

Passive Defense Against Nuclear Weapons

Facing Up to What People Wish Was
Unthinkable

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A Fundamental Point

ONE NUCLEAR WEAPON (NW) WILL NOT DESTROY ISRAEL

- It is not “all over” if there is a nuclear explosion.
- After a nuclear explosion we will have responsibilities:
 - to save lives;
 - to protect the country.

The Message of this Talk

- Nuclear explosion in Israel is possible
- 99% of Israelis survive
- Survivors have responsibilities
- Modest preparations save lives

Sample Threat

- 1 – 3 weapons
- Explosive power each = 30,000 tons of high explosive
(30 KT)
(50% bigger than Hiroshima and Nagasaki)
- Exploded at ground level; therefore:
 - produces radioactive fallout (bad)
 - reduced radius of blast effect (good)

Area of Severe or Complete Destruction (centered on Azrieli)



Effects of one 30 KT Nuclear Bomb

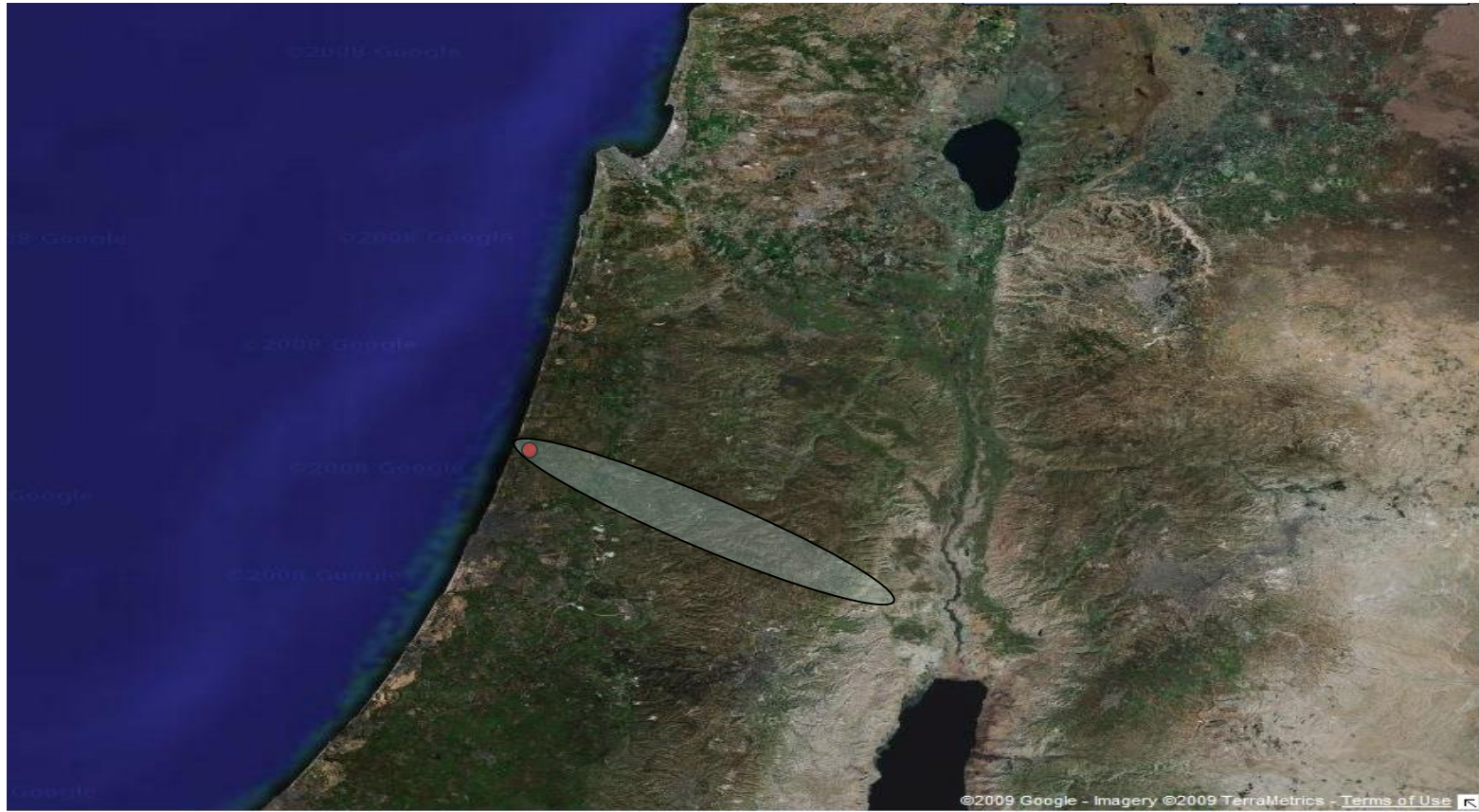
(groundburst)

- Complete destruction or very severe damage in circle with radius of 1.3 km – area 5,000 dunam
- Damage caused by the blast wave from the explosion combined with fires and radiated heat.
- Number of people killed about equal to number in that circle – with area of 5 sq.km

Fatalities outside target circle = Survivors in target circle

- Worst target – about 70,000 people
- Other targets – about 50,000 people

Possible Fallout Pattern (with high wind)



Radiation from Nuclear Fallout

- Will cover a few hundred sq. km, where emergency measures will be needed to protect lives (mostly walking away)
- Clean-up will be needed before regular use of area where there has been fallout.

Nuclear Fallout

- Fallout is radioactive dust
- Goes where wind takes it
- No dust, no radiation
- 200 REM makes you sick
- Radiation dose-rate
 - 1,000 after 1 hour
 - 100 after 7 hours
 - 10 after two days
 - 1 after two weeks

What Inexpensive Passive Defense Can and Can't Do

- Not much can be done to protect unwarned people very close to where the bomb explodes.
- Many people killed.
- Few killed 2-5 miles away
- With low-cost preparations there need not be any fatalities from fallout. Without such preparations thousands of Israelis could be killed by fallout
- Conventional emergency measures afterwards can save thousands of lives of people a mile or so from the explosion.
- With 5-10 minute warning existing and natural shelter might be used to save 10% - 20% of the people in the high casualty area
- There will no substantial effects in most of the country and on over 90% of the people from a plausible size bomb.

Main Preparations that Need to be Made Before an Explosion

- Help people learn how to protect themselves from fallout.
(Primarily by knowing that they have to walk or ride away from where it is.)
- Arrange for cheap radiation dose rate meters and dosimeters to be available.
(In quantities of a million, meters can be put in a watch or cell phone for a few dollars each.)
- Maintain government programs to let people know quickly after an explosion where fallout has fallen or is coming.
- Strengthen ordinary fire-fighting and other emergency response systems.
- Prepare telephone, electricity, and other infrastructure systems to be able to work around local destruction.
- Prepare the government to provide competent leadership for everybody's efforts to save those in danger, to take care of the wounded, and to minimize and overcome physical damage.

The Usual Excuses

for not thinking about what to do about NW

- It's better to prevent nuclear explosions – right
- Even one NW will destroy the country – wrong
- Tens of thousands of dead Israelis are unacceptable
(but what do you do if it happens?)
- It is macabre to think realistically about such horrid scenarios. *(Who told you that you were exempt from having to think about macabre possibilities?)*
- Preparing for NW weakens deterrence – *perhaps, but instead it might strengthen deterrence*
- Preparing for NW will frighten people and they will leave.

More Excuses

- Who would want to live with the horror of so much slaughter? (Most people will prefer to live.)
- If a NW explodes where I am there is nothing I can do.
(But a nuclear explosion will “cover” about 100 sq. km
-- 1/2 % of the country; you’ll probably be somewhere else.)
- It is selfish to make preparations to protect yourself.
- After a nuclear explosion so many people (and business) will leave Israel that the country won’t be viable.

Preface

- A nuclear explosion in Israel in the next five years is very,very unlikely.
- Major expenditures should be used for other security problems rather than for passive defense.
- Any nuclear weapon exploded in a populated area will be a catastrophe.
- All possible efforts should be made to prevent any nuclear explosion in Israel.

Additional Damage

- Area of some serious blast damage -- 5,000 dunam
-- doughnut shape around main damage circle
- Area of slight-moderate blast damage -- 7,000 dunam
-- second doughnut around first radius 2.4 km.
(May include ocean area.)

Number of fatalities in these areas about equal to number of survivors in inner area of almost complete destruction