

# **Spatial and Environmental Determinant of Health**

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# Spatial vs environment

- **Spatial:** relating to, involving, or having the nature of space; anything above the ground are included, e.g. humidity, human behavior, culture, topography, plantations, buildings, soil condition, habitat of vector; they all influence the disease's outcome-e.g. viability of microorganism in the environment, habitat associated to vector borne diseases
- **Environment** – The total of all surroundings of a living organism, including natural forces and other living things, which provide conditions for development and growth as well as of **potential threat to health**.
- **Environmental Health** only concern to 5 media's: **air, water, food** (+soil), **insect** (disease vector) and **human** (interaction)

# Malaria transmission at Village washing area, Banjarnegara, 2004: which need an Integrated management socio-environment determinants

In the dry  
season many  
people visit at  
night to  
collect clean  
drinking water  
because water  
is scarce



Spring at 10 m.

Water pipe  
from spring

Environment vs  
spatial (incl habitat)



# Malaria Transmission in 'lada' plantation: local specific



Local specific, the whole community are at risk in the plantation

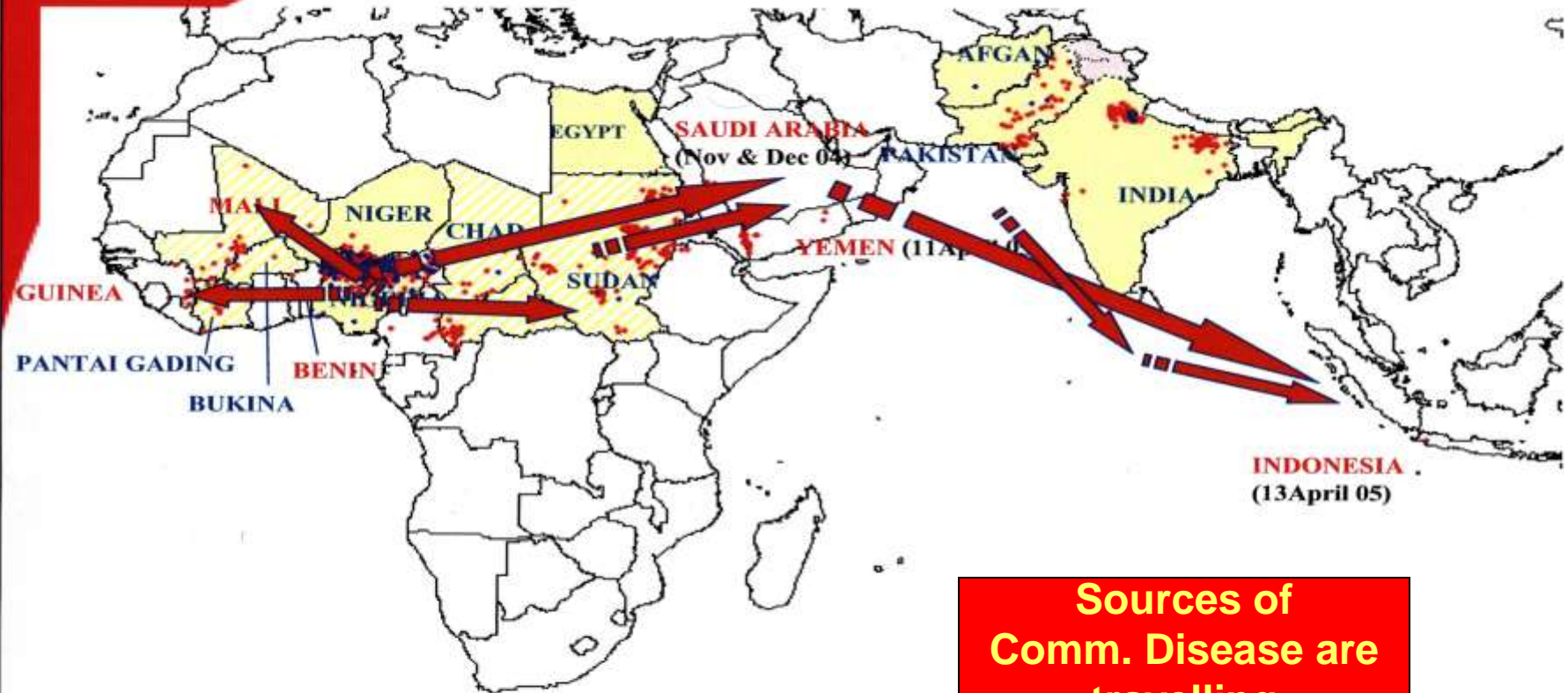


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# Map of global movement of the virus (Africa - Middle East - Indonesia)

**Wild Poliovirus\*, 04 May 2004 to 03 May 2005**



- Endemic countries
- Re-established transmission countries
- Case or outbreak following importation

\*Excludes viruses detected from environmental surveillance and vaccine derived polio viruses.

Data in WHO HQ as of 03 May 2005

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.  
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**Cidahu, Sukabumi, May 2005: the river contributed to the spread the polio virus (outbreaks).  
Polio Virus could only live at the human intestine: whose intestine?**





**Risk Factor of the spread of  
Wild Polio virus**





# The Dynamic of potential Mercury Poisoning

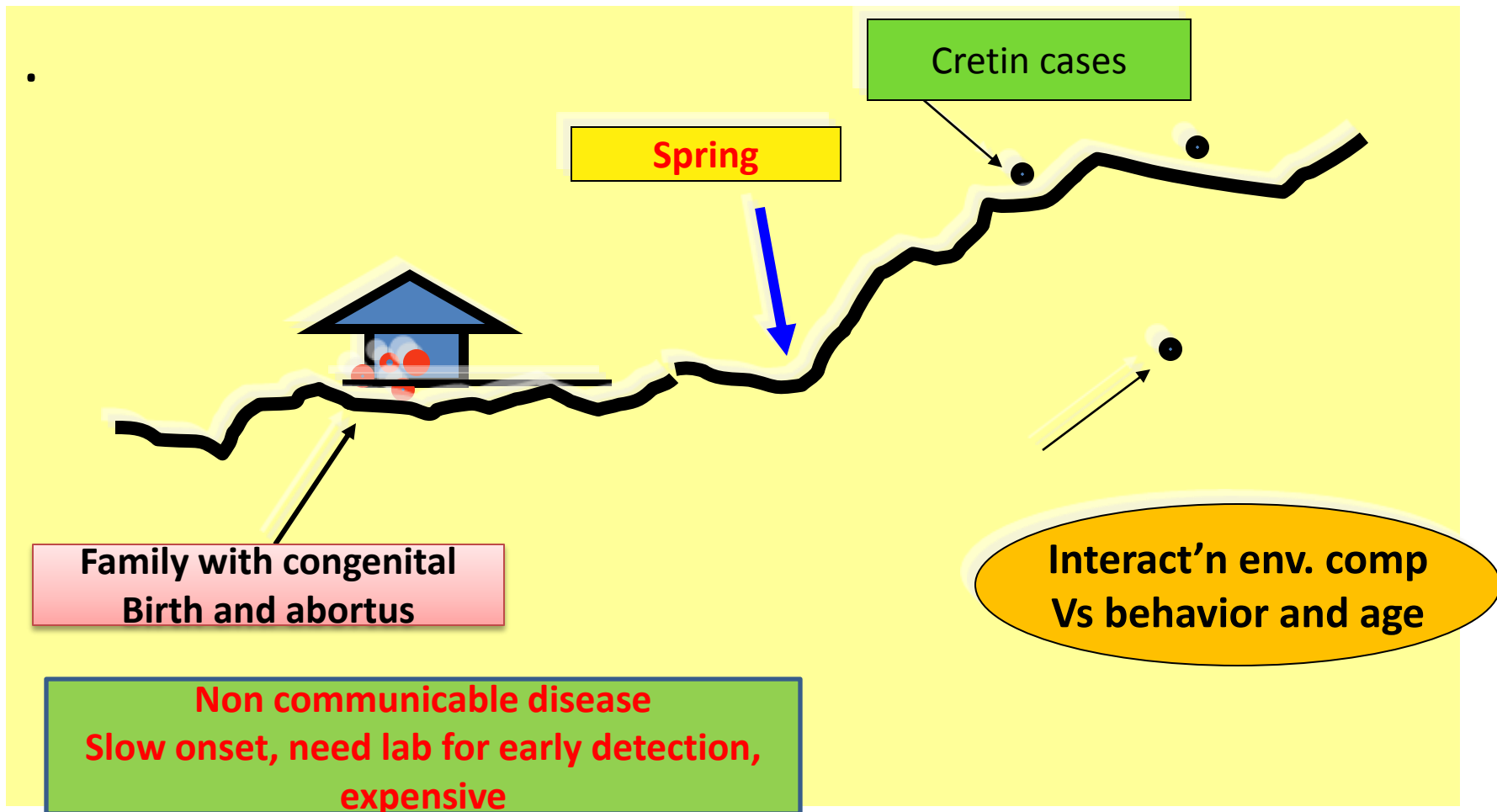
- Up stream: Small scale gold miners as source of **inorganic mercury**
- Down stream the mercury entering waterways and finally at the agricultural product



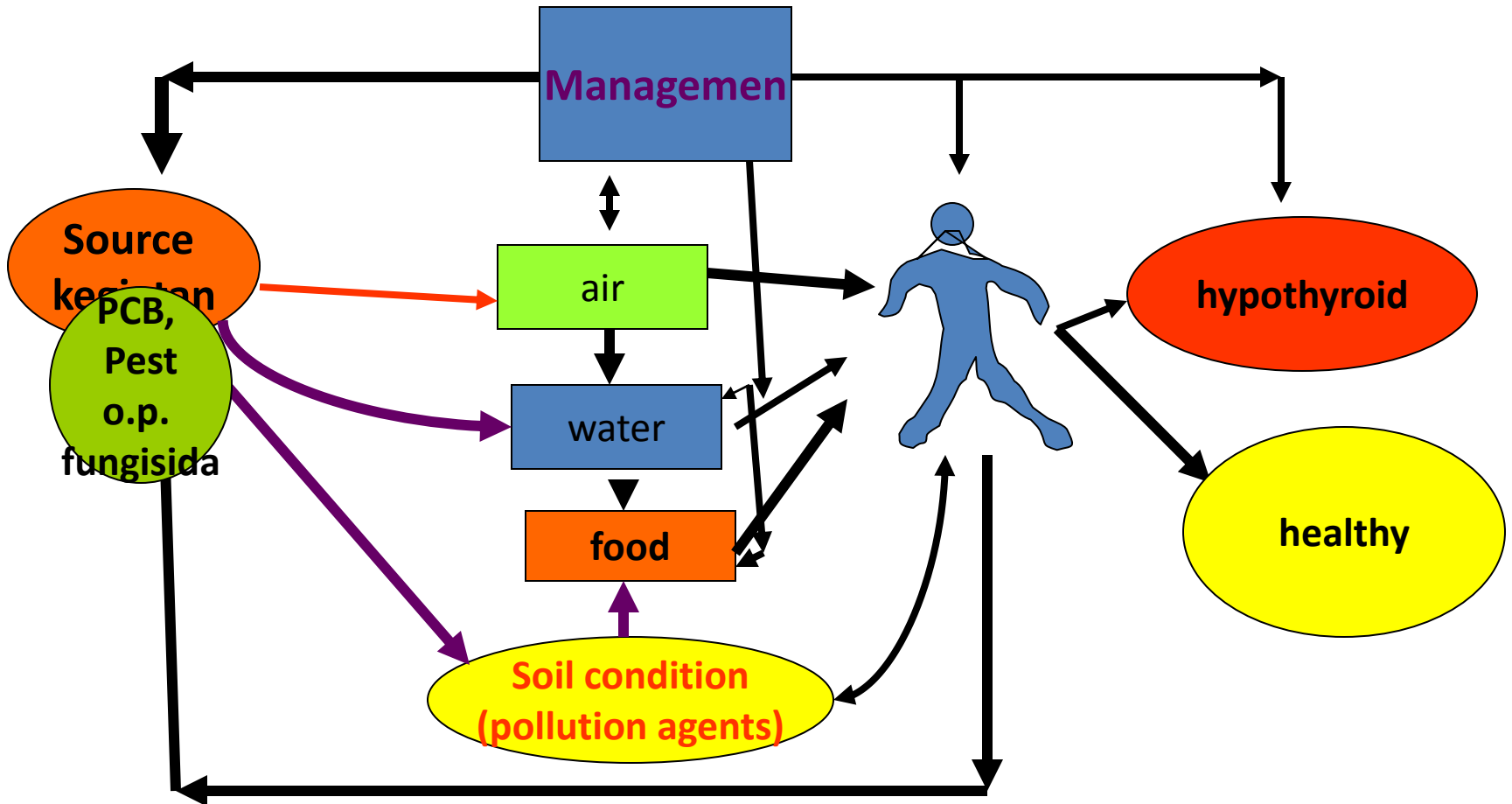


# Ponorogo, Case, 2011

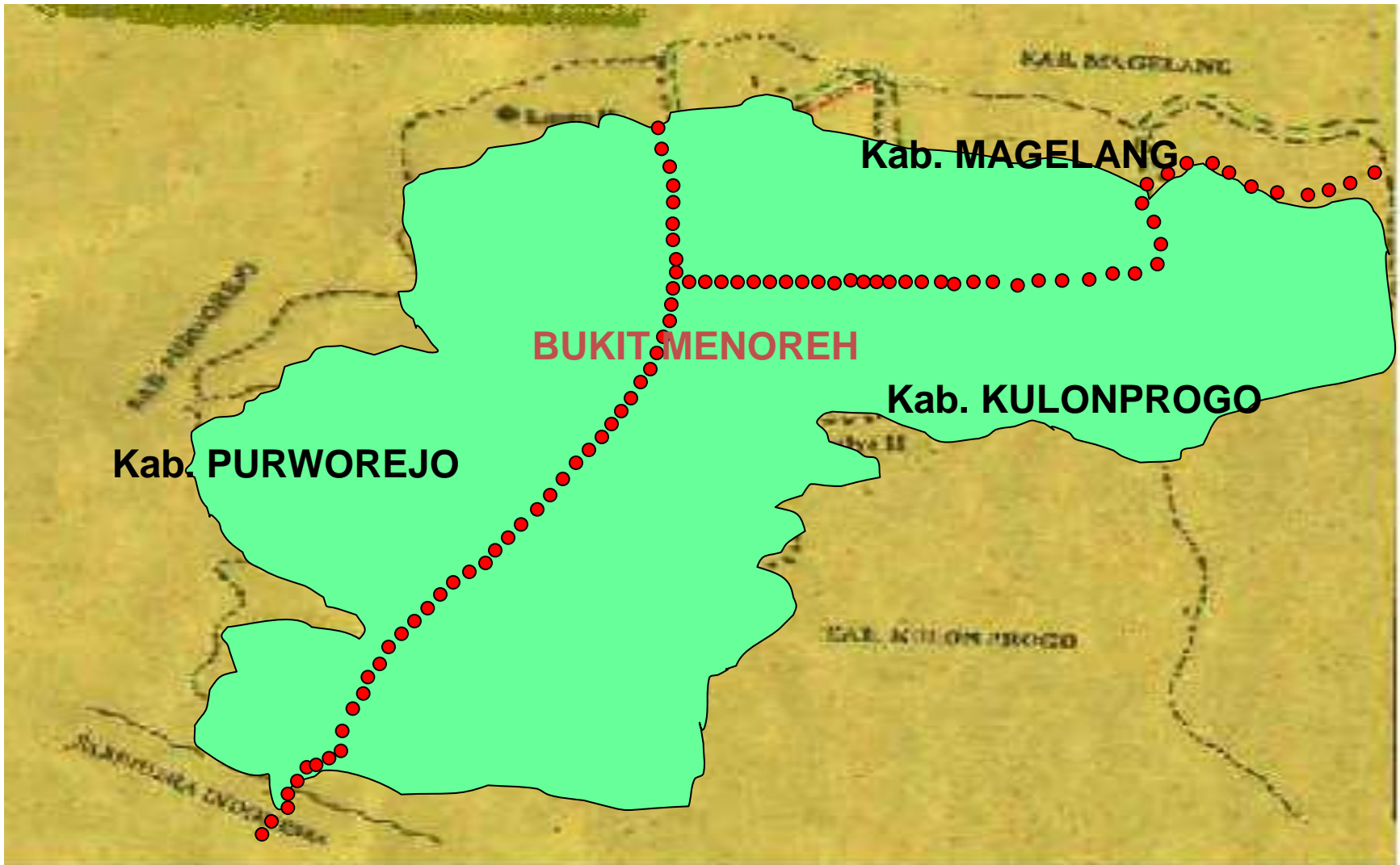
## food (bounded to soil) and water minerals deficiency



# Hipothyroid at low land (coastal area) Kenjeran-Surabaya and agricultural setting/area, Brebes, central Java, 2011







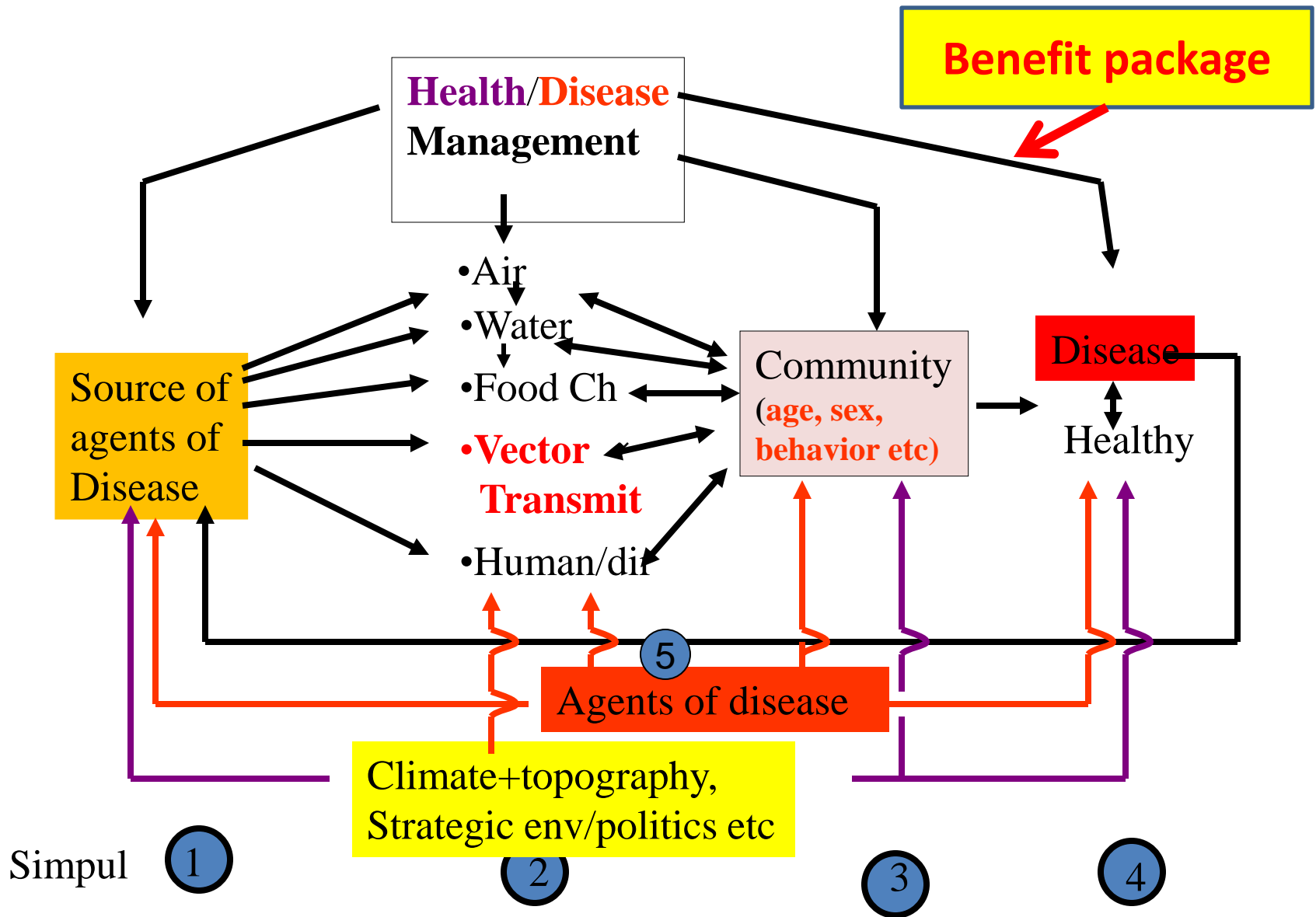
**Anopheline 's (malaria) ecosystem at Menoreh Hills VS Triangle of autonomous administrative area**

# Health status (disease outcome)-the anal of the system-the end of the story

- **Disease outcome bounded to ecosystem (environmental health) and culture (behavioral aspects)**
- **Disease outcomes is the essence of the community health status**
- **It has multi variables, multi sector in nature**
- **Local specific – some are complex, mixed problems**
- **Disease out comes has no boundaries, no Administrative boundary (trans-boundaries)**



# The Basic of *Simpul* Theory of the disease occurrence (UFA, 1987)



# What is Public Health

**Public health is any efforts for enhancing health prolonging life characterized by:**

- 1. *Community Based***
  - 2. *Preventive (+ promotive) oriented.***
  - 3. *Multidiscipline (total system – in a specified area of state)***
  - 4. *Community involvement (participation)***
  - 5. *Organized***
- (UF Achmadi, 2005)***



# Concluding remarks

- **Incapability of the local health manager in the process of identifying spatial and environmental risk variables will fail in managing the health of the people.**
- **Spatial and environment always local specific so the pathogenesis of the disease which in turn should be well recognized**
- **Need an integrated management: case management (i.e., curative) and risk factor management**

## ...concluding remarks

- **Understanding the dynamic of the disease occurrences is an essential evidence for the bases of proper resource allocation**
- **Improper management may have been associated to disparity of the health condition between one area to another**

## Concluding remarks

**UC-universal health coverage is not the only 'panacea' to solve the problem of health in Indonesia at the grass root level. There should be a guarantee that environmental health management is practiced; resource?**

**Health services (curative) covered (by UC), but environmental health risks are decentralized**

- To overcome the disparity, is not only an universal health coverage issues**



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