and providing key recommendations to the government.
- Review overall training effectiveness throughout the sector. (proficient, competent and creditable)
- Incorporate management and succession planning, recruitment and retention strategies in the strategic plan of all SAR organizations.

MAXIMIZE THE POTENTIAL OF SAR PROVIDERS

- Develop the use of and training in the Incident Management System across the province.
- Develop SAR Incident Management Teams (SARIMT) across the province (Documented, Policy).
- Develop and foster the use of a provincial Field Operating Guide for SAR. (FOGSAR) Primary, secondary and tertiary for initial response.

REFINE AND IMPROVE ALIGNMENTS, LINKAGES IN SAR

- Review cross sector synergies for interoperability (Federal, Provincial, Private Sector).
- Develop common resource information and sharing of information throughout SAR.
 Resource Management.
- Centralize statistic collection and analysis. (LPB, SAR HVA)
- Complete a SAR Hazard Vulnerability Assessment for the province.

The SAR Vulnerability Assessment...

... is a systematic and complete assessment of the locations and type of SAR problems that do, and may occur in a jurisdiction.

This assessment provides the foundation for:

- ✓ Mitigated efforts to prevent the problems
- ✓ Preplanning in training activities
- ✓ Response SOPs and resource allocation
- ✓ Rescue and recovery procedures
- ✓ ID and capabilities of resources

The SAR Vulnerability Assessment...

... involves doing some homework and investigation.

- Look into the history of the area
 - · Media, archives, etc.
- □ Considered geographic factors
 - · Mountains, rivers, terrain, elevation, and rain or snow
- - Seasonal fluctuations, out of county vs. residents, what causes problems
- What are the chances (probabilities) in any given week
 - Can we predict activity by location and frequency?
- Availability of SAR resources?
 - · Where do we have to go to get the resources to do the job?

Benefits of a Good Assessment Include...

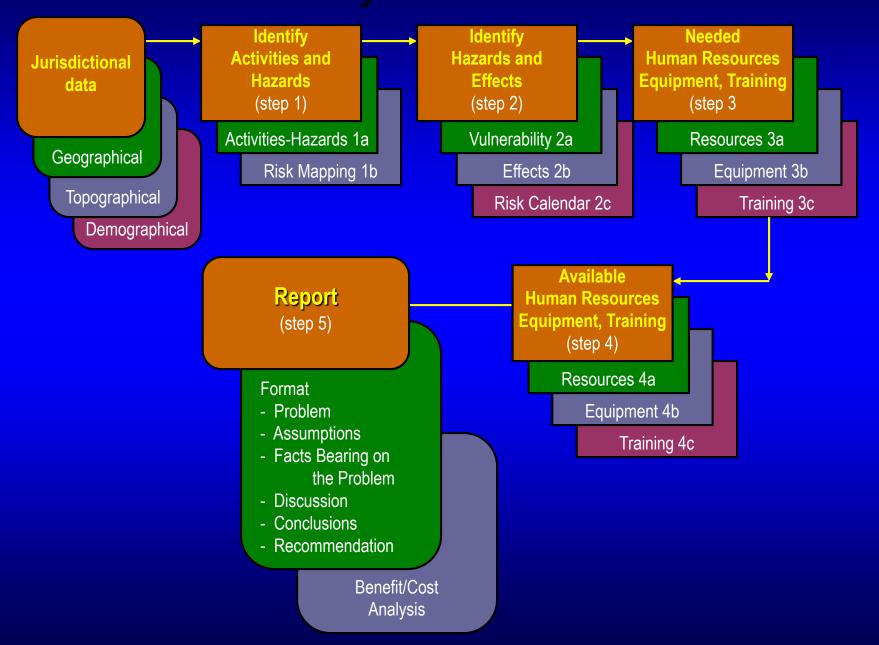
- Sets priorities and goals commensurate with the need
- □ ID resource needs for both rescue and search
- Direction for PSAR and mitigative program
- Raises awareness in local officials
- Justifies management decisions
- Identifies potential trends
- Realistic preplanning, the SAR Plan.

The SAR Vulnerability Assessment Report Should Follow This

Format:

- 1. Justification and problem
- 2. Assumptions
- 3. Facts bearing on the problem
- 4. Discussion
- 5. Conclusions
- 6. Recommendations

SAR Vulnerability Assessment Flowchart



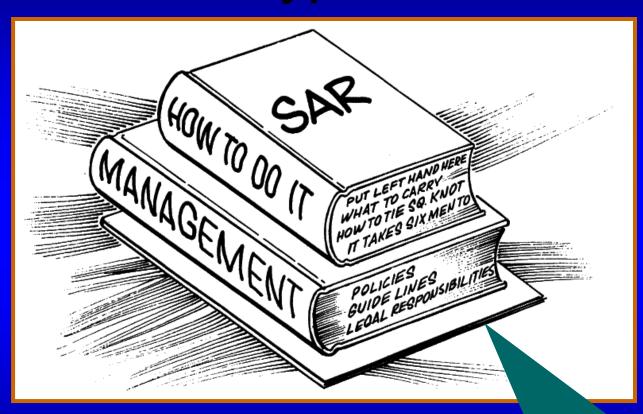
REFINE AND IMPROVE ALIGNMENTS, LINKAGES IN SAR

- Develop a common SAR operational manual, SAR Plan, Pre-Plan.
- Develop legislation, regulation and policy for SAR and in particular legislation relating to health and safety of SAR volunteers.
- Provide CISM for the SAR sector.
- Legislation for the use of the Incident Command System (ICS) to foster interoperability in the SAR sector.

The Operational SAR-plan

The process of developing a written pre-plan is more valuable than the document itself. The process enables the jurisdiction to examine its SAR mission potential and resources needed to do the job on a regular basis.

What Type Do You Need?



And, what is this thin, readable, item?

The Pre-plan, SAR Plan:

The operational pre-plan is the working document that provides key personnel with ongoing information, guidelines, and technical data during the actual conduct of mission.

The pre-plan should be operational!

Your preplan
is the key
to a
successful
search
effort.





Why Plan for Search and Rescue?

- To be effective
- □ To be efficient, economic.
- To protect your backside from

litigation



Preplanning Is One of the Most Important Functions in Search Management...

...and usually the least developed aspect!

Planning is concerned with:

- The future
- Achieving an end result
- Providing an initial direction in solving the mission

Plans provide the broad foundation for future decisions

Some Thoughts About SAR Plans

- A preplan is a management tool.
- A preplan is complete, and defines authorities.
- The preplan is a blueprint.
- It should clearly define legal responsibilities and jurisdictions.
- Agreements should be in writing.
- Plan format should be easy to read.
- Plan should be kept simple.
- Good plans will always be flexible.



Major Influences To Consider

SAR vulnerability assessment

Potential missions and what could go wrong

The area

Management constraints

External influences

The organization

Emergency conditions

Characteristics of a Good SAR-plan

Format

Use some imagination to make it interesting

Simplicity

Only information that is absolutely necessary

Flexibility

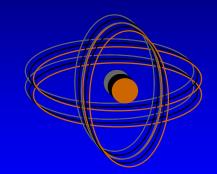
Widely applicable and easily updated

The SAR Planning Process

- 1. Define the hazards and potential problems.
 - . Both rescue and search related.
 - To include historical and potential occurrences.
- Establish who's going to respond and with what.
- 3. Obtain law enforcement, Parks, AHJ support.
 - Or legislatively mandated responsible agency executive.
- 4. Talk to your resources on a first visit.
 - Meet and greet.
- 5. Draft the basic plan and SOPs.
- Make a second visit to to obtain comments on draft plan, clarify responsibilities, and eliminate duplication or conflict.
- 7. Conduct a training mission.
- Critique the training mission, with the goal of improving the plan.
- Finalize the basic plan, based on critique comments.
- 10. Maintain the plan and process.

Elements of the SAR Plan

- Knowledge of the environment
- Inventory of resources



- Formal process and forms to gather information on the missing subject(s)
- Method for analyzing data from previous incidents
- Procedure for developing a search action plan, SOP.
- Checklist of post mission activities
- Method to prevent future incidents

REFINE AND IMPROVE ALIGNMENTS, LINKAGES IN SAR

- Sustainable funding for the SAR sector. (FTE)
- Infrastructure sustainability for the SAR sector.
- Public, Private Partnerships (PPP) for the SAR sector, development and implementation.
- Federal provincial partnership funding for Indigenous SAR programs.
- Provincial agreements for insurance (ADD) workers, compensation outside of existing

Aircraft Operations

- It is not about "thinking outside the box, you should not be in the box in the first place.
- CASARA spotters on search missions.
- CASARA communications relay over search areas.
- Regular crews on aircraft give you a higher Probability of Detection value when scanning.
- Rotary wing aircraft for rescue.
- Deployment of Unmanned Aerial Systems (UAS), Unmanned Aerial Vehicles (UAV).
- Enhanced UAS/UAV regulations to support SAR

Helicopter Operations

- Professional trained spotters through NLSARA across Newfoundland and Labrador.
- Night operations, Forward Looking InfraRed (FLIR), Nightsun (searchlight) capability.
- Aircrew that can perform rescues, high angle, low angle once on the ground.
- NLSARA and stakeholders determine type of





Helicopter Operations

- Pilots and crews trained to perform grid search patterns based on RCAF, SAR program.
- Pilot and aircraft can perform, Helicopter External Transport System (HETS).



Helicopter Operations

- Advance Wilderness Medical training for crew, treating hypothermia, remote trauma injuries.
- Aircraft capable of transporting patients.
- Number of aircraft for service provincially,



+

SWOT ANALYSIS

•	SWUI ANALISIS	
	Strengths	Weaknesses
	1.	1.
	2.	2.
	3.	3.
	4.	4.
Opportunities	Opportunity-Strength	Opportunity-
1.	strategies	Weakness strategies
2.	Use strengths to take	Overcome weaknesses by
3.	advantage of	taking advantage of
	opportunities	opportunities
4.	1.	1.
	2.	2.
Threats	Threat-Strength	Threat-Weakness
1.	strategies	Strategies
2.	Use strengths to avoid	Minimize weaknesses
3.	threats	and avoid threats
	1.	1.
4.	2.	2.



"Well King old fella, thanks to you this case is closed!"

Sgt. W. Preston, RNWMP

