Esposizioni ambientali ed effetti sulla salute: evidenze, priorità, prevenzione

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Emergenza rifiuti a Napoli

Emergenza rifiuti a Napoli

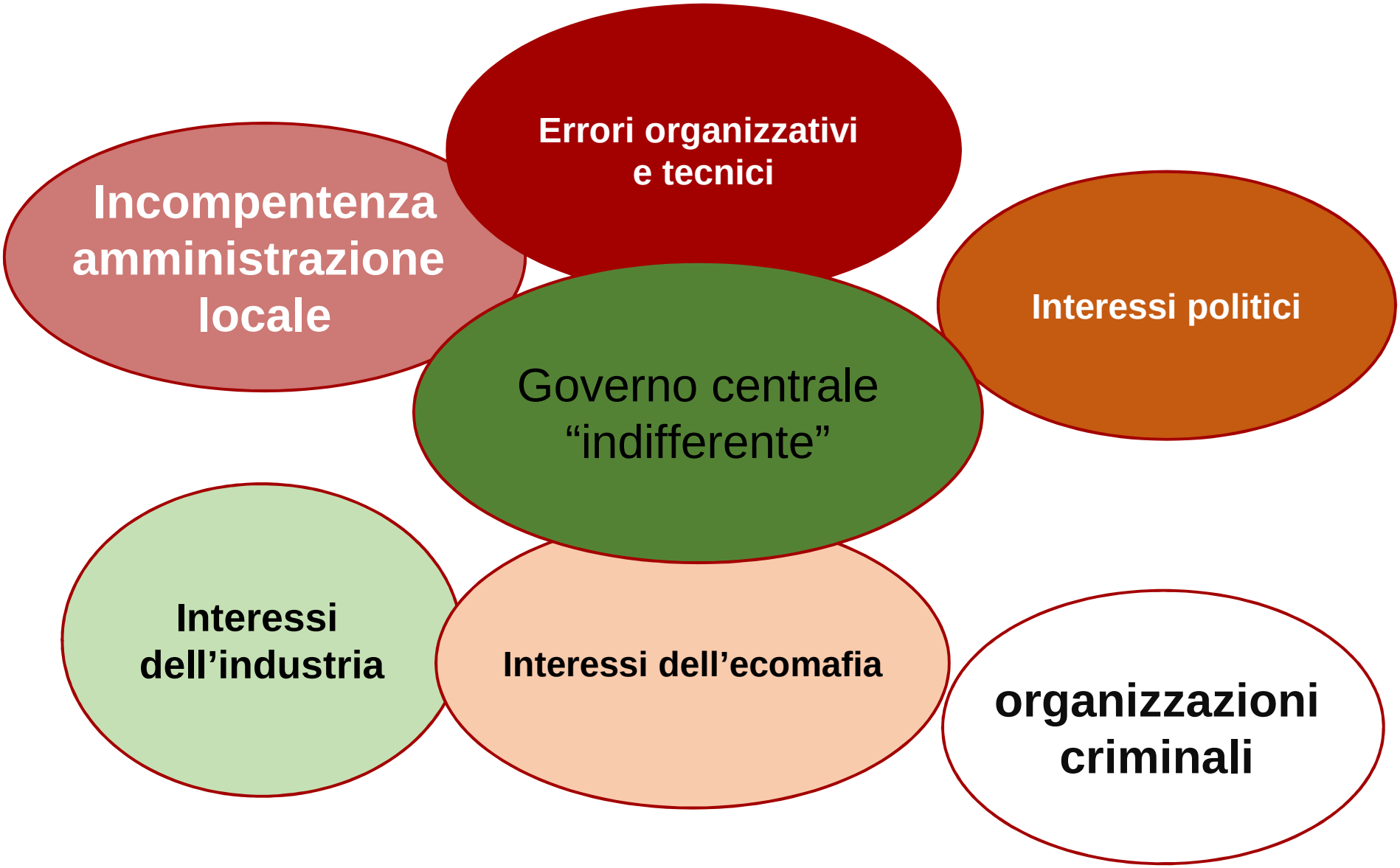
U.S. warns citizens over Naples garbage crisis

ROME | Mon Jul 9, 2007 2:28pm EDT

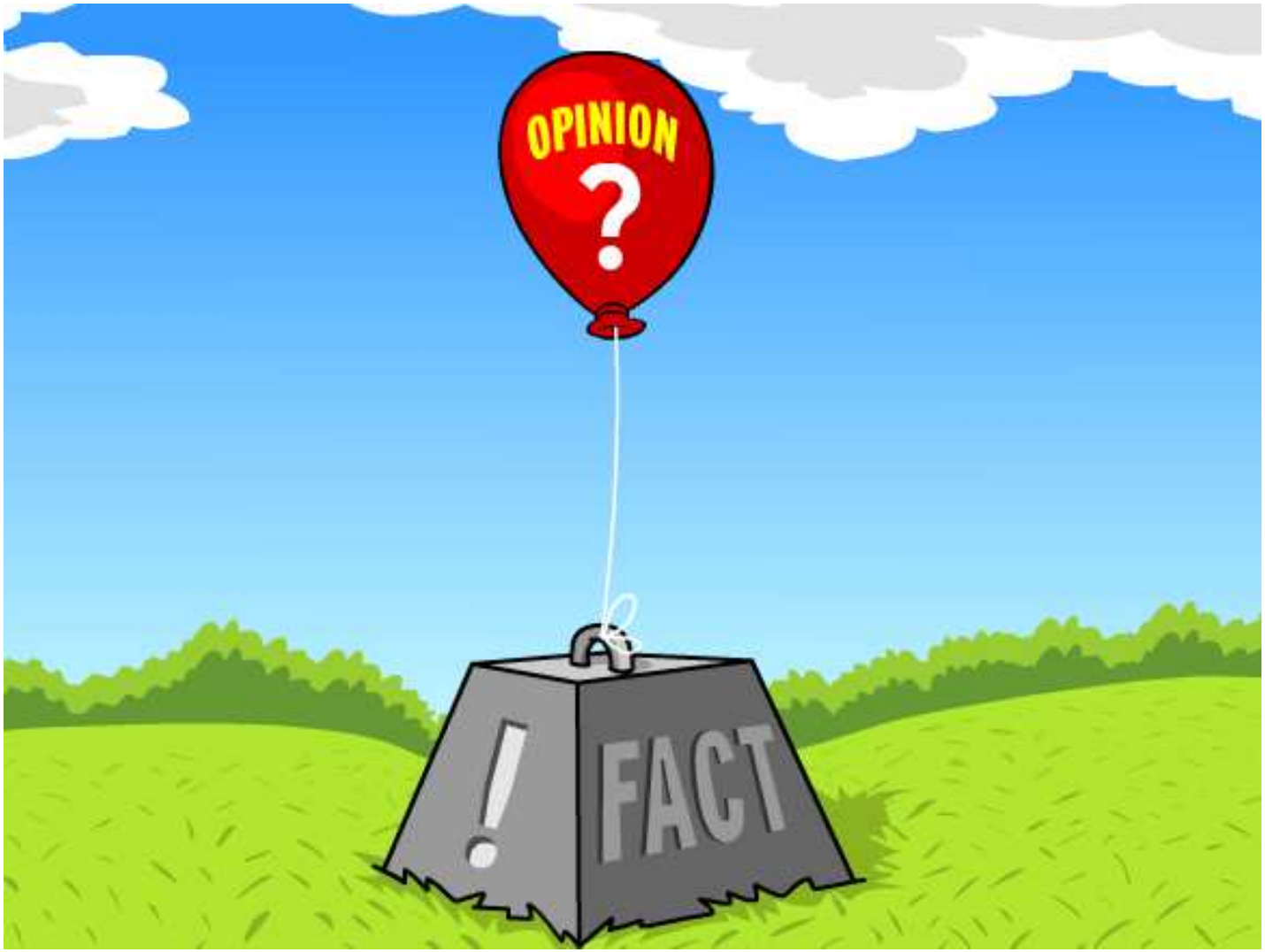
(Reuters) - The United States embassy in Rome has warned U.S citizens they may face a health risk in Italy's southern Campania region due to a garbage crisis that has filled streets with piles of rubbish.

"U.S. citizens traveling to or through the area may encounter mounds of garbage, open fires with potentially toxic fumes, and/or sporadic public demonstrations by local residents attempting to block access to dumps," the embassy said in an advisory note.

Le ragioni


Errori organizzativi
e tecnici
Incompentenza
amministrazione
locale
Interessi politici
Governo centrale
“indifferente”
Interessi
dell’industria
Interessi dell’ecomafia
organizzazioni
criminali

Opinioni ≠ Evidenze scientifiche



moniter

http://www.arpa.emr.it/moniter/

Monitoraggio degli inceneritori nel territorio dell'Emilia-Romagna

- **Progetto Moniter**
- Sorveglianza inceneritori
- Sorveglianza ambientale
- Indagine sulla popolazione
- Organizzazione del progetto
- Ricerca e indagini sperimentali
- Documentazione
- Risultati delle attività
- Quaderni di Moniter
- **Che cos´è un inceneritore**
- **Effetti sull´ambiente**
- **Effetti sulla salute**
- **Rifiuti e trattamento**
- **Qualità dell´aria**
- **Domande frequenti**
- **Inceneritori in regione**
- **Contatti**
- **Link utili**

Pubblicato "Le ricadute degli inceneritori sull´ambiente - vol. 1"
(29/08/2012) - Il nuovo libro della collana "Quaderni di Moniter" presenta i risultati delle attività sperimentali relative alla qualità dell´aria in prossimità dell´inceneritore del Frullo di Bologna.

leggi l'articolo

Pubblicato "Gli effetti degli inceneritori sulla salute"
(20/06/2012) - Il sesto libro della collana "Quaderni di Moniter" presenta i risultati degli studi epidemiologici effettuati sulla popolazione dell´Emilia-Romagna.

leggi l'articolo

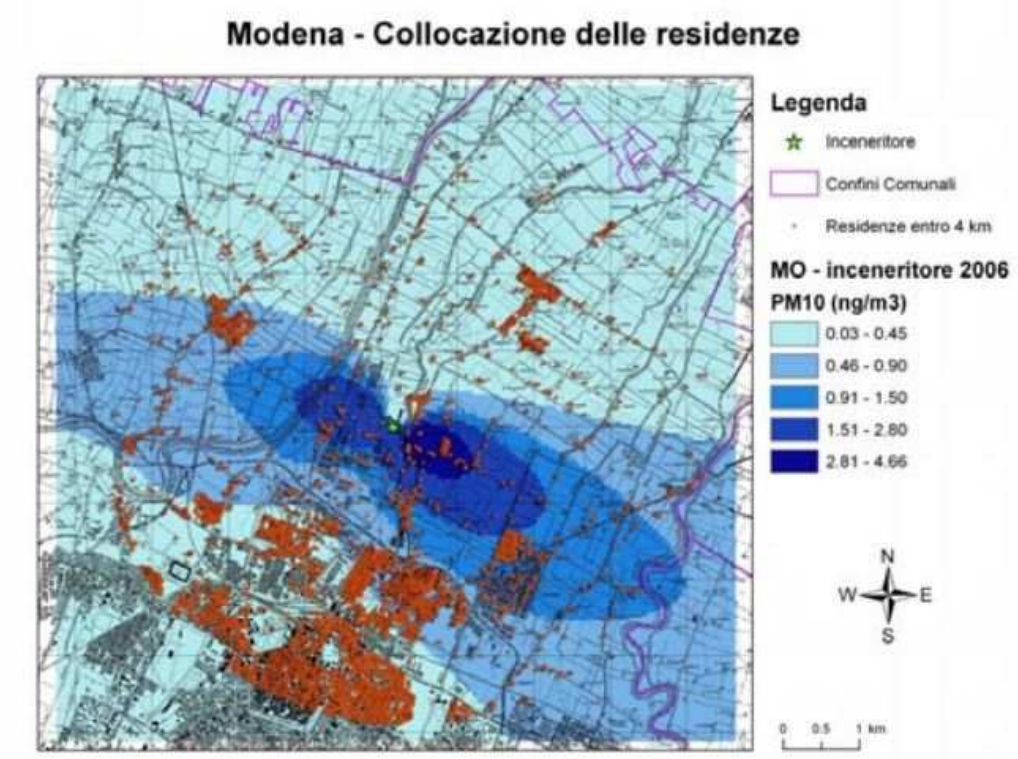
www.arpa.emr.it/pubblicazioni/moniter/generale.619.asp

ARPA Emilia Romagna

- Team multidisciplinare
- Comunicazione ai cittadini
- Pubblicazioni sul sito web
- Rigoroso comitato scientifico

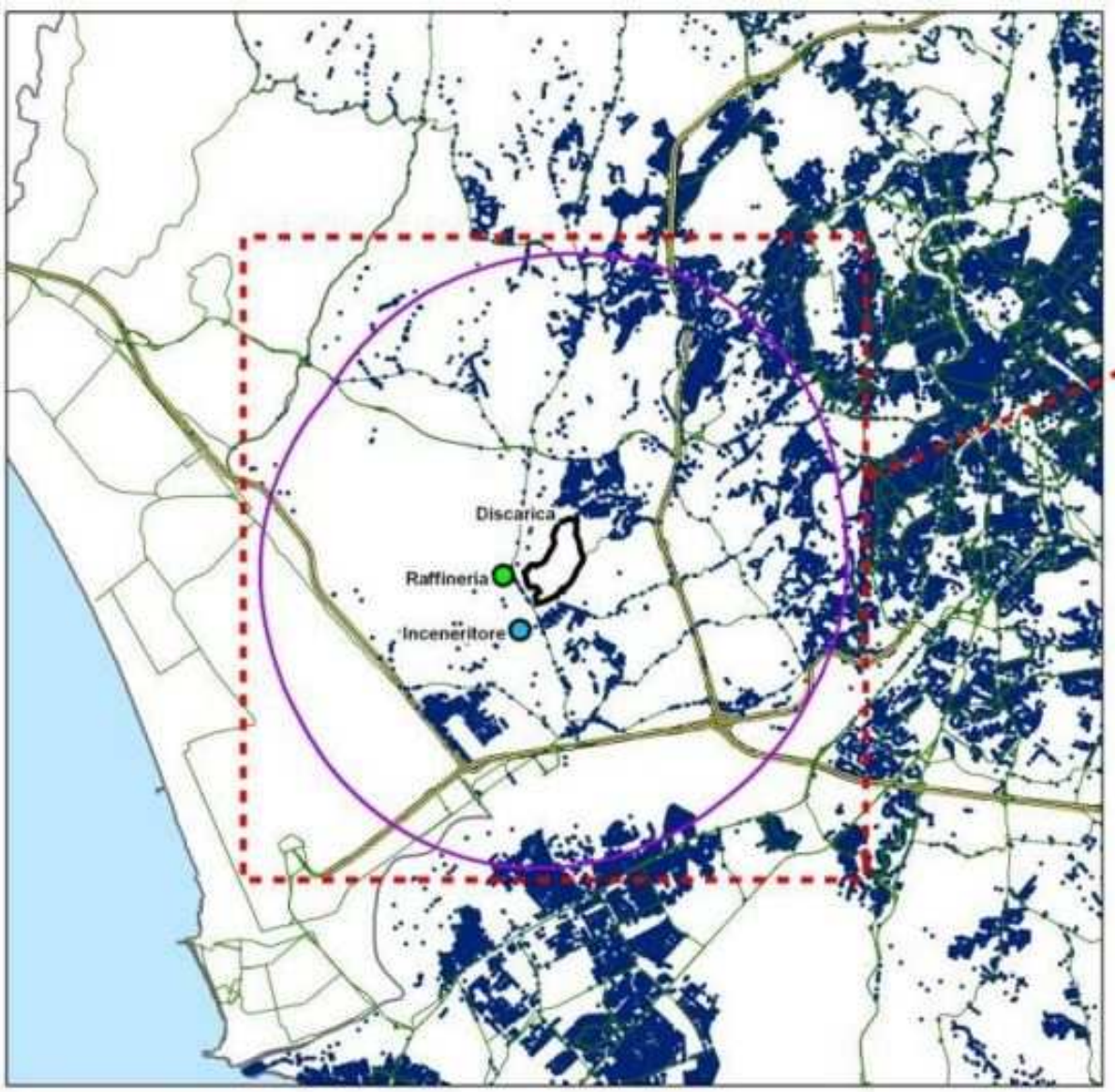
ARPA Emilia Romagna

- ✓ Monitoraggio ambientale continuo
- ✓ Caratterizzazione delle emissioni dagli inceneritori
- ✓ Effetti sulla salute degli inceneritori (popolazione e lavoratori)



Piccoli per età gestazionale
Nati pretermine
Abortività spontanea

Il complesso di Malagrotta



5.000 tonnellate di rifiuti ogni giorno

EUROPEAN COMMISSION - PRESS RELEASE

Environment: Commission urges Italy to ensure adequate pre-treatment of waste landfilled in Rome

Brussels, 31 May – The European Commission is asking Italy to comply with the requirements of EU landfill legislation in Rome. Due to a narrow interpretation of what constitutes sufficient pre-treatment of waste by the Italian authorities, the Malagrotta landfill in the Lazio region contains waste that has not undergone the required pre-treatment, and the Commission is concerned that this might also be the case for other landfills in Lazio. Landfills operating in breach of EU waste legislation constitute a serious threat to human health and the environment. On the recommendation of Environment Commissioner Janez Potočnik, the Commission is sending a reasoned opinion and asking Italy to comply within two months. If it fails to do so the Commission may decide to refer the case to the EU Court of Justice.

The Landfill Directive stipulates that waste must be treated before it is landfilled. This means it has to undergo physical, thermal, chemical or biological processes, including sorting, to reduce its volume and hazardous nature, facilitating handling and recovery.

An EU Pilot investigation revealed that in the Malagrotta landfill, and possibly in other Lazio landfills, some waste is landfilled without being treated. The waste management plan for the Lazio region adopted in January 2012 contains inconsistencies between the mechanical-biological treatment capacity in Lazio and the amount of waste produced in the region. The deficit in capacity amounts to 126.891 tonnes per year in the nearby Latina province and over a million tonnes per year in the Rome province. Consequently a significant amount of waste is landfilled without undergoing an adequate treatment.

The Commission sent a letter of formal notice on 17 June 2011. The Italian authorities consider that the waste landfilled in Malagrotta should be considered as treated as it is crushed before being landfilLed. According to the Commission, however, merely crushing or shredding unsorted waste prior to landfilling is not sufficient as waste needs mechanical-biological treatment to stabilise its organic content, a process designed to reduce possible pollution. The Commission is concerned that not all of the waste that ends up in the landfills has undergone the mechanical-biological treatment required.

The Commission is also concerned that the Italian authorities are not taking sufficient measures to reduce possible negative effects on the environment and any risk to human health in accordance with the Waste Framework Directive. It is therefore sending a reasoned opinion giving Italy two months to reply.

Evidenze

Environmental Health

BioMed Central

Review

Open Access

Systematic review of epidemiological studies on health effects associated with management of solid waste

Daniela Porta[1], Simona Milani[1], Antonio I Lazzarino[1,2], Carlo A Perucci[1] and Francesco Forastiere*[1]

Table 1: Summary of the overall epidemiologic evidence on municipal solid waste disposal: landfills and incinerators.

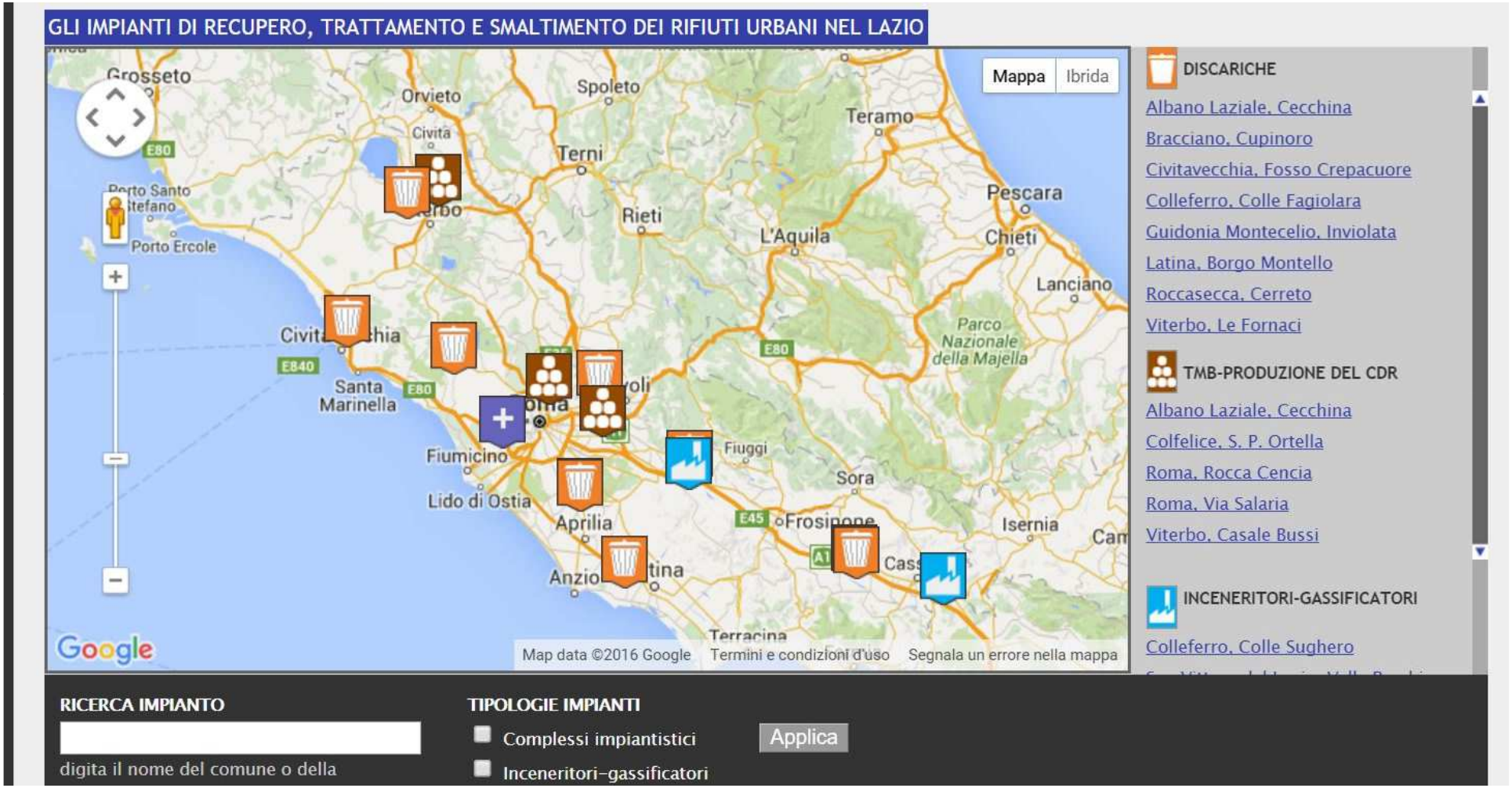
HEALTH EFFECT	LEVEL OF EVIDENCE	
	LANDFILLS	**INCINERATORS**
All cancer	Inadequate	Limited
Stomach cancer	Inadequate	Limited
Colorectal cancer	Inadequate	Limited
Liver cancer	Inadequate	Limited
Larynx cancer	Inadequate	Inadequate
Lung cancer	Inadequate	Limited
Soft tissue sarcoma	Inadequate	Limited
Kidney cancer	Inadequate	Inadequate
Bladder cancer	Inadequate	Inadequate
Non Hodgkin's lymphoma	Inadequate	Limited
Childhood cancer	Inadequate	Inadequate
Total birth defects	Limited	Inadequate
Neural tube defects	Limited	Inadequate
Orofacial birth defects	Inadequate	Limited
Genitourinary birth defects	Limited*	Limited**
Abdominal wall defects	Inadequate	Inadequate
Gastrointestinal birth defects§	Inadequate	Inadequate
Low birth weight	Limited	Inadequate
Respiratory diseases or symptoms	Inadequate	Inadequate

Mattiello et al Int J Public Health. 2013 Oct;58(5):725-35 mal. apparato respiratorio

Il Progetto ERAS Lazio

http://www.eraslazio.it/

Il Progetto ERAS Lazio



http://www.eraslazio.it/

Il processo dei rifiuti

FORMAZIONE

RACCOLTA

TRASPORTO

TRASFORMAZIONE o SMALTIMENTO

Il Progetto ERAS Lazio

- Studio sui residenti nei pressi delle **9 discariche**, dei **2 termovalorizzatori** e dell'**area complessa di Malagrotta**

- Studio sui **lavoratori** addetti alla raccolta e allo smaltimento

- Studio sui **nati** presso i 2 termovalorizzatori e le 9 discariche

- Studio sui residenti nei pressi di 2 impianti di **Trattamento Meccanico Biologico**

ERAS Lazio
EPIDEMIOLOGIA RIFIUTI AMBIENTE E SALUTE

http://www.eraslazio.it/

Obiettivo

verificare l'associazione tra la residenza nei pressi di nove discarica per RU presenti nel Lazio e l'aumento del rischio di mortalità e ospedalizzazione

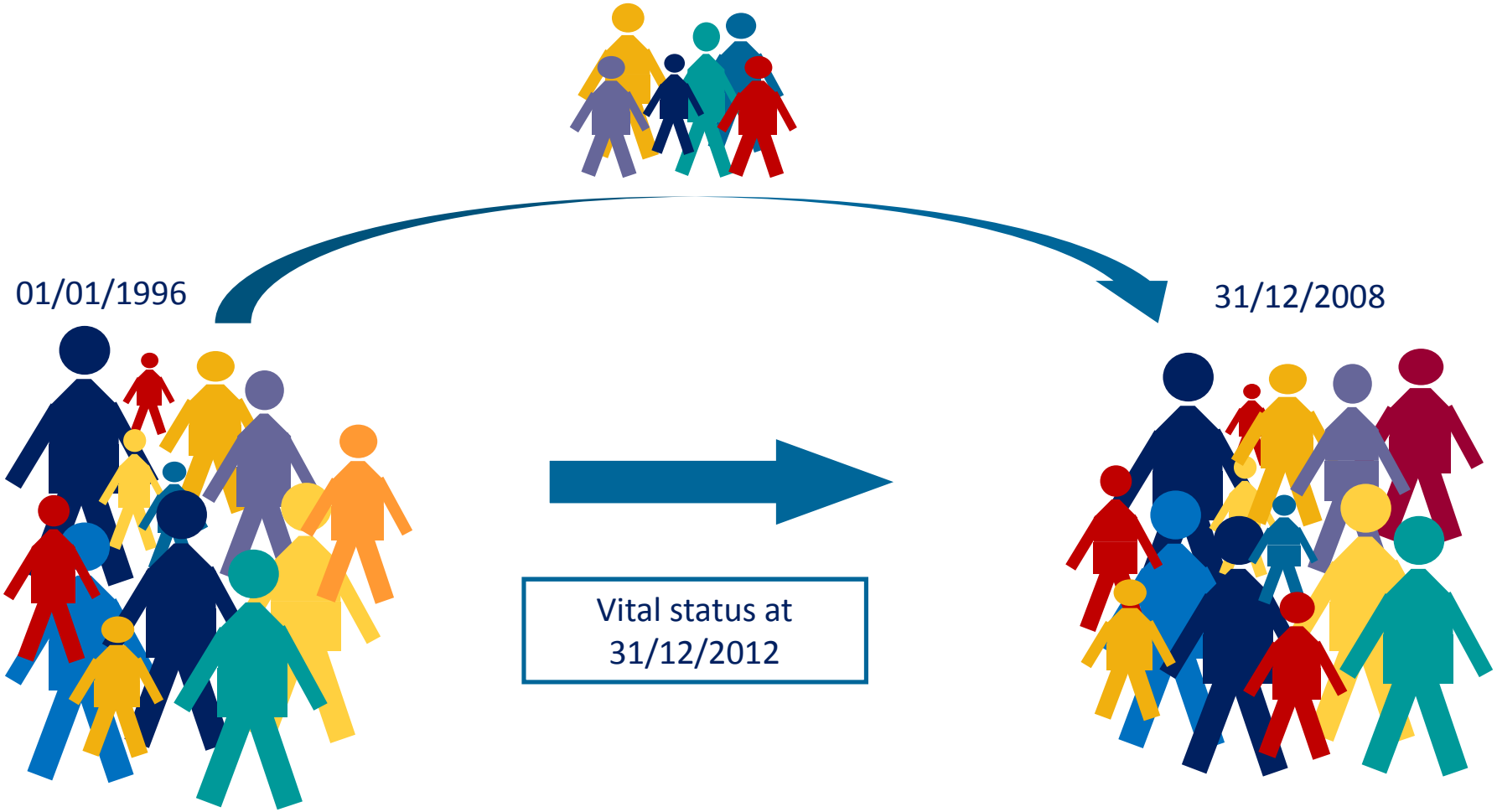
Studio di coorte dei residenti entro 5 Km dalle nove discariche per RU nel 1996-2008

Aree in studio

L’area in studio ha compreso i comuni che rientrano in un raggio di 5 Km dal perimetro delle discariche

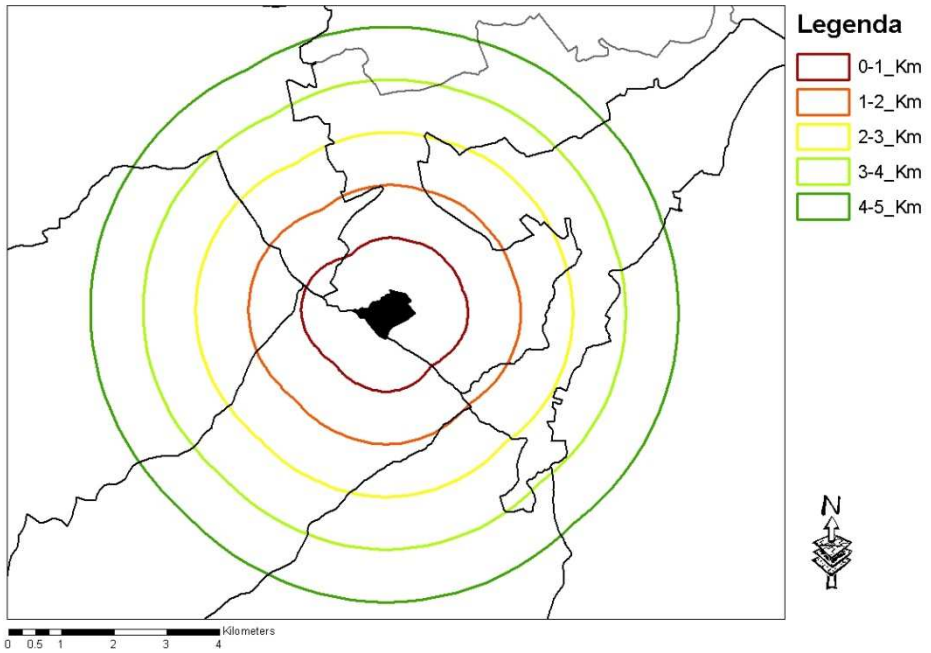
Epidemiological study design: environment and health

Cohort enrolment



Valutazione dell’esposizione

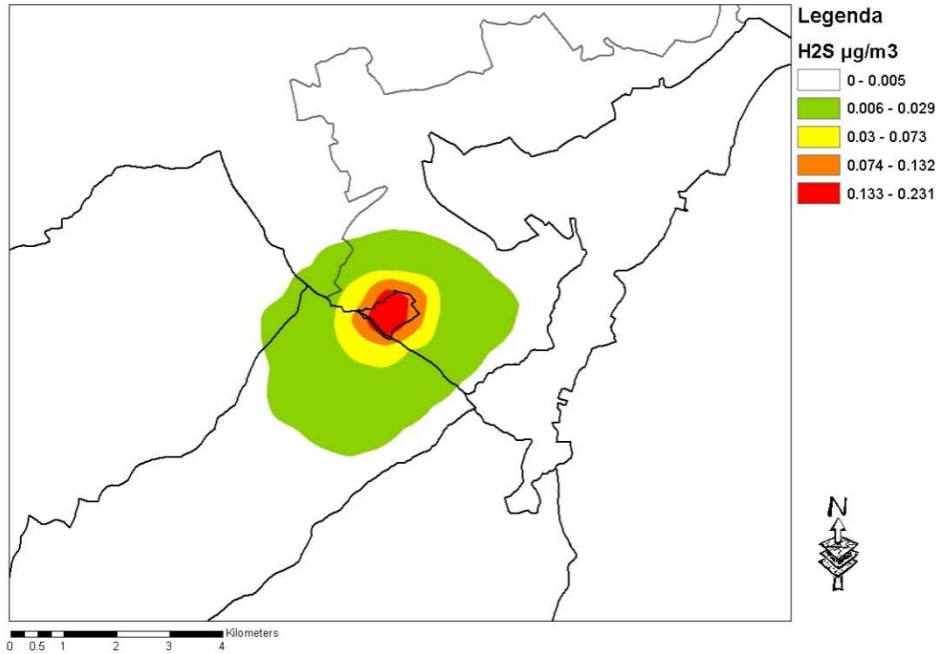
Distanza dal perimetro dell’impianto



Inquinamento matrici acqua e suolo

Valutazione dell’esposizione

Concentrazione di un tracciante



Inquinamento matrice aria

idrogeno solforato (H_2S)

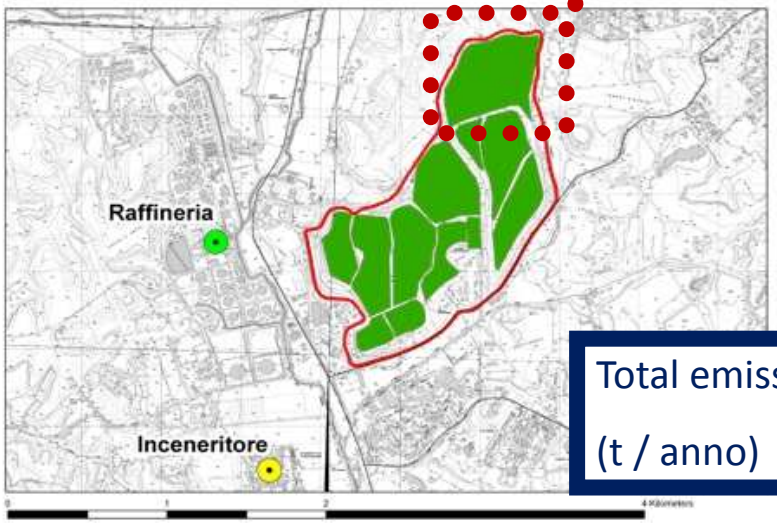
Landfill emission: tracer H_2S

LandGEM model
(Landfill Gas Emissions Model)

year: 2005

Activity for each area

Waste per year



Total emissions

(t / anno)

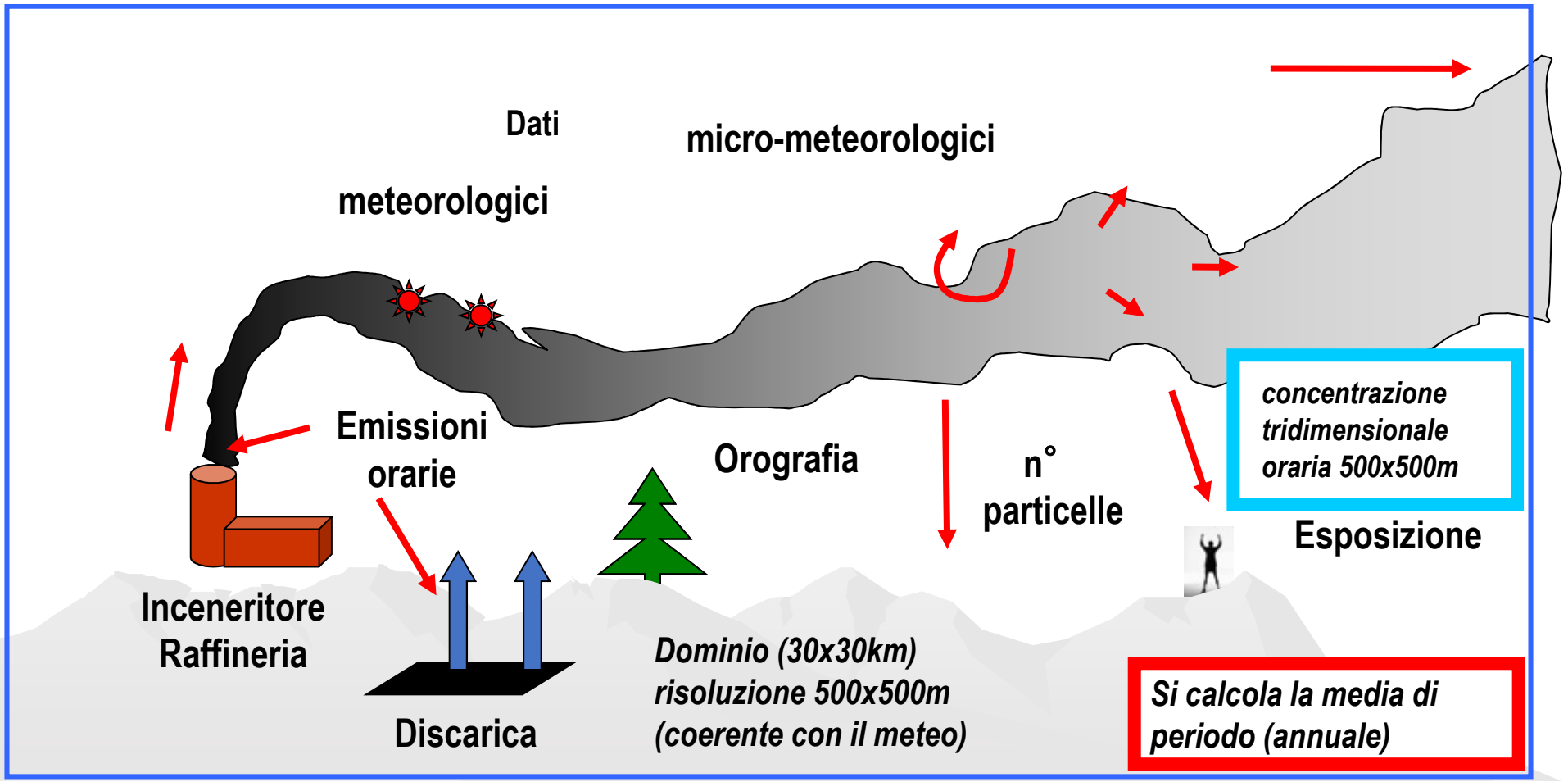
EMMA model
(EMission MAnager)

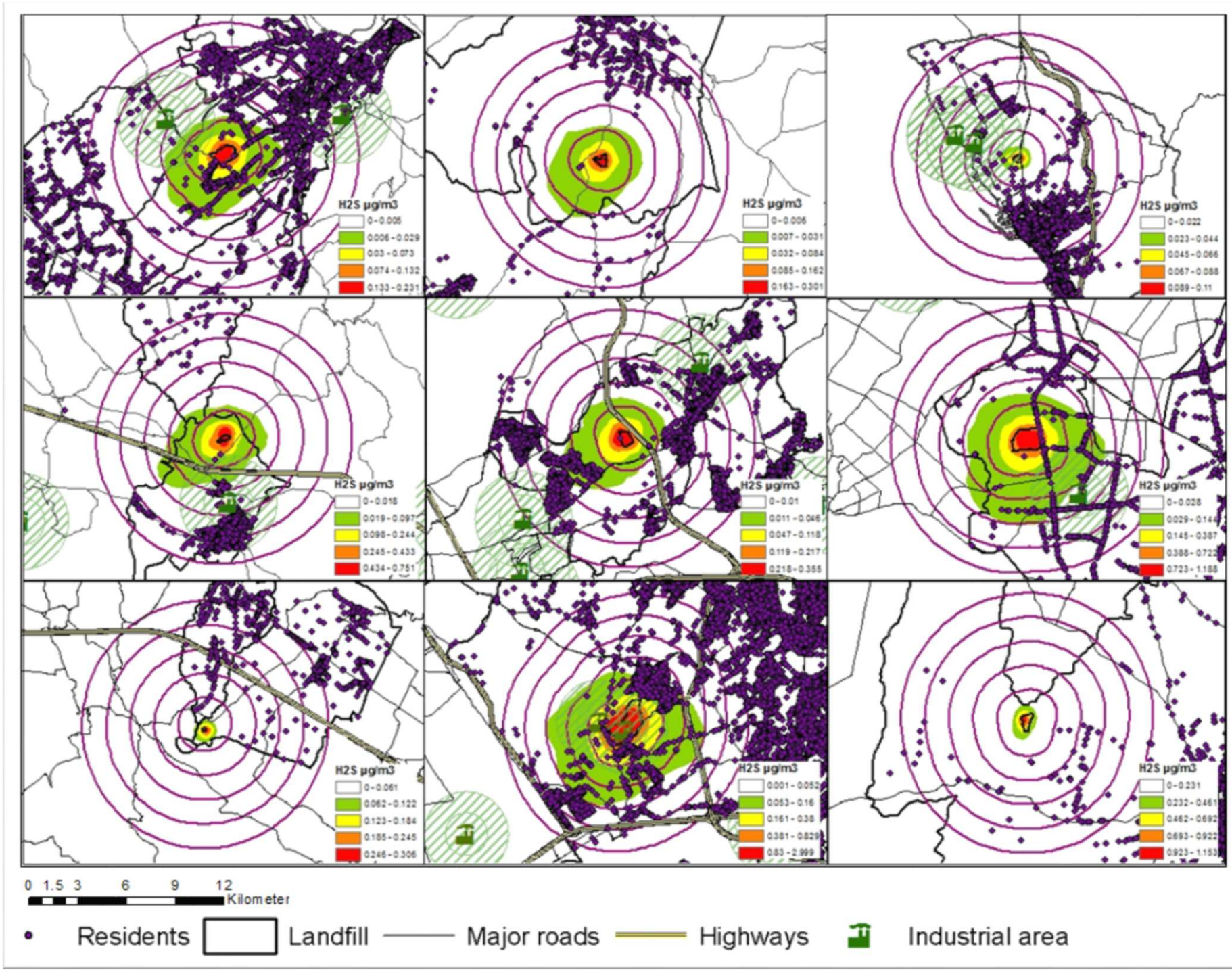
Emissions per hour

Modello di dispersione:
SPRAY - Lagrangian particle dispersion model

Processo per il calcolo delle concentrazioni

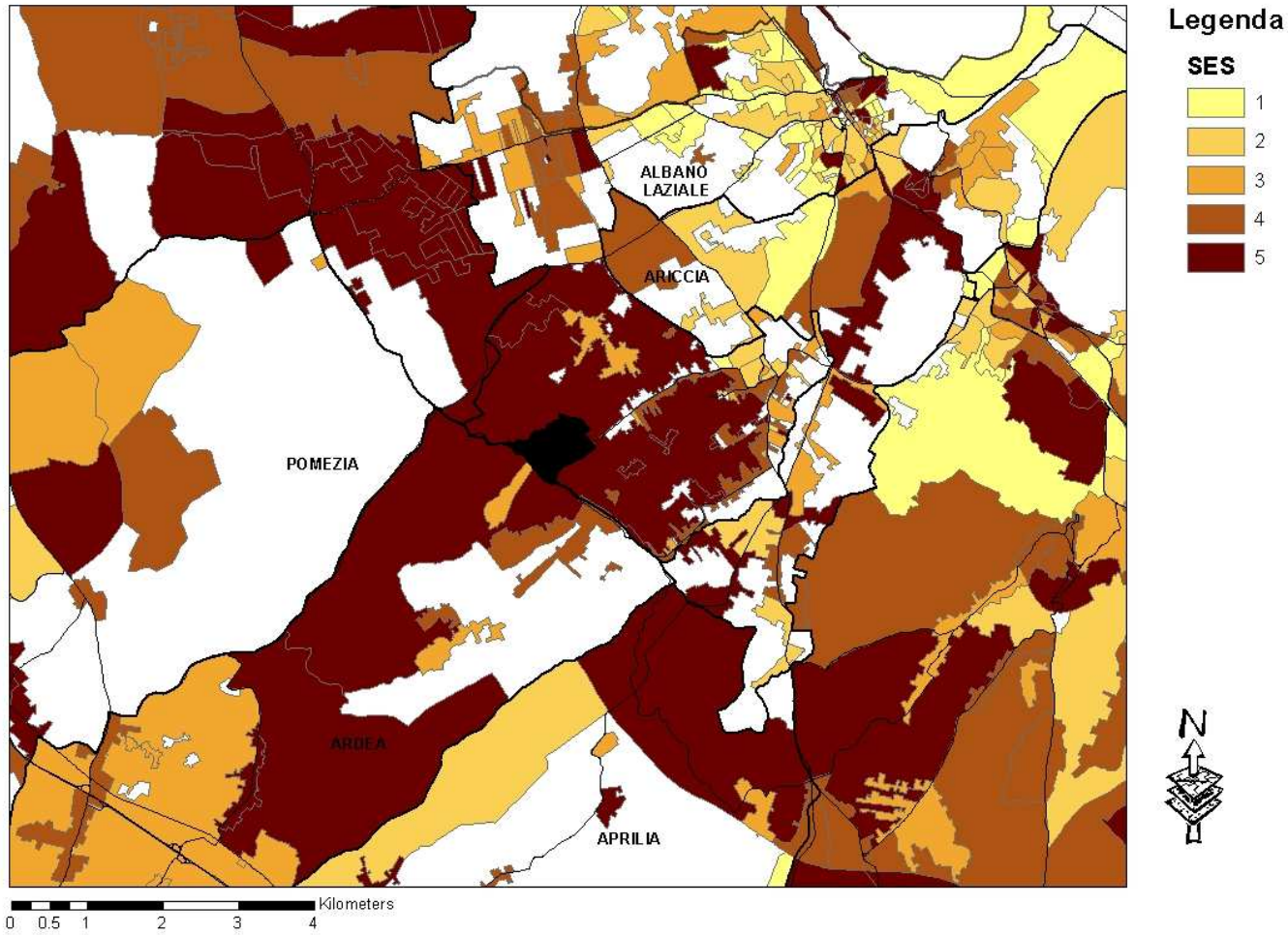
Trasporto a lunga distanza




H2S µg/m3
0 - 0.005
0.006 - 0.029
0.03 - 0.073
0.074 - 0.132
0.133 - 0.231
H2S µg/m3
0 - 0.006
0.007 - 0.031
0.032 - 0.084
0.085 - 0.162
0.163 - 0.301
H2S µg/m3
0 - 0.022
0.023 - 0.044
0.045 - 0.066
0.067 - 0.088
0.089 - 0.11
H2S µg/m3
0 - 0.018
0.019 - 0.097
0.098 - 0.244
0.245 - 0.433
0.434 - 0.751
H2S µg/m3
0 - 0.01
0.011 - 0.046
0.047 - 0.118
0.119 - 0.217
0.218 - 0.355
H2S µg/m3
0 - 0.028
0.029 - 0.144
0.145 - 0.387
0.388 - 0.722
0.723 - 1.188
H2S µg/m3
0 - 0.061
0.062 - 0.122
0.123 - 0.184
0.185 - 0.245
0.246 - 0.306
H2S µg/m3
0.001 - 0.052
0.053 - 0.16
0.161 - 0.38
0.381 - 0.829
0.83 - 2.999
H2S µg/m3
0 - 0.231
0.232 - 0.461
0.462 - 0.692
0.693 - 0.922
0.923 - 1.153
0 1.5 3 6 9 12
Kilometer
Residents
Landfill
Major roads
Highways
Industrial area

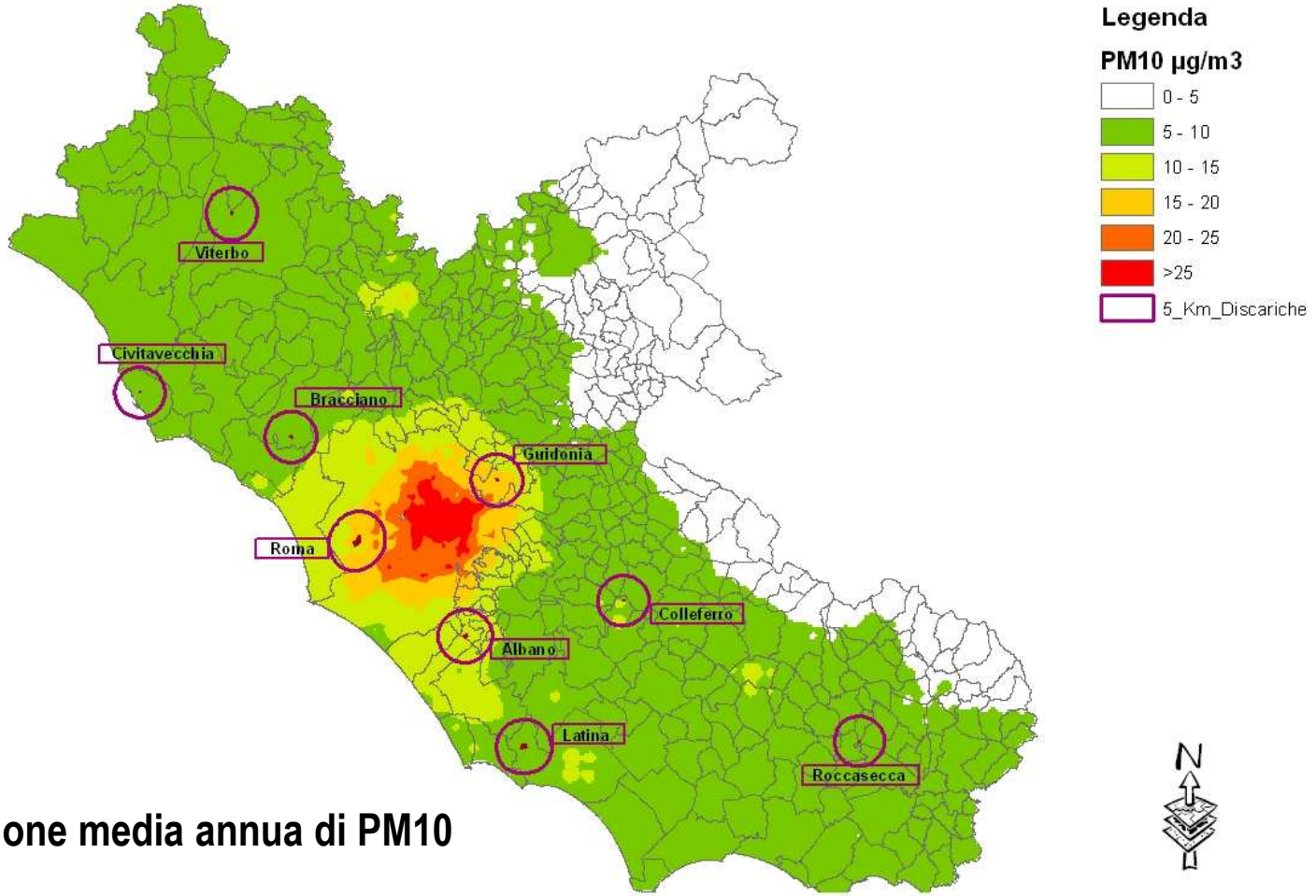
confondenti

Livello socio-economico



confondenti

Inquinamento atmosferico di background

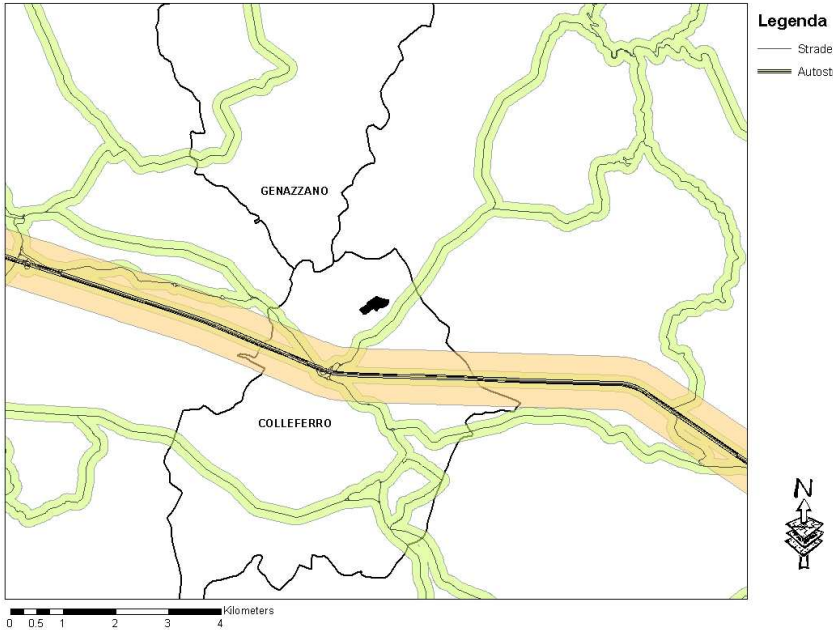


Concentrazione media annua di PM10

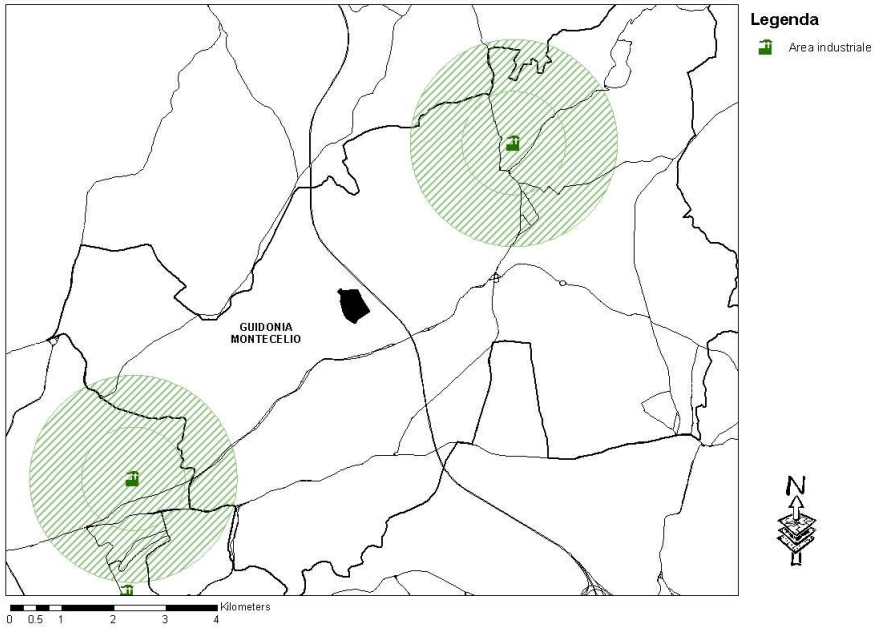
confondenti

inquinamento da traffico stradale:

- Residenza entro 500 m da autostrade;
- Residenza entro 150 m da strade principali



Residenza entro 1 e 2 Km da industrie di rilievo presenti nella regione



Analisi statistica

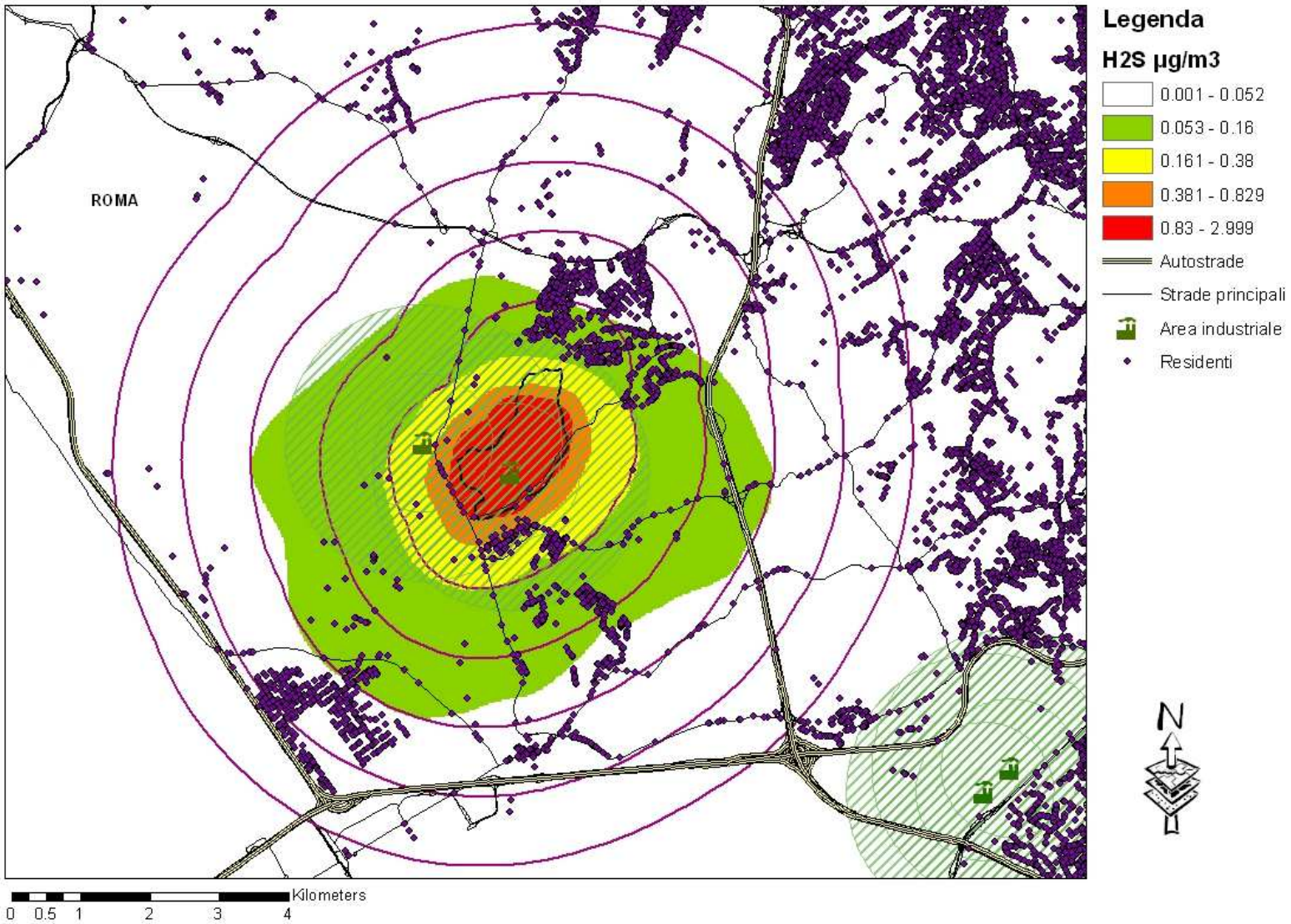
Modelli di Cox:

- Esiti: mortalità e ospedalizzazioni

- Esposizione:

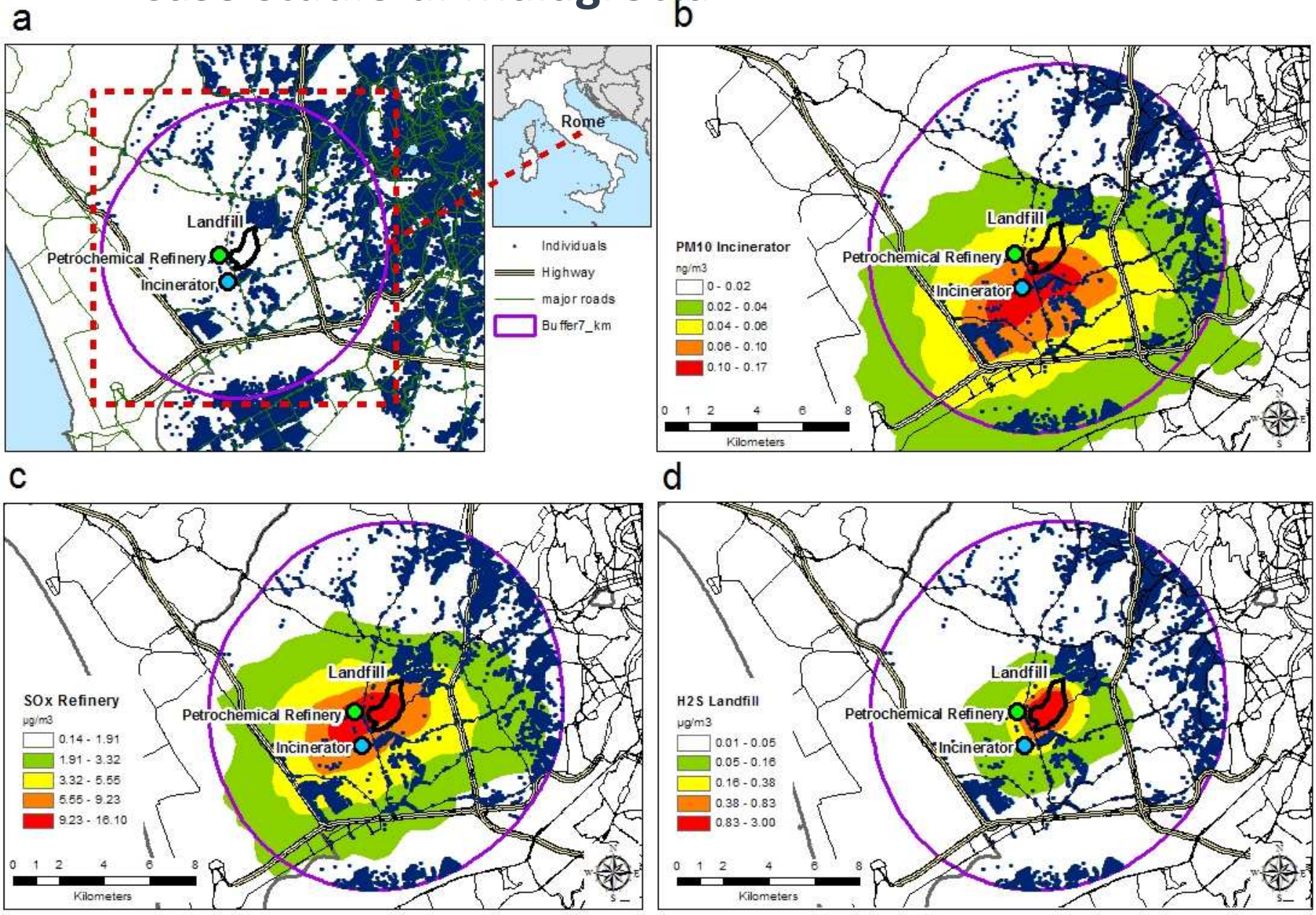
- Confondenti: Età, Livello socio-economico, PM10, distanza da strade principali (150 m), distanza da autostrade (500 m), distanza da industrie (0-1 Km, 1-2 Km)
- Analisi stratificate per periodo (1996-2000, 2001-2004, 2005-2008) e per discarica

Risultati modelli di dispersione

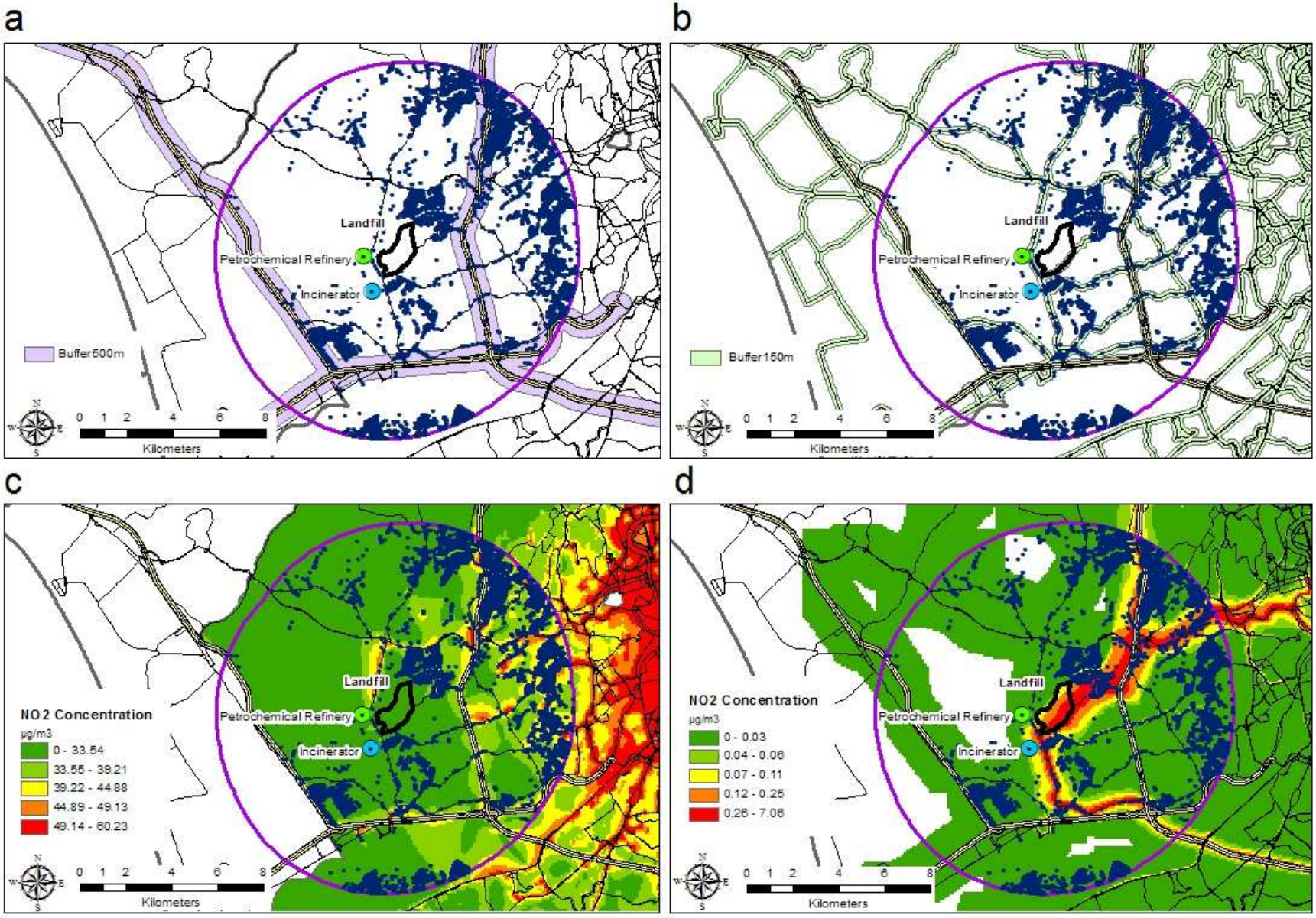


discarica Malagrotta (Roma)

Caso studio di Malagrotta



Caso studio di Malagrotta

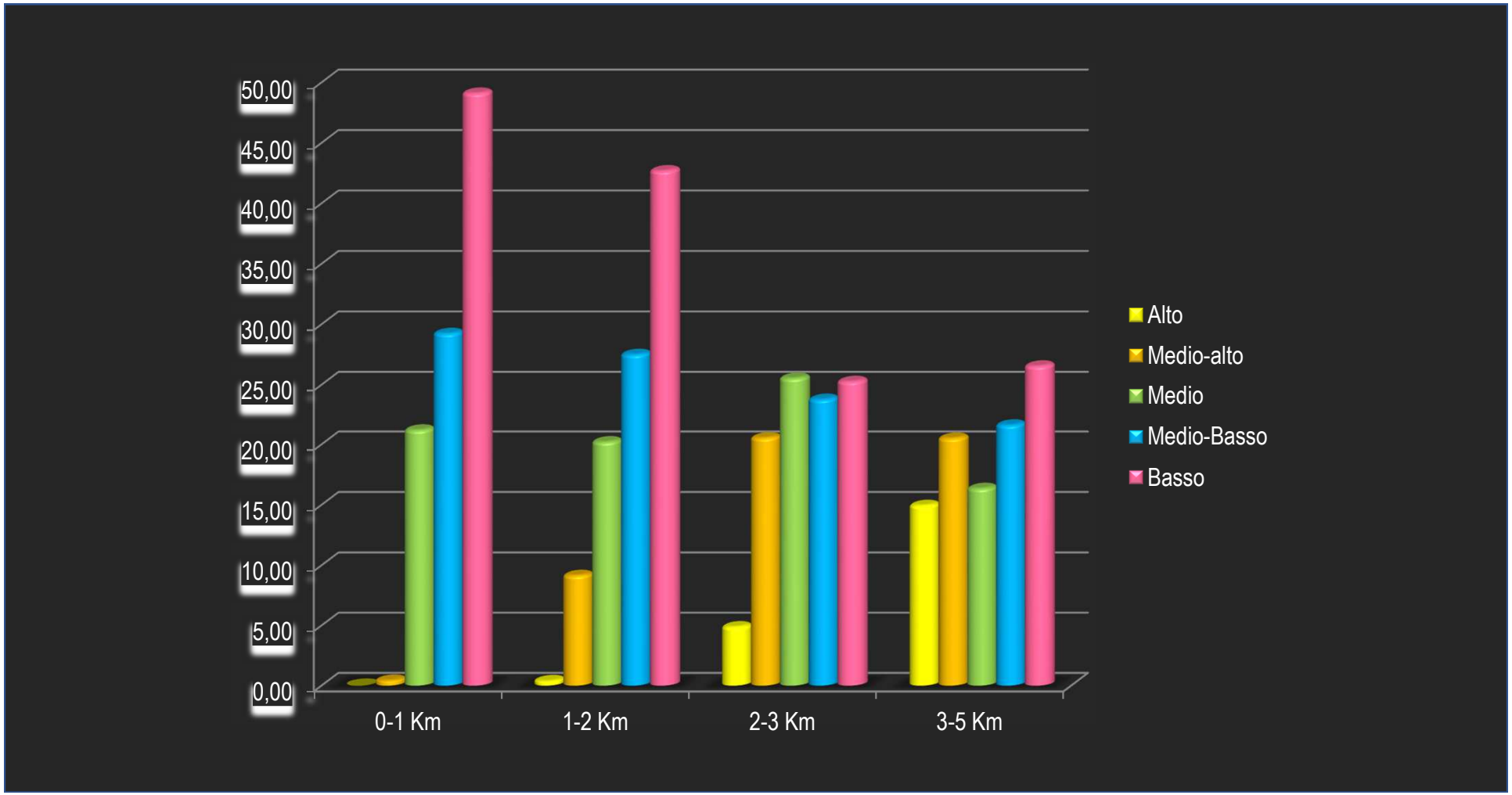


Risultati: caratteristiche della coorte

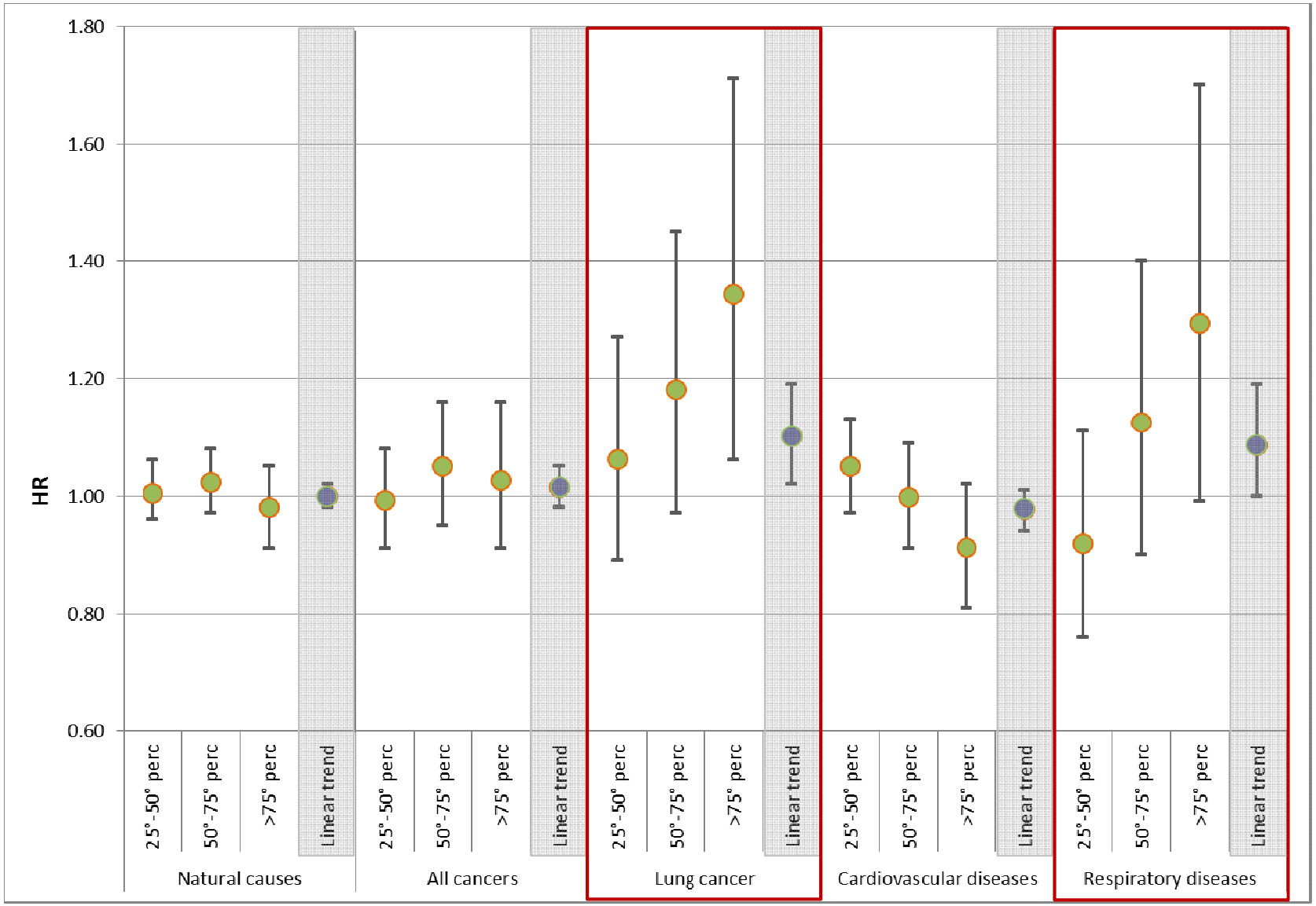
		Totale		Distanza							
		Totale		0-1 Km		1-2 Km		2-3 Km		3-5 Km	
		n	%	n	%	n	%	n	%	n	%
		242,409	100.0	5,187	100.0	21,475	100.0	65,386	100.0	150,361	100.0
Sesso	Maschi	120,232	49.6	2,619	50.5	10,801	50.3	32,369	49.5	74,443	49.5
	Femmine	122,177	50.4	2,568	49.5	10,674	49.7	33,017	50.5	75,918	50.5
Età	0-14	62,244	25.7	1,290	24.9	5,614	26.1	17,142	26.2	38,198	25.4
	15-44	113,719	46.9	2,414	46.5	10,524	49.0	30,867	47.2	69,914	46.5
	45-64	46,249	19.1	1,134	21.9	3,945	18.4	11,964	18.3	29,206	19.4
	>65	20,197	8.3	349	6.7	1,392	6.5	5,413	8.3	13,043	8.7
Discarica	Albano Laziale	52,438	21.6	2,273	43.8	4,386	20.4	15,064	23.0	30,715	20.4
	Bracciano	3,954	1.6	15	0.3	2	0.0	544	0.8	3,393	2.3
	Latina	5,677	2.3	331	6.4	583	2.7	1,785	2.7	2,978	2.0
	Civitavecchia	52,150	21.5	89	1.7	4,446	20.7	24,343	37.2	23,272	15.5
	Guidonia	80,319	33.1	35	0.7	7,919	36.9	19,335	29.6	53,030	35.3
	Viterbo	798	0.3	0	0.0	17	0.1	331	0.5	450	0.3
	Roma	15,096	6.2	2,411	46.5	3,624	16.9	1,211	1.9	7,850	5.2
	Roccasecca	2,610	1.1	21	0.4	65	0.3	694	1.1	1,830	1.2
	Colleferro	29,367	12.1	12	0.2	433	2.0	2,079	3.2	26,843	17.9

Risultati

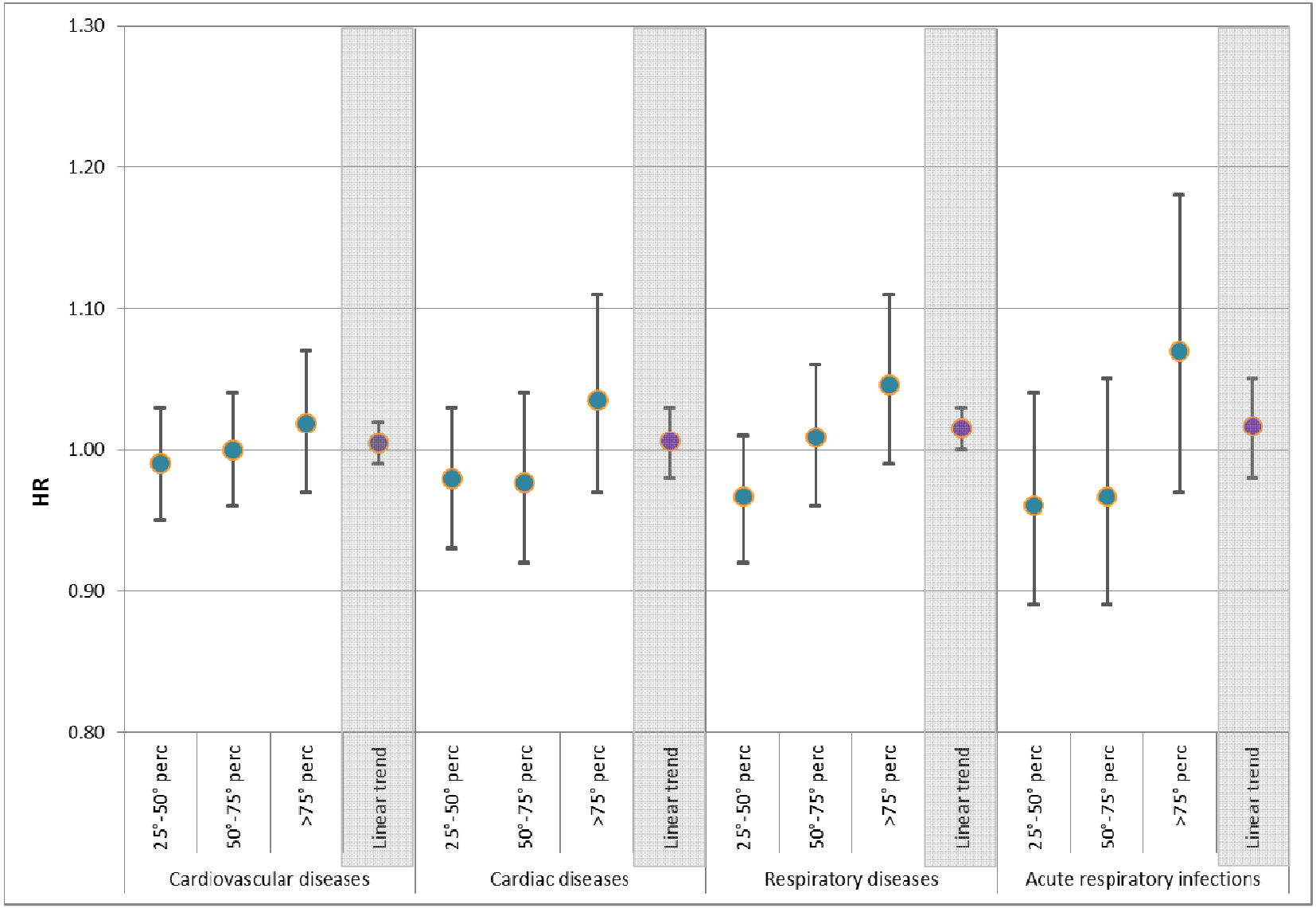
Distribuzione della coorte per distanza dalle discariche e livello socio-economico



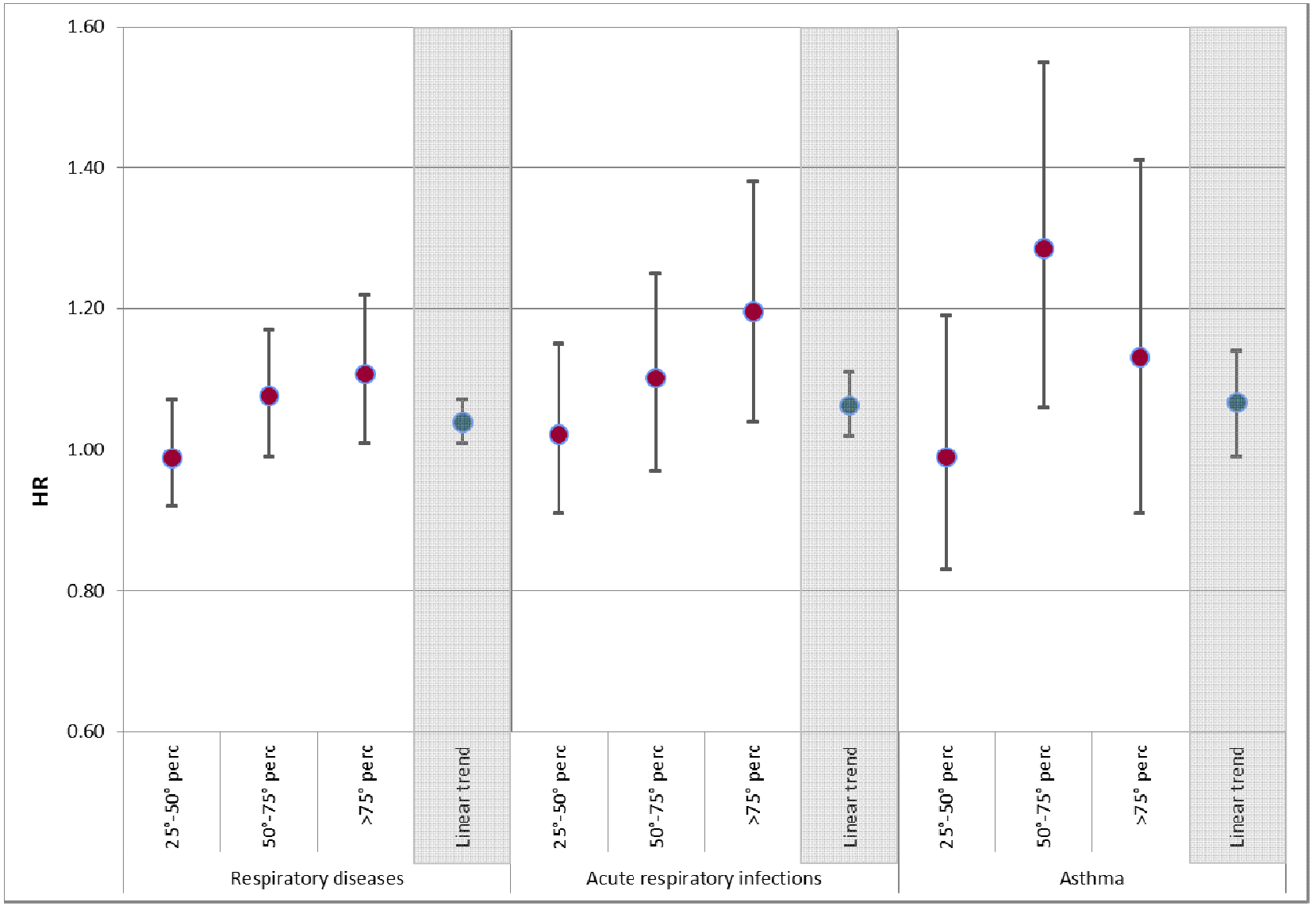
Results: Associations between H_2S (in quartiles and continuous) and mortality



Results: Associations between H_2S (in quartiles and continuous) and morbidity



Results: Associations between H_2S (in quartiles and continuous) and morbidity in children (0-14 years)

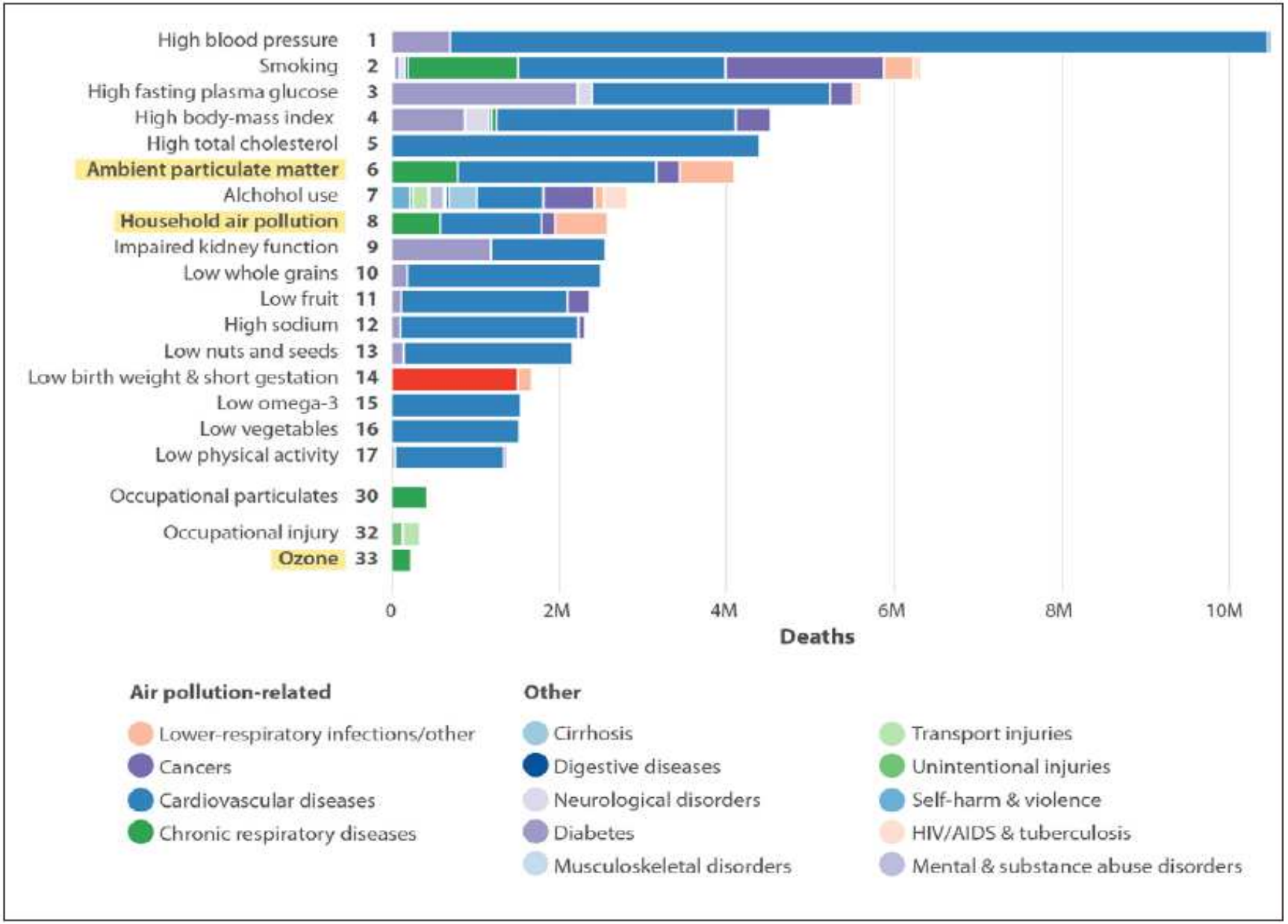


Conclusions

Positive association between exposure to H_2S and mortality for lung cancer and respiratory diseases and hospital admissions for respiratory diseases, especially in children.

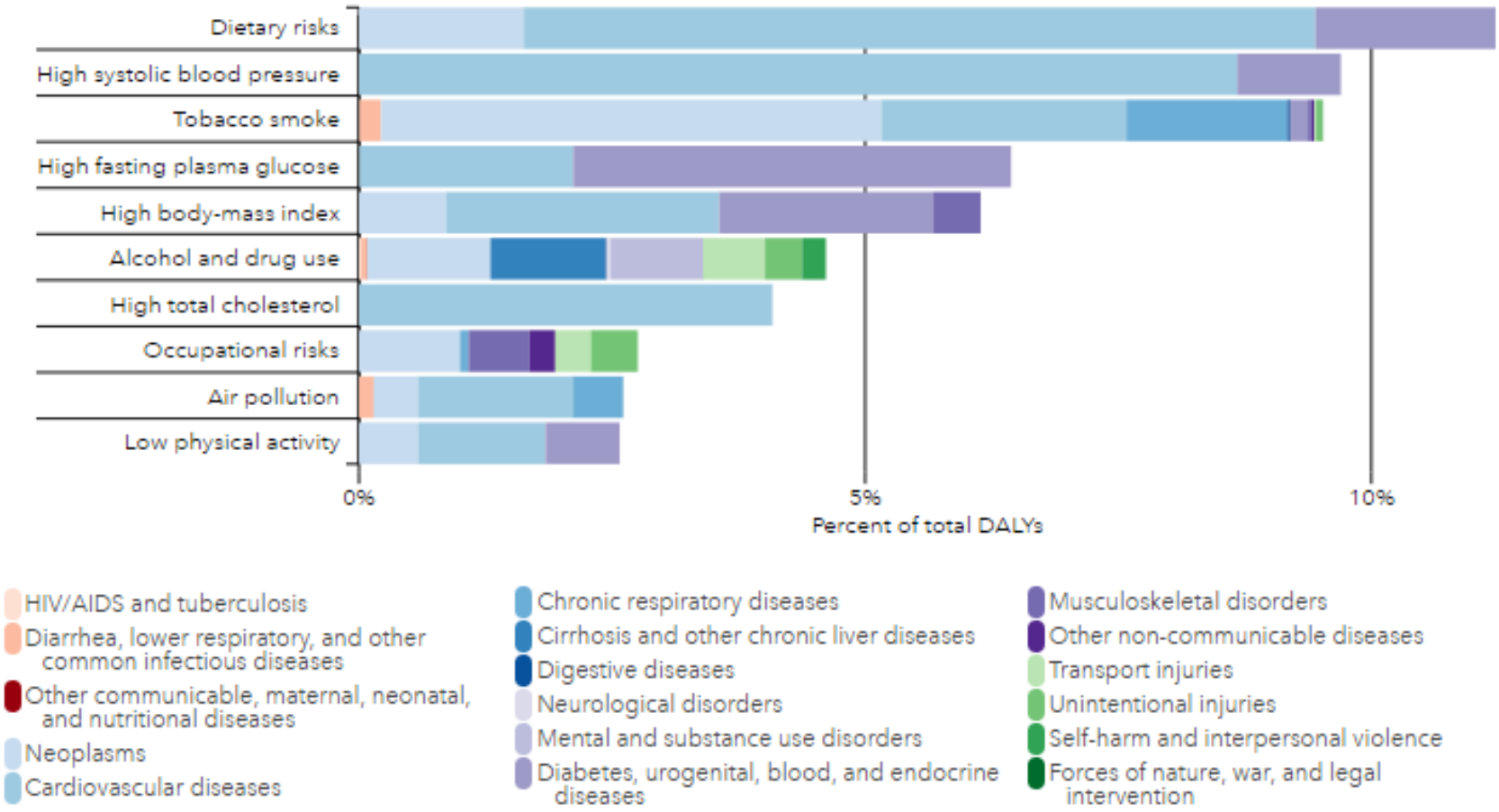
- Study design → Residential cohort approach (no changes of residence)
- Exposure assessment → H_2S concentration (at the beginning of the follow-up)
- Confounding → Environmental and individual confounder (SEP) (no data on personal habits)

Figure 1. Global ranking of risk factors by total number of deaths from all causes for all ages and both sexes in 2016.



GBD 2015 Italy

What risk factors drive the most death and disability combined?



Top 10 causes of DALYs with key risk factors, 2015

EBD – environmental stressors, EU

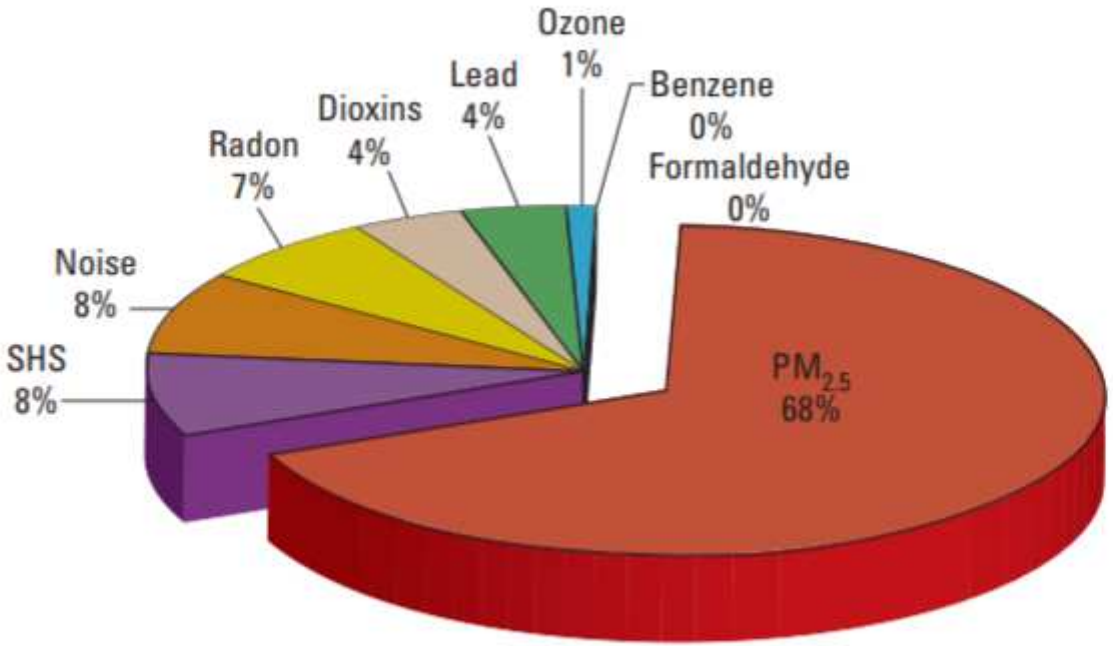


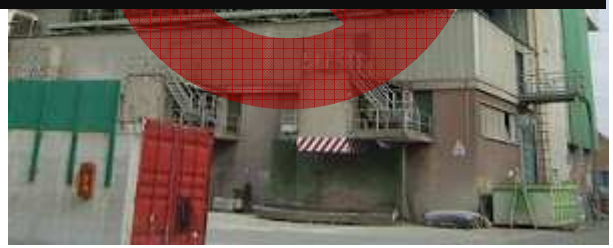
Figure 1. Relative contributions of the nine targeted risk factors to the estimated burden of disease attributed to these risk factors, averaged over the six participating countries. The figure is adapted from Hänninen and Knol (2011) with permission from the copyright holders.

Hanninen 2014 http://dx.doi.org/10.1289/ehp.1206154.

Quali sono le soluzioni?

STOP AI RIFIUTI?

CONTROLLI!!!



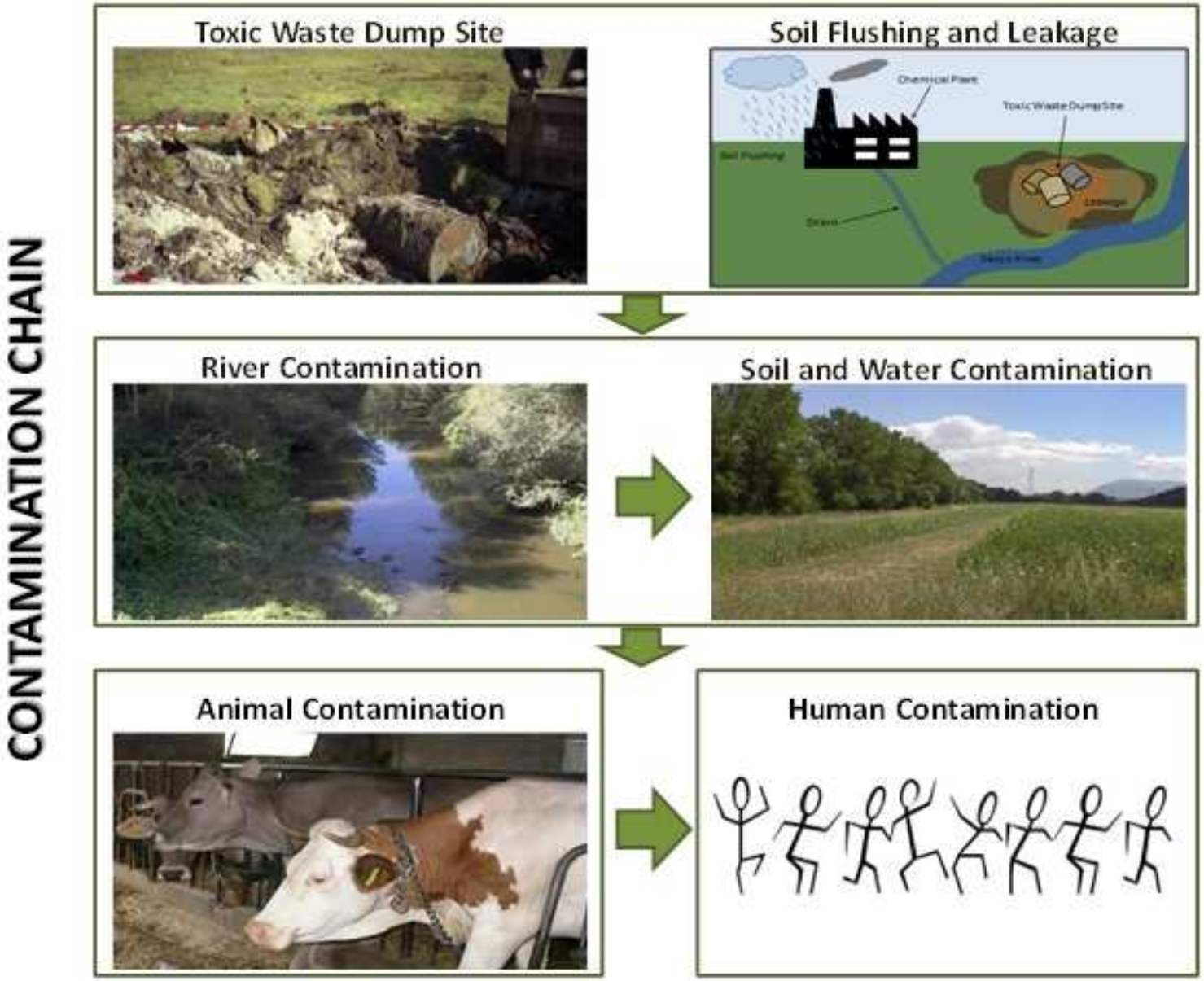
SMALTIMENTO ILLEGALE DI RIFIUTI
=
SITI CONTAMINATI

La terra dei fuochi

La Valle del Sacco

http://www.deplazio.net/it/rapporti/cat_view/45-rapporti-2013

La Valle del Sacco



E io cosa posso fare?

4 gennaio 2016

Francia, scatta l'obbligo doggy bag Coldiretti: 1 italiano su 5 è d'accordo

La normativa appena entrata in vigore si riferisce ai ristoranti con più di 180 coperti e intende di

3.8k

0

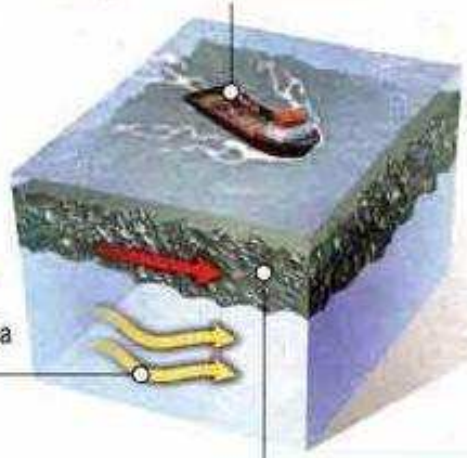
17:08 - Nel 201
di 180 coperti d
riporre gli avan
sondaggio di C
l'iniziativa e aff
volta. L'iniziativ
sprechi di cibo
milione di tonn

Espansione da record per due aree ad alto rischio ecologico

Un oceano di plastica

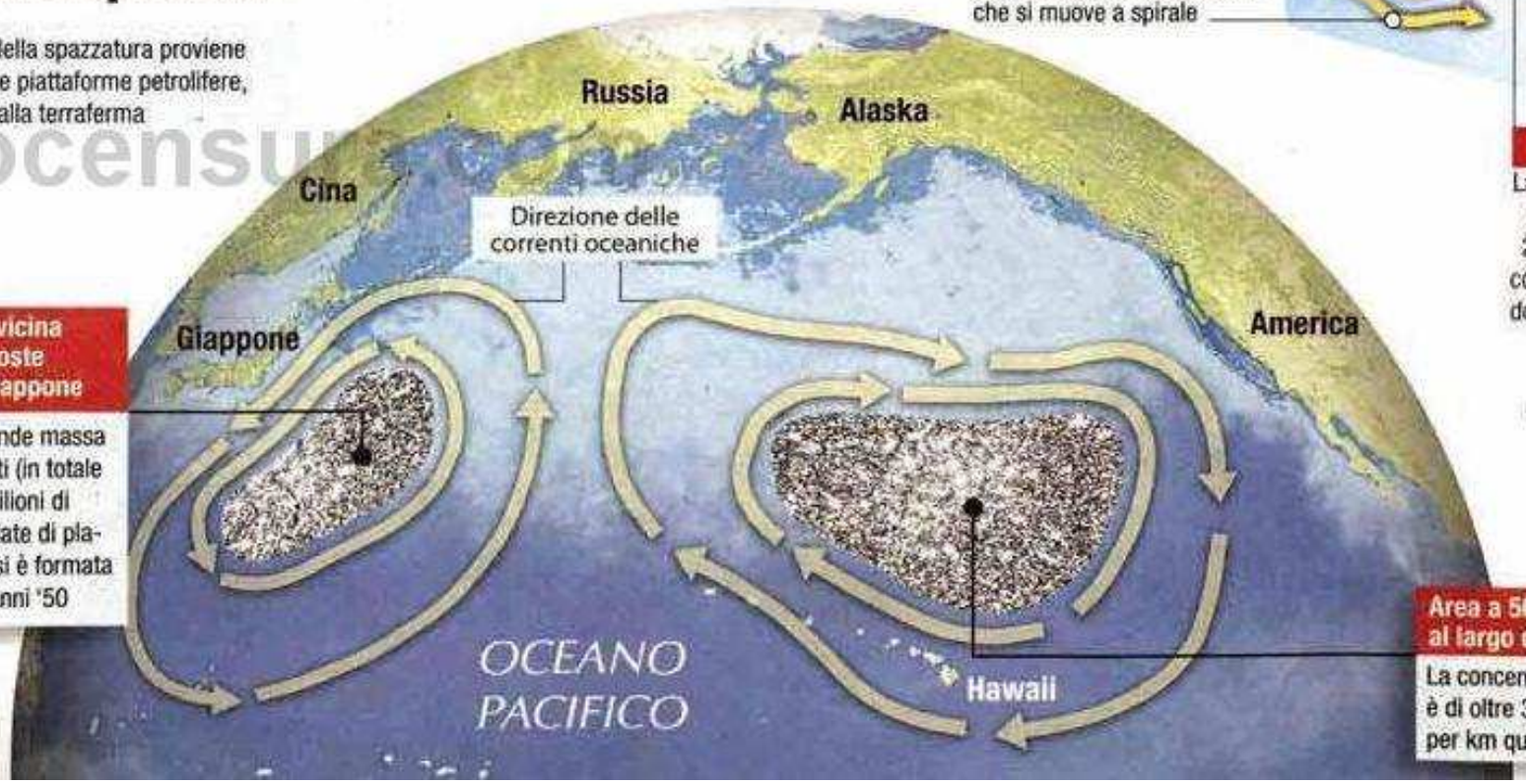
Pacifico: 100 milioni di tonnellate di rifiuti

Il catamarano Arguita, partito il 22 gennaio, sta raccogliendo campioni di rifiuti



Acque sporche

Il 20% della spazzatura proviene da navi e piattaforme petrolifere, l'80% dalla terraferma



North Pacific Subtropical Gyre: lenta corrente oceanica che si muove a spirale

Estensione

La spazzatura si estende su un diametro di circa 2500 chilometri ed è un concentrato senza uguali dove per l'80 per cento è composto da plastica. Il fenomeno, poco conosciuto, è chiamato Pacific Trash Vortex. Lo strato di detriti raggiunge i 10 metri di profondità

Area vicina alle coste del Giappone

La grande massa di rifiuti (in totale 100 milioni di tonnellate di plastica) si è formata negli anni '50

Area a 500 miglia nautiche al largo della California

La concentrazione di plastica è di oltre 3 milioni di frammenti per km quadrato

Health Sector Role

Synthesize Evidence; Develop Guidelines; Track Progress

- Provide evidence on health impacts of sustainable development & green economy strategies/technologies
- Develop evidence-based guidelines supporting effective interventions
- Use Health Impact Assessment (HIA) to assess policies
- Define and monitor health indicators to measure results and contribute the tracking of SDGs (3, 6, 7, 11, 13)
- Convene Ministries of Health and other sectors to address public health issues

Health Sector Training

World Health Organization

Target audience

CLINICIANS

- Physicians including general practitioners, as well as nurses, midwives and other health professionals who can be considered as patients' caregiver
- Medical students and future health care professionals
- Community health workers

PUBLIC HEALTH PROFESSIONALS

- All workers, with or without a medical background, whose job is related to serving the population in attaining the best health possible
- Not working on an individual level – as clinicians do – but are rather at a population level
- Being involved in fields such as epidemiology, clinical research, environmental health, health policy, health management, both at the national and local level.


Foto dal post di Fridaysforfuture-Roma in 24 maggio - Roma - Global Strike For Future
AGIRE PER CAMBIARE
GRETA
FUTURE
MAY 24TH, 2019
GLOBAL STRIKE FOR FUTURE
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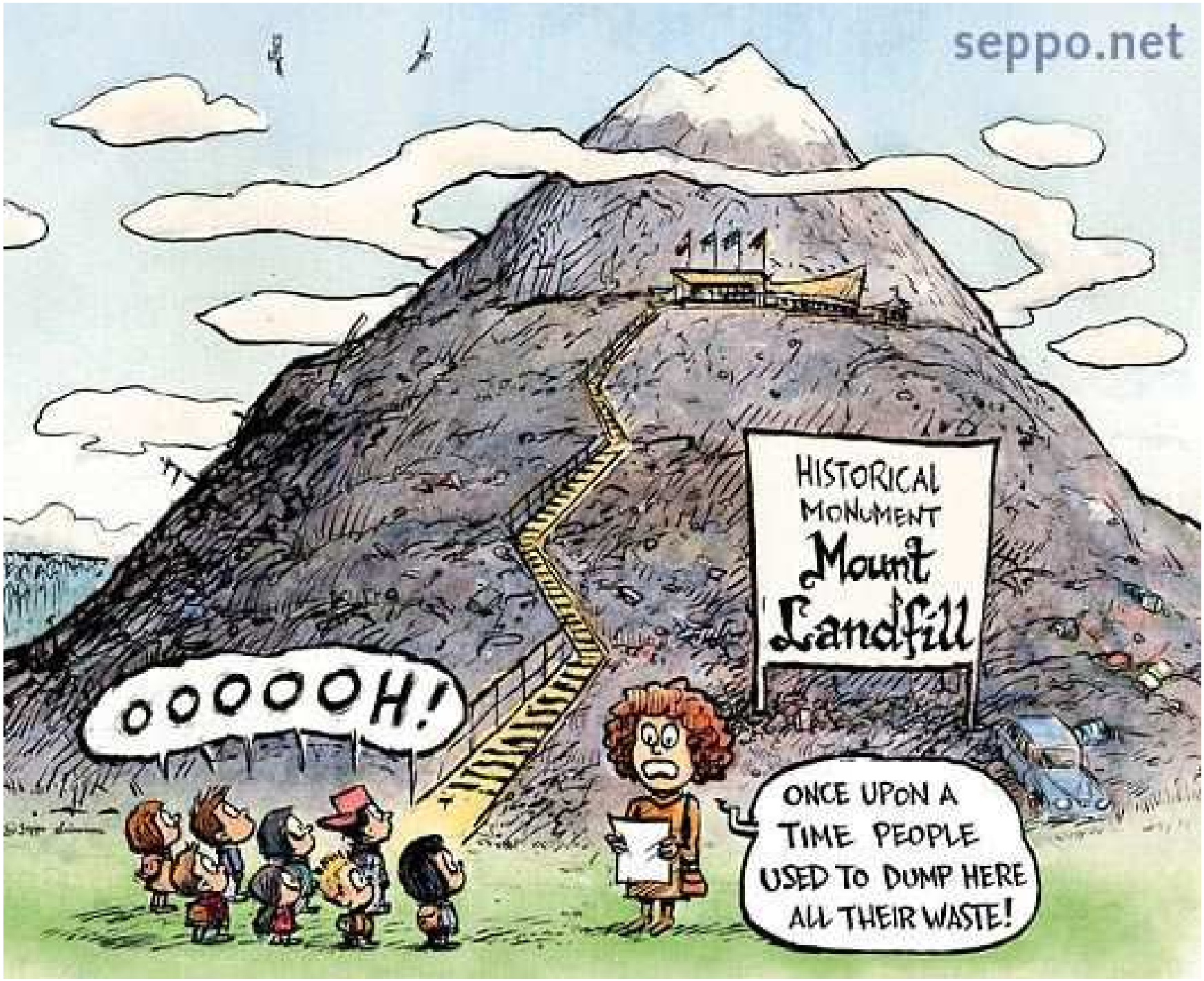
Ringraziamenti

Carla Ancona,
Francesca Mataloni,
Martina Golini

www.deplazio.net

Dipartimento di Epidemiologia, SSN Lazio

Non ho ora e non ho mai avuto legami di carattere istituzionale ed economico che possono avere avuto una influenza sul disegno, conduzione e interpretazione dei lavori presentati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OOOOOH!
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