

[Home](#) > [Journal](#) > [Earth & Environmental Sciences](#) > [JEP](#)
[Indexing](#) | [View Papers](#) | [Aims & Scope](#) | [Editorial Board](#) | [Guideline](#) | [Article Processing Charges](#)
[JEP](#) > Vol.2 No.4, June 2011



Groundwater Pollution Due to Pesticides and Heavy Metals in North West Bank

PDF (Size: 458KB) PP. 429-434 DOI : 10.4236/jep.2011.24049

Author(s)

Marwan Ghanem, Subhi Samhan, Erick Carlier, Wasim Ali

ABSTRACT

This study aims at determining the quantitative effect of pesticides including 2, 4-D dichlorophenoxy acetic acids, Paraquat, Atrazine (2-chloro-4-ethylamino-6-isopropylamino-striazine), and MCPP 2-(2-Methyl-4-chlorophenoxy) pro-panoic acid on groundwater quality due to agricultural in Jenin and Tulkarem, northern part of the West Bank. The concentrations of pesticides in Jenin was found to be higher than those in Tulkarem where the majority of the samples taken had concentration 10 µg/L. It is concluded that the contamination of the tested wells was due to pesticides and not wastewater disposal, since most of the samples were free from pathogenic indicators. Results revealed that using these wells for drinking purposes has a potentially high health risk. This is mainly due to the uncontrolled industrial and agricultural activity as well as the lack of monitoring. Concentrations of heavy metals including cadmium (Cd), lead (Pb), iron (Fe), zinc (Zn), chromium (Cr) and copper (Cu) were also quantitatively determined for the same period extending from April, 2004 to May, 2005. Concentrations of Pb and Cr in most of the tested wells in Tulkarem complied with the WHO guideline; while nitrate (NO₃) and potassium (K) concentrations exceeded the permissible concentrations.

KEYWORDS

Pesticides, Groundwater Pollution, Water Quality, West Bank

Cite this paper

M. Ghanem, S. Samhan, E. Carlier and W. Ali, "Groundwater Pollution Due to Pesticides and Heavy Metals in North West Bank," *Journal of Environmental Protection*, Vol. 2 No. 4, 2011, pp. 429-434. doi: 10.4236/jep.2011.24049.

References

- [1] A. A. Qare, " Potential Leaching of Pesticides to Ground-Water: A Look At The Most Common Use Pesticides In Palestine," Proceedings of the 2nd International Conference on Water: Values and Rights, Ramallah, 13-15 April 2009.
- [2] A. Saleh, F. Neiroukh, O. Ayyash and S. Gasteyer, " Pesticide Usage in the West Bank," Applied Research Institute of Jerusalem, 1995.
- [3] American Public Health Association (APHA), " Standard Methods for the Examination of Water and Waste-water," 19th Edition, Washington DC, 1995.
- [4] Water Re-sources Action Programme (WRAP), " Palestinian Water Resources, a Rapid Interdisciplinary Sector Review and Issues Paper," Report, Palestine, 1994.
- [5] Palestinian Water Authority (PWA), " Water resources and Planning," Unpublished data, West Bank, 2006.
- [6] A. A. Rabbo, D. J. Scarpa, Z. Qanam, Q. A. Jaber and P. Younger, " Wells in the West Bank, Water Quality and Chemistry," Palestinian Hydrology Group, University of Newcastle upon Tyne and Bethlehem University, Jerusalem, West Bank, 1999.
- [7] Applied Research Institute of Jerusalem (ARIJ), " Status of the Environment in the Occupied

- [Open Special Issues](#)
- [Published Special Issues](#)
- [Special Issues Guideline](#)

[JEP Subscription](#)
[Most popular papers in JEP](#)
[About JEP News](#)
[Frequently Asked Questions](#)
[Recommend to Peers](#)
[Recommend to Library](#)
[Contact Us](#)

Downloads:	301,513
------------	---------

Visits:	673,608
---------	---------

[Sponsors, Associates, and Links >>](#)

- [The International Conference on Pollution and Treatment Technology \(PTT 2013\)](#)

Palestinian Territory," Bethlehem ,West Bank, 2007.

[8] Tulkarem Agricultural Department, " Meteorological Data about Tulkarem Governate," Unpublished data, Tulkarem, West Bank, 2006.

[9] Jenin Agricultural Department, " Meteorological Data about Jenin Governate," Unpublished data, Jenin, West Bank, 2004.