Floodplain management under climate change and urbanization

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topics

- Floodplain Management
- Addressing climate and urban impacts
- Change on the horizon
Floodplain management rules and regulations

Federal
State
Local
In Exchange For:

- Local floodplain ordinance and permits which:
  - Preventing increased damages
  - Protecting new buildings
  - Reducing the severity of flooding

Makes Available:

- Flood Insurance
- Disaster Assistance
- Grants and Loans
Community Rating System

* FEMA program administered by ISO
* Recognition for going above and beyond minimum NFIP standards
* VOLUNTARY Incentive Program
* 18 creditable community Activities
* Based on a 10 Class system. 500 pts. per Class
* 5% insurance premium discount per Class
A voluntary program based on a mutual agreement between the Federal government and the local community:

In exchange for adopting and enforcing a Floodplain Management ordinance, Federally-backed flood insurance is made available to property owners throughout the community.
Trends in Flood Damages

- $6 billion annually
- Four-fold increase from early 1900s
- Per capita damages increased by more than a factor of 2.5 in the previous century in real dollar terms
- And then there was Katrina, Rita, Wilma
Flood Insurance Reform Act of 2012 (Biggert-Waters)

- June 29, 2012 passed Congress
- July 6, 2012 Signed by President Obama
Technical Mapping Advisory Council (TMAC)

* Sec. 100214, amending 42 U.S.C. 4019

* Make recommendations to FEMA about how to update and improve Flood Insurance Rate Maps

* Specifically how to “improve in a cost-effective manner the accuracy, general quality, ease of use, and distribution and dissemination of flood insurance rate maps and risk data.”
The Council shall consult with scientists and technical experts, other Federal agencies, States and local communities to –

(A) Develop recommendations on how to
   (i) ensure that flood insurance rate maps incorporate the best available climate science to assess flood risks; and
   (ii) ensure that FEMA uses the best available methodology to consider the impact of –
      (I) the risk in sea level; and
      (II) future development on flood risks
Residual Risk

* **Residual risk area** – areas that are behind a levee or near a dam or other flood control structure; and that would be subject to flooding in the base flood if not for the protective structure (i.e., in “an unimpeded 100-year floodplain”).

* **Unimpeded 100-year floodplain** - area, which if no levee, dam or other flood control structure were present would be subject to inundation from the base flood (100-year flood).
Risk MAP (Mapping, Assessment Planning)

Through collaboration with State, Local, and Tribal entities, Risk MAP will deliver **quality data** that increases **public awareness** and leads to **action that reduces risk** to life and property.
FLOOD RISK MANAGEMENT
Buying Down Risk
Risk = Probability x Consequences

Initial Risk

Insurance
Building Codes
Zoning

Structural (levees and reservoirs)
Nonstructural Alternatives - Inovation
Outreach and Education

Residual Risk

Risk Reduction Actions (Cumulative)

All stakeholders contribute to reducing risk
Areas of Residual Risk

Areas of Residual Risk (Sec. 100206)

Provisions to require property owners in residual risk areas to purchase insurance were also stripped out of the final version of the Reform Act. Instead, the Reform Act directs FEMA to study the issue. “Residual risk areas” are areas that are “behind a levee or near a dam or other flood control structure; and that would be subject to flooding in the base flood if not for the protective structure (i.e., in “an unimpeled 100-year floodplain”).

60 Defined as an “area, which if no levee, dam or other flood control structure were present would be subject to inundation” from the base flood (100-year flood).

Because these provisions were removed, local communities will not be required to implement minimum land-use regulations in these areas; and property owners in these areas (and areas where the community has made “adequate progress” in reconstructing or improving a flood control structure) may purchase insurance at reduced rates, but are not required to do so.
Mapping Program

Technical Mapping Advisory Council (Sec. 100214, amending 42 U.S.C. 4019)

The Reform Act reestablishes the Technical Mapping Advisory Council to make recommendations to FEMA about how to update and improve FIRMs. The TMAC is charged with providing recommendations to FEMA about how to “improve in a cost-effective manner the accuracy, general quality, ease of use, and distribution and dissemination of flood insurance rate maps and risk data…”

Other duties of the TMAC include recommending “procedures for delegating mapping activities to State and local
mapping partners,” and “methods for improving interagency and intergovernmental coordination on flood mapping and flood risk determination.”

Specifically, at subparagraph (d), TMAC is charged with providing recommendations to FEMA within one year on “future conditions risk assessment and modeling.” Subparagraph (d) provides:

The Council shall consult with scientists and technical experts, other Federal agencies, States, and local communities to—
(A) develop recommendations on how to—
(i) ensure that flood insurance rate maps incorporate the best available climate science to assess flood risks; and
(ii) ensure that [FEMA] uses the best available methodology to consider the impact of—
(I) the risk in sea level; and
(II) future development on flood risks.