nextmap

nextlab event 2008
Designing Mobile Technologies for the Next Billion Users

Team

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Overview

Nextmap is a platform agnostic toolkit for mobile data collection, processing, and dissemination with initial applications in disaster management and environmental conservation.

Project Parters

InnovGreen

Courtesy of Catholic Relief Services. Used with permission.

3 projects

CRS Questionnaire

Using off-the shelf solutions to fix the CRS cellphone-based survey.

For CRS representatives

CRS NextMap

Using SMS-based mapping to improve real-time communication and relief efforts in disaster situations.

For anyone in a disaster-prone area

InnovGreen

Using GPS and a Windows Mobile application to record Agent Orange-deforested areas for later analysis.
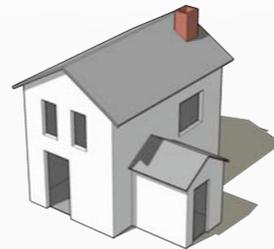
For InnovGreen employees

CRS: Bihar, India

CRS: 2,400 villages – 28k people across India

Map image removed due to copyright restrictions.

Map of Flood Water over the Affected State of Bihar, India

Flood Detection with MODIS Terra & Aqua Imagery Recorded on 22 August 2007

Flood Event July-August 2007

24 August 2007

Version 1.0

Glide No: FL-2007-000096-IND

Courtesy of UNOSAT.
Map from http://unosat.web.cern.ch/unosat/asp/prod_free.asp?id=84.

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CRS Need

CRS National Office (Delhi)

CRS State Office

Coordinating Partners

Implementing Partners

Currently paper-based communication takes 1 month for information to reach central office, and deploy response

Affected area

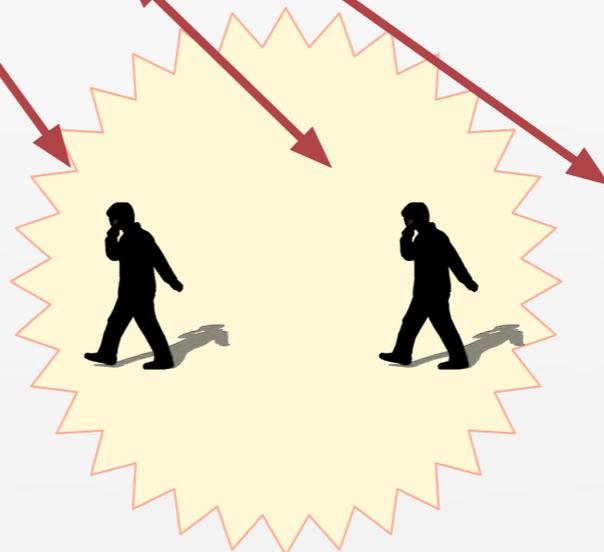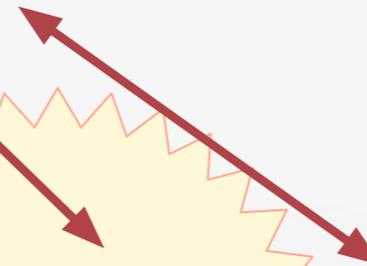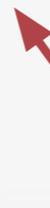about 6 hours: Flood

about 2 hours: Flood

9 minutes: Flood
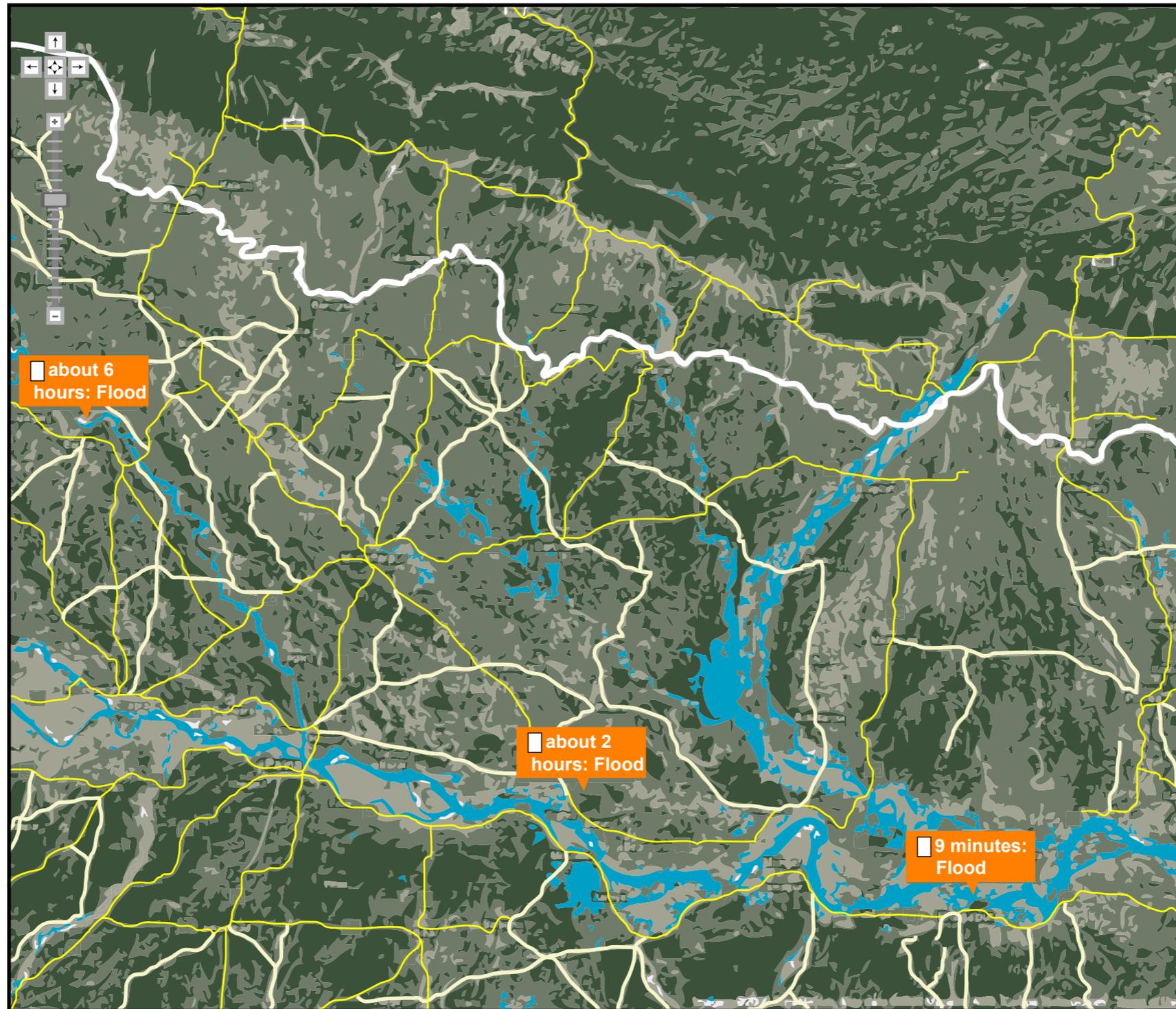
Map by MIT OpenCourseWare, substituted for a Google Maps image.

nextmap.media.mit.edu
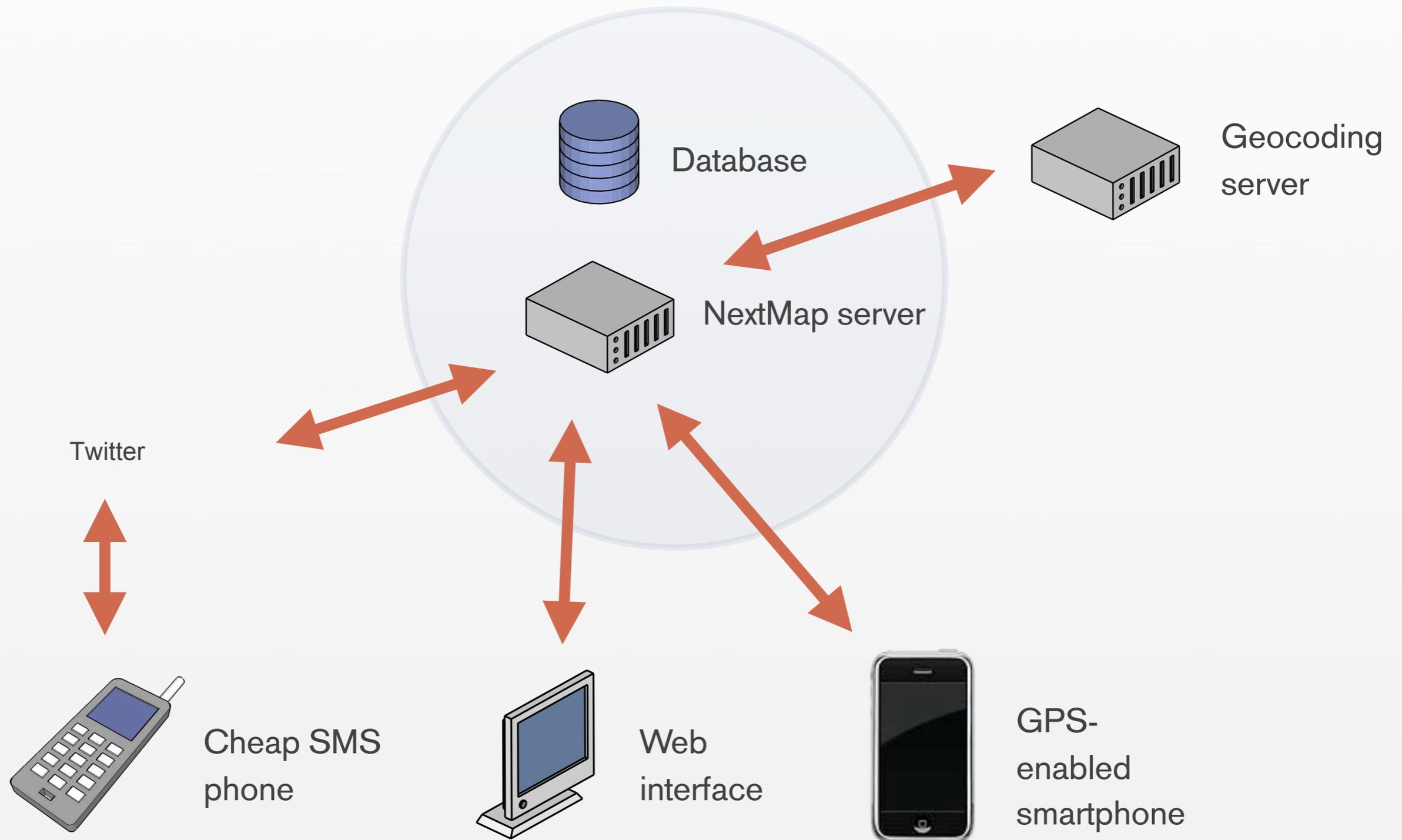
Existing solutions

Too specific - i.e. only for law enforcement

Proprietary

Expensive hardware

One-way (Harvard's SMS emergency notification system)

System architecture

Database

Geocoding server

NextMap server

Twitter

Cheap SMS phone

Web interface

GPS-enabled smartphone

Modular SMS interface

Twitter

FrontlineSMS

Clickatell

Corporate logos removed due to copyright restrictions.

Financial sustainability - CRS

Questionnaire

Equipment cost:

$50 per phone + service

$23,000 for pilot = 20 villages &

28,400 people

Service cost:

High data density per message

Platform:

Java 2 Mobile Edition

NextMap

Equipment cost:

Uses existing phones

New phones available for

< $12 + service
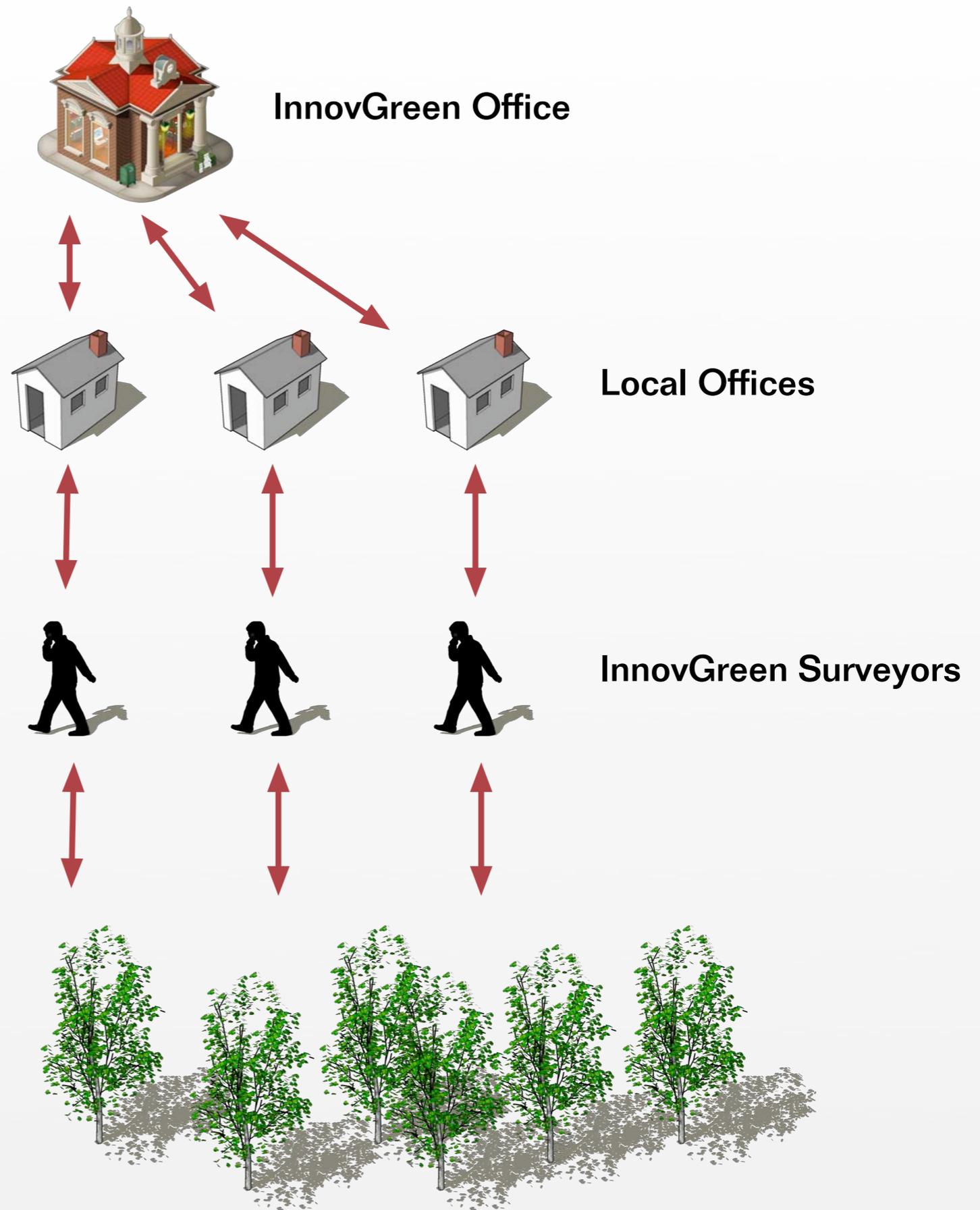
Service cost:

Outgoing SMS paid for by Twitter

Platform:

Any phone with SMS

InnovGreen: Vietnam

Agent Orange deforestation

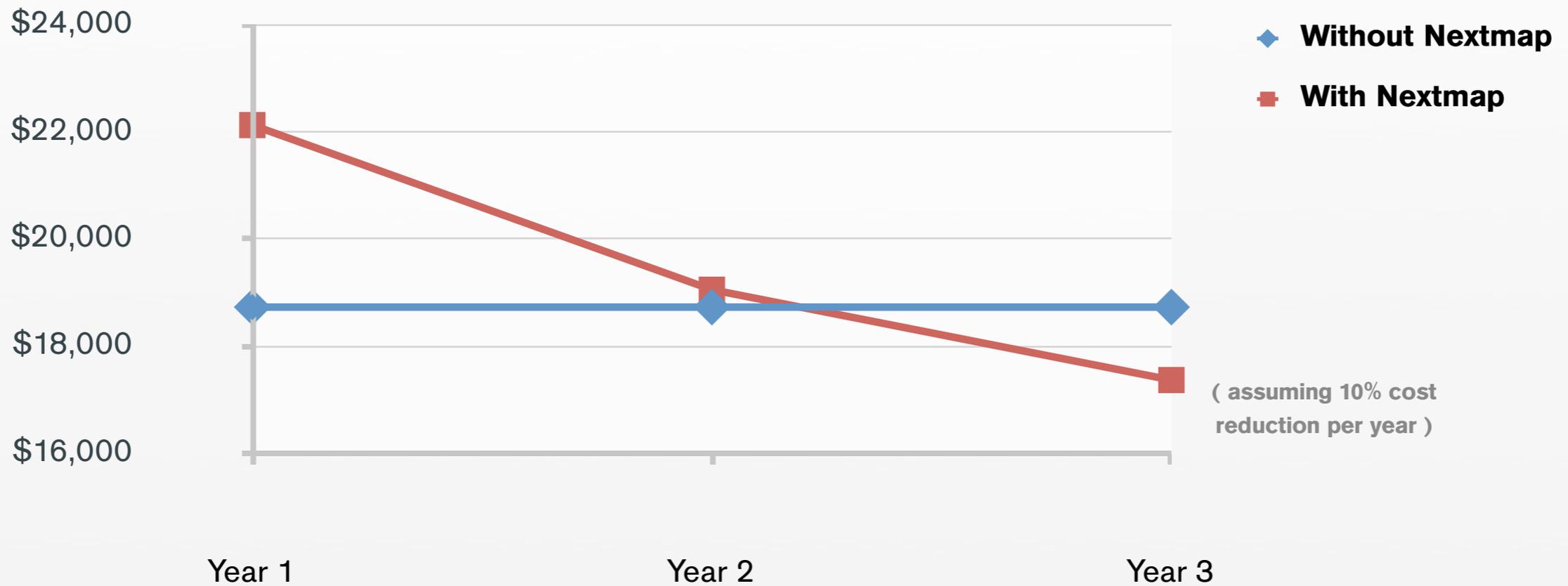Map image removed due to copyright restrictions.

InnovGreen Need

No reliable way for farmers to send data - text, GPS location and images - from remote deforested areas back to main InnovGreen office.

InnovGreen Office

Local Offices

InnovGreen Surveyors

Financial sustainability - InnovGreen

Legend:
- Without Nextmap
- With Nextmap

Y-axis: $24,000 / $22,000 / $20,000 / $18,000 / $16,000

X-axis: Year 1 / Year 2 / Year 3

(assuming 10% cost reduction per year)

Fertilizer and labor cost reduced to below current costs &without Nextmap) by year 3

Price breakdown

Cost of nextmap solution 13%

Fertilizer cost 31%

Farmer labor cost 56%
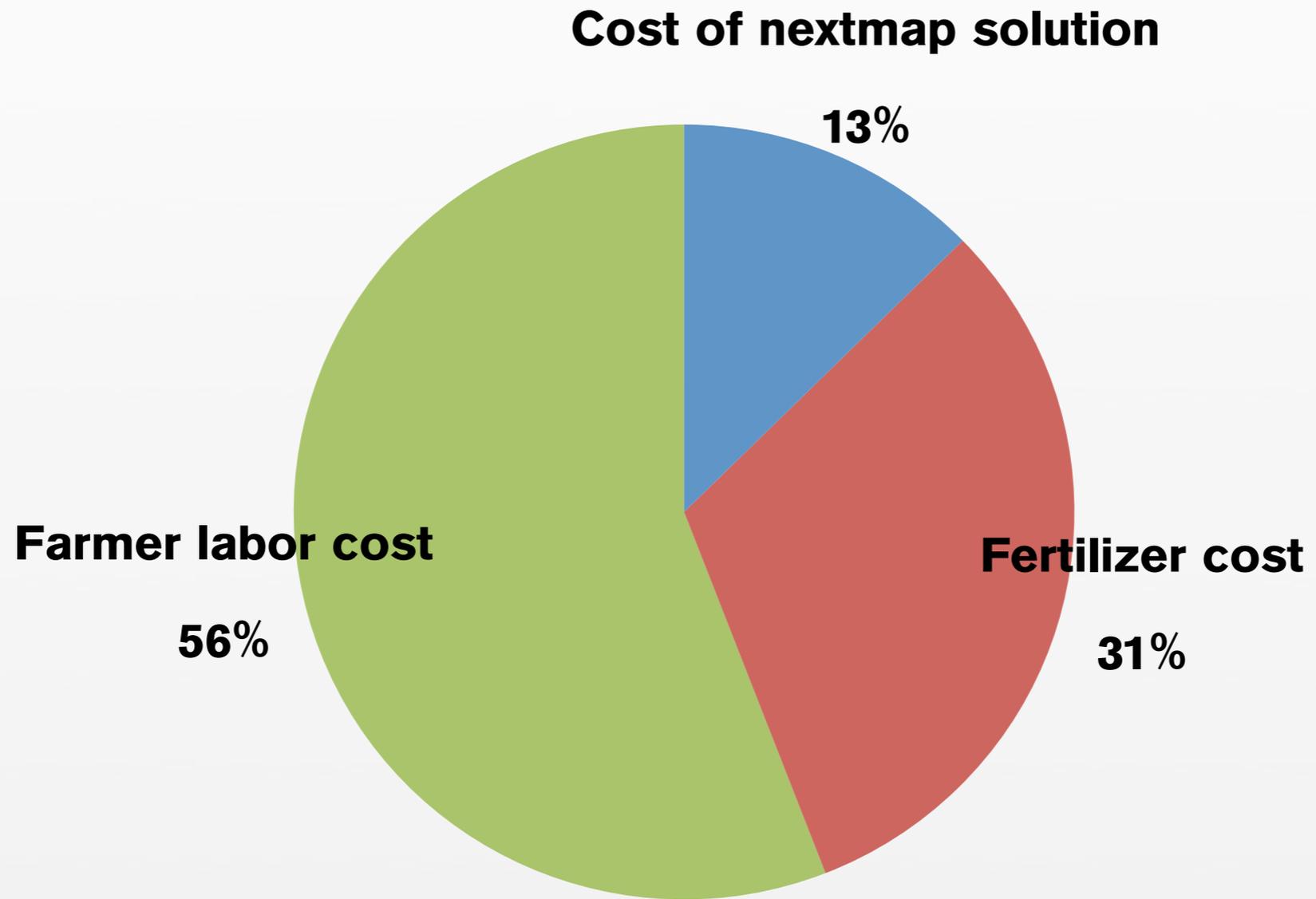
Key inputs

$400	HTC Touch Diamond
$10	mobile service per month
$2,400	IT admin per year
$4	farmer's pay per day
$0.25	NPK Fertilizer per kg

NextMap solution	Year 1	Year 2	Year 3
Mobile service	$1,000	$1,000	$1,000
Server	$2,400	$1,200	$1,200
Running cost of NextMap solution	**$3,400**	**$2,200**	**$2,200**

Performance metrics

NextMap Survey

Response time saved by giving CRS officers cell-based forms instead of paper forms.

NextMap SMS

Ability of users to respond in real time to geographic data on floods in June 2009.

InnovGreen

Reduced expenses from more efficient use of fertilizer; greater availability of data on reforestation.

Conclusion

NextMap makes low-cost geographic data analysis and communication available to billions of cell phone users worldwide.

http://nextmap.org

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