

CLEEN

Cluster for Energy and Environment



mmea

Measurement, Monitoring and Environmental Assessment

WP5.2.6 China TestBed

Heikki Pentikäinen



Research / Development Items

- The China Testbed project strives to form a catalyst for creating new environment related research and business opportunities together with Chinese partners.
- How to determine environmental business applications for Chinese markets by utilizing measurement technology, modeling and environmental efficiency analysis of MMEA?
 - Business study about environment related business opportunities in China.
 - Environmental information market place and value-adding services in China.
 - Business applications in China, combining environmental sensors, sophisticated modeling, mobile technology and citizen involvement
 - Assistance for establishing a PM2.5 knowledge web portal in China
 - Piloting EnivObserver, later MMEA platform - Envitori
 - First trials with EnviObserver services in Shenzhen and Helsinki
 - The long term plan is to introduce MMEA platform and Envitori system in China



FP3 Partners and their contributions

Enterprises

Vaisala

- Testbed and monitoring expertise
- Expertise in business development in China

Fatman

- Pilot planning, specification and platform consultancy

Cubio

- Service planning and specification & collaboration

Dekati,

Pegasor

- Pilot air quality measurement equipment manufacturer

Researchers

VTT

- Task leader: Coordination and collaboration
- China Testbed R&D with mobile application for user observations and measurement data.
- Piloting arrangement in China.

Aalto University

- Business model analysis,
- Mobile measurement and application service expertise with OtaSizzle/ SizzleLab, RePortal and ContextLogger -services

Finnish Meteorological Institute

- Specialists on meteorology measurements, -analysis and weather forecasts
- Specialists in air pollution measurements (PM2.5)
- Network planning and data validation



Collaboration partners in China

Green China Livinglab

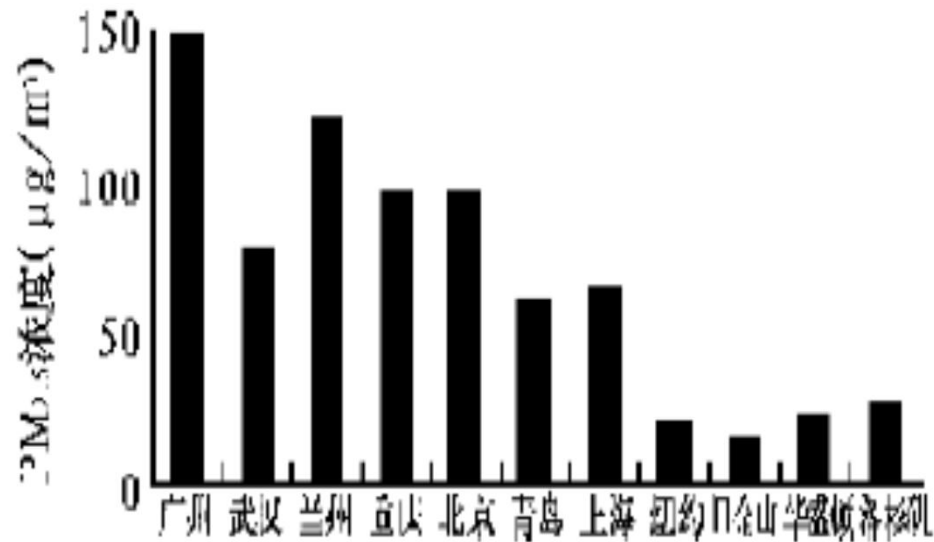
- Partners:
 - **Ministry of science and technology of China**
 - **Shenzhen University**
 - **ZTE**
- The Shenzhen Cloud and Dimension Technology Co.,Ltd (深圳祥云万维科技公司) is the legal secretariat entity and coordinates daily issue of Green China Livinglab .

The lead team:

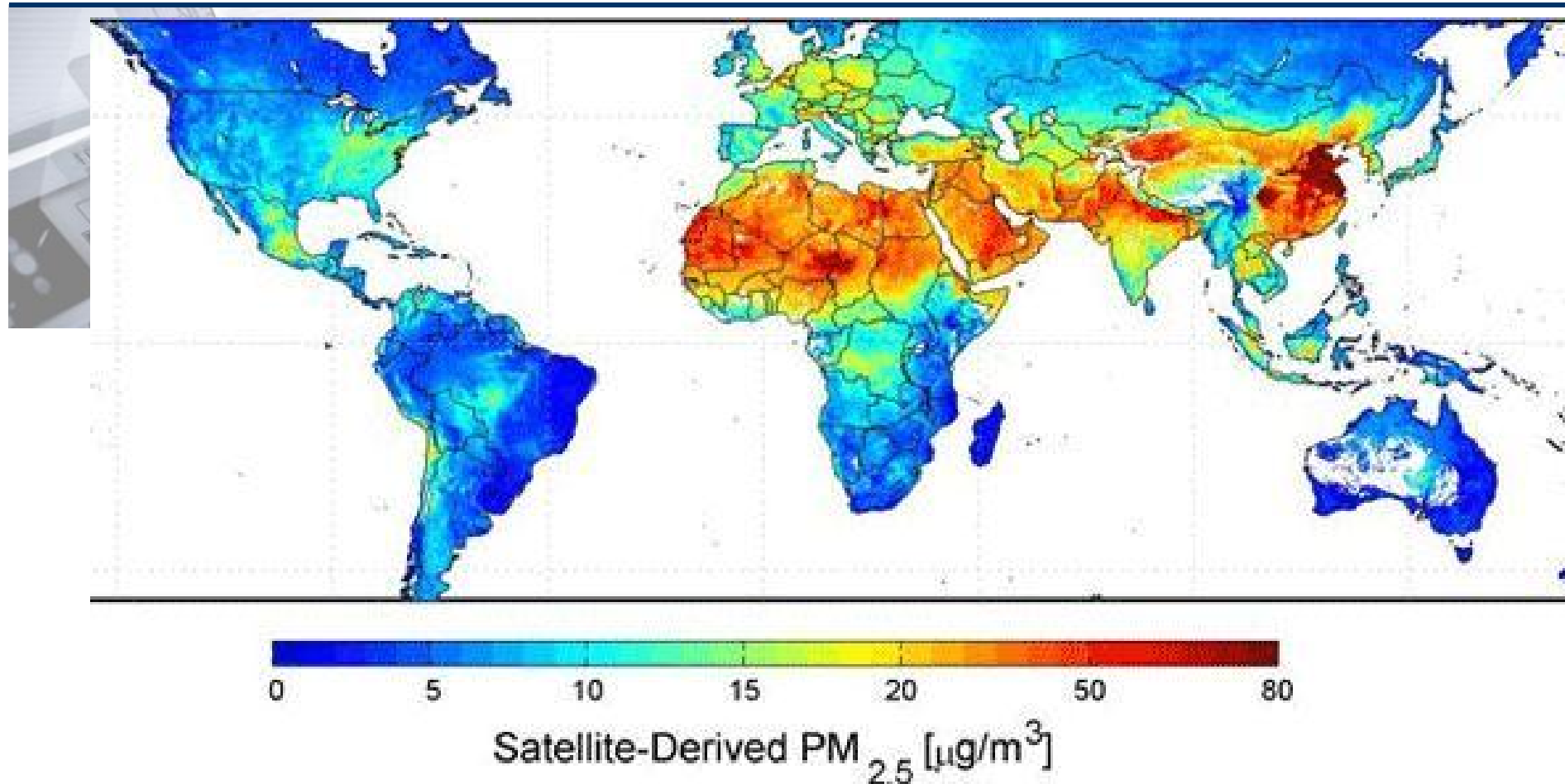
- Mr.Bao yu , Founder and Chairman
- Prof.Chen jianyong , Director and Chief scientist
- Mr.Zhang xinliang , Director and board secretary
- Mr.Cui le , Director

Air Quality in some Chinese cities

城市 PM2.5 浓度比较



The global air quality map-hit a purple patch of China



【图中：颜色由深蓝，浅蓝，到黄色，暗红，代表着PM2.5的浓度越来越高】

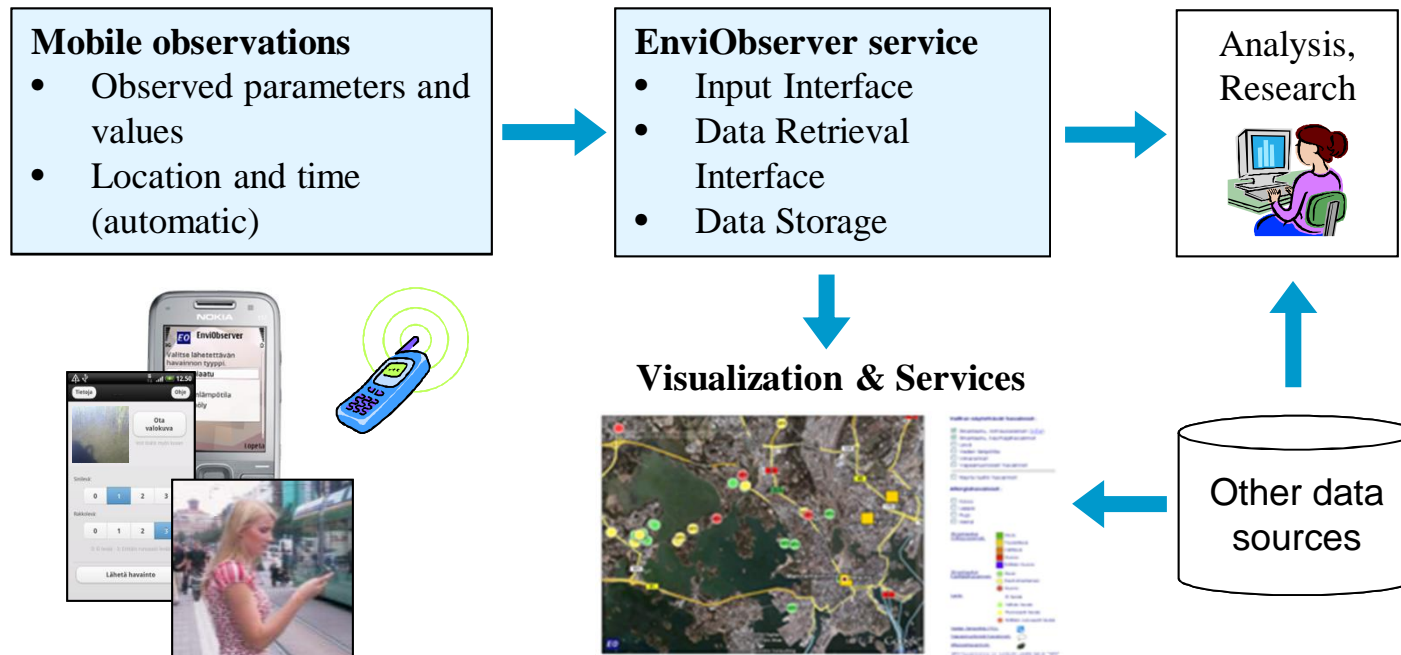
Potential demand

- 
- In the next five years China will have nearly 1000 cities (including county or city), which have population more than 1 M. To achieve the requirements of monitoring PM2.5 at the city level, the amount of monitoring equipment will rise to tens of thousands of units.
 - China have more than 10 M enterprises, (including industry, mining, etc). The need for PM2.5 testing equipment in enterprises will be more than one million units.
 - China has more than 350 million families, of which more than 100 million live in cities and will require cleaner air, which sets demands for more monitoring equipment.
 - China currently has about 200 million smartphone users, potential high-end users to PM2.5 monitoring services..



EnviObserver system

- EnviObserver is a mobile tool for participatory sensing and environmental information services
 - Customizable mobile application and server side components for data handling and service enablement



Shenzor ⓘ

Air Quality Now

Shenzhen	API	37	II
13:00	PM2,5	42	III

User Observations

Recent	Time	Quality	Distance
	14:27	bad	2 km
	14:22	avg	1 km
	12:19	bad	5 km

+ Add Observation

How does the air feel for you now?
Your last observation: 18 hours ago

Shenzor ⓘ

Air Quality Now

Shenzhen	API	37	II
13:00	PM2,5	42	III

Guangzhou	API	37	II
13:00	PM2,5	42	III

Hongkong	API	37	II
13:00	PM2,5	42	III

Beijing	API	37	II
13:00	PM2,5	42	III

Shenzor 🌐

User Observations

Recent My own Stats

Recent observations:

14:27	bad	2 km
14:22	avg	1 km
12:19	bad	5 km
10:02	bad	0 km
08:44	avg	5 km
Feb 21	good	8 km
Feb 21	avg	5 km
Feb 21	good	10 km

Shenzor 🌐

User Observations

Recent My own Stats

My own observations:

14:27	bad	2 km
Feb 21	avg	5 km
Feb 20	good	0 km
Feb 17	bad	0 km
Feb 15	avg	5 km
Feb 14	avg	12 km
Feb 9	good	5 km
Feb 8	good	12 km

Shenzor ⓘ

User Observations

Recent My own Stats

You have made 11 observations in total. You are the 3. most active observer during the last seven days. Great - Thank you!

In total, 472 observations have been made. Of these, 34 this week, with these averages:

22 %	47 %	30 %
good	avg	bad

Shenzor ⓘ

+ Add Observation

How does the air feel for you – right now, right here?


good
average
bad

Add photo (optional)

Send

Shenzor ⓘ

Images



10:02
bad
0 km

Shenzor ☰

User Observations

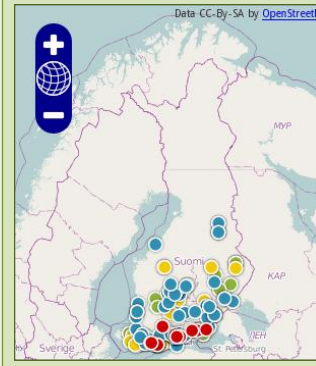
Recent My own



Shenzor ☰

User Observations

Recent My own



Shenzor ⓘ

Settings



Achievements in FP2

- China Testbed started during FP2
- Initiation of research collaboration with Green China Livinglab -organization and ZTE and Shenzhen University
- Visiting Shenzhen with China TB delegation in January
- Agreeing about first pilot installation in Shenzhen
- Agreeing on MOU to be signed between parties
- Preparing the start of the first pilot in July 2012 in Shenzhen



Activities in FP3

- Enviobserver and mobile applications are ready for installation in Schenzhen
- Server purchase for EO under negotiations
- Dekati's and Pegasor's air quality instruments are integrated with EO and are ready to be shipped to Schenzhen
- Installation sites for AQ –instruments selected at Schenzhen University
- A test group of EO and the mobile service are formed among students of Schenzhen University



Next steps

- Installation of EO in Shenzhen
- Shipment of the AQ instruments to Shenzhen
- Starting EO demo with students in October
- Installation of AQ instruments in Shenzhen in October
- Summary of EO demo in November
- Air quality workshop in Shenzhen in November
- Starting pilot with AQ instruments in Shenzhen and in Helsinki in December
- Pilot ready in February 2013

Thank you !



Contact: Heikki.Pentikainen@vtt.fi