





4. Country presentation to the UNDP Senior Managers Course at James Madison University by Parviz Mavlonkulov, TMAC Operations Manager. 30 October 2007.
  5. **Editor's Note:** Some organizations consider mines and ERW to be two separate entities, since they are regulated by different legal documents (the former by the Ottawa Convention and Amended Protocol II of the Convention on Certain Conventional Weapons, the latter by CCW Protocol V). However, since mines are explosive devices that have similar effects to other ERW and it is often impossible to separate the two during clearance operations, some in the community have adopted a "working definition" (as opposed to a legal one) of ERW in which it is a blanket term that includes mines, UXO, abandoned explosive ordnance and other explosive devices.
  6. Jonmahmad Rajabov, "Explosive Remnants of War and Their Consequences." *Journal of Mine Action* 10.2 (Winter 2006). <http://snipurl.com/lve6a>. Updated 16 December 2007. Accessed 17 December 2007.
  7. Jonmahmad Rajabov, "Tajikistan Mine Action Programme." *Journal of Mine Action* 10.1 (August 2006). <http://snipurl.com/lve69>. Updated 3 August 2006. Accessed 16 December 2007.
  8. Article 4 obligations refer to the responsibility of States Party to the Ottawa Convention to destroy stockpiled anti-personnel landmines.
- Republic of Yemen, Haugan [from page 86]
1. *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction*, Oslo, Norway. 18 September 1997. The document was opened for signature in Ottawa, Canada, 3 December 1997, and thus is commonly known as the Ottawa Convention. <http://snipurl.com/yccr>. Accessed 4 June 2007.
  2. The 2000 Landmine Impact Survey originally identified 18 of 19 governorates as impacted. Since 2000, new governorates have been added, bringing the current total to 21, including the capital of Sana'a.
  3. Yemen Landmine Impact Survey: Final Report, 2000. <http://tinyurl.com/372fyz>. Accessed 30 July 2007.
  4. "Yemen." Landmine Monitor Report 2006. <http://tinyurl.com/35rdwu>. Accessed 30 July 2007.
  5. "Yemen." E-Mine: Electronic Mine Information Network. <http://tinyurl.com/3y67tx>. Accessed 30 July 2007.
  6. Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, Geneva, Switzerland, 10 October 1980. <http://snipurl.com/ccwtxt>. Accessed 5 March 2008. This Convention is also referred to as the CCW or CCCW.
  7. Email interview with Sophia Aron, Yemen Executive Mine Action Center. 14 July 2007.
  8. "UNDP in Yemen," United Nations Development Programme. <http://tinyurl.com/3aqz6f>. Accessed 30 July 2007.
  9. "Yemen." Landmine Monitor Report 2007. <http://tinyurl.com/237b4c>. Accessed 26 February 2008.
- DEMICHAIN: A New Concept of Mechanical Demining, Joeckle [from page 90]
1. Shankhla, V.S., "Unravelling flail-buried mine interaction in mine neutralization," Technical Memorandum DRES TM 2000-054 (December 2000).
  2. Joecklé, René, "Research of new tools for demining by ARTID," p. 680, EUDEM2 – SCOTT Conference, Brussels, September 2003.
  3. ARTID: Association de Recherche de Techniques Innovantes en Déminage humanitaire is a French association, set up in 2000 to find and develop new techniques for humanitarian demining. Most of its members are retired scientists or engineers. It is located in Saint-Louis, a small French city at the junction of the borders between France, Germany and Switzerland. One of its tasks is gathering and diffusing information about demining techniques. <http://www.artid.org>. Accessed 27 February 08.
  4. Pearce, R.W. & Scott, R.A., "Soil compaction by impact," Institution of Civil Engineers: Symposium Report, 1976.
  5. On almost all the mechanical demining techniques (flails, rollers, tillers), the vehicle drives on the ground which has been previously cleared by one method. Normally, the survivability of this vehicle in case of an accidental explosion has to be tested. A second method has to be applied then in order to be sure to get a mine-free ground.
  6. The DEMICHAIN concept is new and different from the other methods of mechanical demining. Since the aim of this paper is to simply present the concept, a detailed description of the tests performed up to now has not been provided by the author. To discuss the specifics, contact the author.
  7. Maquis is a dense growth of small trees and shrubs in the Mediterranean area.
- MineSweeper: Not Just a Game Anymore, Mack [from page 93]
1. Trevelyan, James, "Robots and Landmines," *The Industrial Robot*. 24.2 (1997): 114–125.
  2. Trevelyan, James, "Proceedings of International Symposium of Robotics Research," Zushi, Japan, October 1997.
  3. Detection faults and false alarms refer to the inability of a metal detector to discern between scraps of metal (e.g., bullets or high concentrations of iron in the soil) and actual landmines. In order to determine the detected metal content, the human deminer must carefully probe the ground with a bayonet or similar tool to recognize the shape of the object and unearth it—a potentially dangerous and strenuous activity.
  4. A standard EMI doesn't have a high-resolution receiving end, but the conceptual Cornell MineSweeper EMI array will have one. In addition, ground-penetrating radar will potentially be incorporated to complement the array, by determining distance and approximate shape of the object.
  5. Brooks, John W., "The Detection of Buried Non-metallic Anti-personnel Landmines," Dissertation, University of Alabama, 2000.
  6. Crumple zones theory has been widely used and constantly tested in different applications, such as car-crash testing. So far Cornell MineSweeper has tested the design robot for falls and impacts but not yet for explosives.
  7. Wu, Venus, "Nobel Peace Prize Winner Lectures on Landmine Issues," *The Cornell Daily Sun*. March 13, 2008, <http://cornellsun.com/node/27945>
- Intelligent Robotic Behaviors for Landmine Detection and Marking, Bruemmer [from page 97]
1. "The World's Landmine Problem and the U.S. Humanitarian Demining Program: A Timeline," US Department of State Web site, <http://tinyurl.com/2ecf8s>. Accessed October 31, 2007.
  2. Davor Antonic, Zeljko Ban, and Mario Zagar, "Demining robots - requirements and constraints," *Automatika*, 42(3-4), 2001.
  3. J.D. Nicoud and M.K. Habib, "The pemex-b autonomous demining robot: perception and navigation strategies," *Proceedings of intelligent robots and systems*, pages 419–424, Pittsburgh, PA, 1995.
  4. J.D. Nicoud, "Vehicles and robots for humanitarian demining," *Industrial Robot: An International Journal*, 24(2):164–168, April 1997.
  5. Miles C. Walton, Douglas A. Few, David J. Bruemmer, "Improved human-robot teaming through facilitated initiative," *Proceedings of the 15th IEEE International Symposium on Robot and Human Interactive Communication*, Hatfield, United Kingdom, September 2006.
  6. Kurt Konolige. "Large-scale map-making," *Proceedings of the National Conference on AI (AAAI)*, San Jose, California, 2004.
  7. Fong, T., Thorpe, C. & Baur, C. (2001), "Collaboration, dialogue, and human robot interaction," 10th International Symposium of Robotics Research, Lorne, Victoria, Australia, November 2001.
  8. Kidd, P.T. (1992) "Design of human-centered robotic systems," *Human Robot Interaction*, pages 225–241. Taylor and Francis, London, England.
  9. Scholtz, J. & Bahrami, S. (2003) "Human-robot interaction: development of an evaluation methodology for the bystander role of interaction," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, volume 4, pages 3212–3217.
  10. Sheridan, T. B. (1992), "Teleroobotics, automation, and human supervisory control," MIT Press, Cambridge, Massachusetts.
  11. Curtis W. Nielsen and Michael A. Goodrich, "Comparing the usefulness of video and map information in navigation tasks," *Proceedings of the 2006 Human-Robot Interaction Conference*, Salt Lake City, UT, 2006.
  12. Note that six landmines in a 50-meter section is considered a high mine concentration.
  13. The mines have a diameter of 33.4 cm.
- Lessons Learned from Field Tests in Croatia and Cambodia, Debenest [from page 103]
1. Nonami, K., Shimoi, N., Huang, Q. J., Komizo, D. and Uchida, H., "Development of Teleoperated Six-Legged Walking Robot for Mine Detection and Mapping of Mine Field," *Proceedings of IEEE Intelligent Robots and Systems 2000*, pp. 775–779, Takamatsu, Japan, 2000.
  2. Debenest, P., Fukushima, E. F., Tojo, Y. and Hirose, S., "A New Approach to Humanitarian Demining – Part 1: Mobile Platform for Operation on Unstructured Terrain," *Autonomous Robots*, Vol. 18, No. 3, pp. 303–321, 2005.
  3. Debenest, P., Tojo, Y., Fukushima, E. F. and Hirose, S., "A New Approach to Humanitarian Demining – Part 2: Development and Analysis of Pantographic Manipulator," *Autonomous Robots*, Vol. 18, No. 3, pp. 323–336, 2005.
  4. Freese, M.; Singh, S. P. N.; Fukushima, E. F. and Hirose, S., "Bias-Tolerant Terrain Following Method for a Field Deployed Manipulator," *Proceedings of IEEE International Conference on Robotics and Automation*, pp. 175–180, May 2006, Orlando, .
  5. Freese, M.; Fukushima, E. F.; Hirose, S. and Singhose, W., "Endpoint Vibration Control of a Mobile Mine-Detecting Robotic Manipulator," *Proceedings of the American Control Conference*, July 2007, New York, USA.
  6. Steker, I., "Testing and Use of Demining Machines in the Republic of Croatia," *Journal of Mine Action*, Issue 7.3, <http://snipurl.com/201me>, December 2003.
  7. For more information each of these munitions, see the Mine Action Information Center's "Munitions Reference." Available at <http://snipurl.com/munref>. Accessed 20 Feb. 2008.