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The Environmental Impact Assessment of the Bethlehem Multidisciplinary Industrial Park

By

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Dedication

To my beloved family; husband Salameh and children Suleiman, Ruslan, Firas and Sabrina who supported me all through my study years.

I will not forget my parents, father Judeh who taught me patience, perseverance and perfection and mother Su'ad who with her love helped me all the way. To my brothers Walid and Zuheir and my sister Maysoon.

A special dedication to the angel who brought new sunshine to our family, my beloved granddaughter Yeleina.

Declaration

I will certify that this thesis is submitted for the Masters degree as a result of my own research except where otherwise acknowledged. This thesis has not been submitted for a higher degree to any other university or institution.

Signature

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Date

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Abstract

A Bethlehem Multidisciplinary Industrial Park (BMIP) came as a result of an agreement between the Palestinian Authority and the Republic of France to establish an industrial park covering an area of 530 dunums in the South Eastern part of Bethlehem near the village of Hindazeh, where small and moderate sized industrial enterprises will be moved. The aim of this industrial park is to attract investors, both local and international ones, to participate in developing the economy of the area and its surroundings. The project comprises storm water drainage, water, energy and telecommunication network and supply, roads, wastewater collection and treatment, solid waste collection system and disposal.

Environmental impact assessment (EIA) aimed to identify and predict the impact of the project on the bio-geophysical environment and on human health and well-being, to analyze the site and to process alternatives and provide solutions to mitigate the negative consequences in the future. Potential disturbances may be more costly to correct after their occurrence than before.

The study was based on thorough investigation of the site and its baseline conditions. Ground water of the main well fed by the watershed of the project site was analyzed for anions, cations, pH, electrical conductivity (EC), and total dissolved solids (TDS). Soil of the project site was analyzed for cations, moisture, pH, EC, TDS, organic matter and composition. Flora and fauna were studied in addition to the study of topography, geology, hydrogeology, water resources, climate, air quality, noise, public uses, socio-economic environment, agriculture, historical and sacred places, water supply, wastewater and solid wastes. Interviews

and meetings were held for the public consultation. Palestinian and international laws and regulations concerning pollution control were also revised and evaluated.

The potential environmental impact of industrial activities was found to be significant on air, water and ground quality. It was found also that the project site lies in an inhabited rural area, very sensitive to pollution. Analyses showed that the site is free of any pollution in soil and water, in addition to the presence of threatened fauna and flora. Hence, strict measurements have to be taken in monitoring the project during the construction and the operation phases to protect the environment, health and welfare of residents and workers in the BMIP.

ملخص البحث

تحقق إنشاء المنطقة الصناعية متعددة الأغراض في منطقة بيت لحم نتيجة لتفاهم مشترك بين الحكومة الفرنسية و السلطة الفلسطينية ، حيث اتفق على تسخير ما مساحته 530 دونما في المنطقة الواقعة جنوب شرقي مدينة بيت لحم و بالتحديد بالقرب من قرية هندازة حيث ستقام أو تنقل بعض الصناعات الخفيفة و المتوسطة. إن الهدف من إنشاء المنطقة الصناعية هو جذب المستثمرين المحليين و الأجانب للمساهمة في تطوير المنطقة و ما حولها. يحتوي المشروع المقترح على وسائل للتخلص من مياه الأمطار و الصرف الصحي و النفايات الصلبة و معالجة المياه العادمة، بالإضافة إلى شبكات المواصلات و المياه و الاتصالات و الطاقة.

يهدف تقييم الأثر البيئي لتحديد و التنبؤ بأثر المشروع على البيئة البيولوجية الفيزيائية و الجيولوجية و على صحة و رفاهية الإنسان. يعنى التقييم بتحليل الموقع و دراسة البدائل و الحلول للتخفيف من الآثار السلبية في المستقبل، حيث أن إصلاح الضرر بعد حدوثه يكون مكلفا.

استند البحث إلى دراسة معمقة للموقع و الوضع الحالي . تم تحليل المياه الجوفية للبئر الرئيسي التي تتم تغذيته من منطقة المشروع، حيث درست الأيونات الموجبة و السالبة و درجة الحموضة و الإيصالية الكهربائية و المواد الصلبة الذائبة. حللت التربة لدراسة الأيونات الموجبة و الرطوبة و درجة الحموضة و الإيصالية الكهربائية و المواد الصلبة الذائبة و المواد العضوية . درست الثروة النباتية و الحيوانية بالإضافة لدراسة طبوغرافية و جيولوجية الموقع و مصادر المياه و التربة و المناخ و جودة الهواء و الضجيج و الاستخدامات العامة للأراضي و البيئة الاقتصادية و الاجتماعية و الزراعة و المواقع التاريخية و الدينية و شبكة المياه و المجاري و النفايات الصلبة. أجريت لقاءات و اجتماعات تحت عنوان استشارة الجمهور كما و تمت مراجعة و تقييم القوانين و التشريعات الفلسطينية و الدولية المتعلقة بالتلوث البيئي.

وجد أن الأثر البيئي للنشاطات الصناعية قد يكون وخيما على جودة الهواء و المياه و الأرض و أن المشروع يقع في منطقة سكنية ريفية حساسة جدا للتلوث البيئي. أثبتت التحاليل خلو الموقع من تلوث المياه و التربة بالإضافة إلى وجود نباتات و حيوانات مهددة بالانقراض. لذلك يجب اتخاذ الإجراءات المشددة لمراقبة و ضبط المشروع خلال مرحلتي الإنشاء و التنفيذ لحماية البيئة و صحة السكان و العاملين و رفاهيتهم.

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