RESEARCH ACTIVITY

AREA OF INTEREST:
Secondary raw materials; soil and rock from excavation works

RESEARCH TOPIC:
Exploitation and management of soil and rock from excavation

STAFF:
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COOPERATION WITHIN UNITO:
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EXTERNAL COOPERATION WITH:
Provincia di Torino, Provincia VCO, Regione Piemonte, Regione Lombardia, ARPA, UNIMIN, UNIONCAMERE, Politecnico di Torino, CAVIT, Cave Moncalieri, Perino Escavazioni, Soc. CORINTEA.

RESEARCH DESCRIPTION:
Italian legislation (dm 4/2008 and following legislation) defines “soil and rock from excavation works” as the “soil and undersoil”, resulting from excavation and construction works (ie trenches, foundation excavations, etc) drilling and piling cuttings, consolidation works (infrastructure eg. dams, tunnels, roads); lithic products resulting from removal and levelling, any products resulting from river, beach, lakes and sea excavations; dimension stone processing residues (ie marble, granite, etc), or uncontaminated residues not related to construction works.
These materials, if properly managed, may produce products marketable as partial or complete replacements for natural raw materials.
The systematic recovery of these materials leads to the preservation of natural resources (compensating minerals mined in quarries) and also reduces the environmental impact (soil, air and water) resulting from their disposal.
If correctly managed, the recycling of these materials can be used to supplement the local soil supply of urban development. Generally the correct management and recovery of these materials works towards the principle of the “recovery of secondary raw materials”, preservation of natural resources (“resource preservation”), recovery of “difficult” areas, energy saving, and overall environmental protection (preventing potential impact on soils, air and water)
The management of these materials towards the replacement of natural aggregates for road construction, filling materials, remodelling, etc is not yet regulated uniformly at a European or national level. The marketing of construction site by-products is therefore difficult.
The research encompasses:

- Regulatory framework
- Construction site management of excavation waste (for all scales of site) aiming towards efficient, effective and systematic recycling:
- Mechanical, physical and chemical characterization of the waste
- Processing of the various materials in aggregate plants (rock and soils could replace quarry “tout-venant”)
- Environmental problems related to the management of excavation waste products
- Cooperation with public entities (Regional, Provincial, Municipal), private companies (urban planning, mining companies…etc) in defining the quality and quantity of the

potentially marketable materials to replace or integrate construction materials from natural sources

- Evaluating the environmental risk and impact represented by excavation waste disposal: release of contaminants in soils, water and air.

EARTH SCIENCE DEP. LABORATORIES INVOLVED IN THE RESEARCH:
Rock and mineral processing laboratory, Hydrogeolab

RESEARCH PRODUCTS:

BADINO V., DINO G.A., FORNARO M., MILONE M. (2003)- *Recupero delle macerie: il caso torinese* **–** Recycling n. 5 Settembre 2003. pp. 17-37.

DINO G.A., FORNARO M, MILONE M. (2007)– La gestione delle macerie in area urbana: produzione di materiali riciclati e possibilità di autoconsumo. Convegno Inertech 2007. Rimini, 7-10 Novembre 2007. Supplemento alla rivista "Recycling- demolizioni&riciclaggio" n. 62/08. pp.184-189. Editrice PEI srl.

DINO G.A., FORNARO M., GARBARINO E. (2009)– *Terre e rocce da scavo: Definizioni e conseguenze ai sensi del D.Lgs 4/2008 (art. 186), di quei materiali originati dall'attività di scavo di terreni.* Recycling, anno 13 n. 4, Luglio 2009. ISSN 1593-2419. pp. 88-105.

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