Introduction
Dr. Burrows began by describing the history and objective of the NIC publication *Global Trends 2030: Alternative Worlds*, (GT2030) which is now available in various formats including e-books from the NIC website [http://www.dni.gov/index.php/about/organization/national-intelligence-council-global-trends](http://www.dni.gov/index.php/about/organization/national-intelligence-council-global-trends). The *Global Trends* publications have been prepared every four years and published after each presidential election. As was the case in the past, this fifth edition is designed to help government agencies conduct their strategic reviews and aid the National Security Council in writing the National Security Strategy.

History
In the mid-1990s some far-sighted analysts and policy-makers recognized a need to bring in non-traditional thinkers from outside of government to expand on their views of the future. *Global Trends 2015*, published in 2000, became widely known outside the government

- Discussed for two nights on Ted Koppel’s *Nightline*
- Became a reference for analysts both inside and outside government
- Has grown from 120 to about 150 pages to detail trends and sketch out scenarios
- Unique document for the intelligence community and in the world until recently
  - Chinese Foreign Ministry now working on its own – not likely to be published openly
    - Consulted with the NIC on it
  - Russian think tank Institute of World Economy and International Relations (IMEMO) did a similar study for 2025 that is summarized on their English website
    - Translation of the full publication in the works
  - Such studies are now becoming a minor industry

*GT2030* differs from past editions

- Looks more at the role of the US in the world
  - Intel officials must carefully stay away from policy issues and concentrate on analysis
  - Previous editions were criticized overseas for statements that US would be a key driver in the world without any exploration of the topic
  - *GT2030* looked at different US trajectories and what each could mean for the world
- Looks more closely at the role of technology with drafters spending a lot of time in Silicon Valley
  - Previously *GTs* did not consider how tech changes might bend projected trend lines
Le Menu - Providing food for thought

- Used simple menu format to give an overview of the parts of the study
- Originally developed to provide a high-level view for a visiting Swedish dignitary who was a fan of previous editions and wanted a preview of what would be published
  - Used instead of the usual pile of PowerPoint slides
- Divides into three major sections (summarized on pg II of GT2030):
  - **Starters or Megatrends**
    - Individual Empowerment
    - Diffusion of Power
    - Demographic Patterns
    - Food, Water, Energy Nexus
  - **Main Courses or Game-changers**
    - Crisis-Prone Global Economy
    - Governance Gap
    - Potential for Increased Conflict
    - Wider Scope of Regional Instability
    - Impact of New Technologies
    - Role of the United States
  - **Desserts or Potential Worlds**
    - Stalled Engines
    - Gini-out-of-the-Bottle
    - Nonstate World
- Provides the entire architecture of the study in a single view
  - Meeting the challenge of how to get arms around such a massive effort
  - Don’t want to confuse or overwhelm the audience – including policy-makers
- Succinctly identifies:
  - Mega-trends: The trends seen in any of the scenarios
  - Game-changers – the main courses or critical variables
- Key effort was to present the wide array of possible futures
  - Must show bookends: the worst possible future, the most benign, & what’s in between
  - World is too complicated to identify anything as “most likely”
  - Want the audience to think about all the different factors to enable them to identify the key elements

GT2030 drafters went overseas to talk with government officials about the April 2012 draft

- Spent 5-6 months traveling to 20 countries
- Much outreach was done with people and organizations domestically, too
- Then rewrote a new draft based on inputs
- The different reactions to the initial draft are discussed in GT2030

The Starters – Megatrends
Previously always started with Globalization which is still a driving force but now must look at its cumulative results

**Individual Empowerment**

- Factors involved include explosion of the middle class in the developing world and its decline in North America, Europe and Japan
A billion people may be added to the middle class by 2030 in China, India, with Africa lagging behind

First time in history middle class will be so big
- But that doesn’t mean poverty will be going away completely
- Numbers will increase but the proportions will remain the same

Will allow people to buy houses, cars, and save (most importantly for improving their children’s lives especially through education)

Education advances may be more important for defining a middle class
- Will see the gender gap collapse to some degree

Huge strides in health care are expected to close the gap between developing and developed worlds
- Since malaria and other such diseases are becoming under control, people will need to worry about and deal with more of the chronic diseases like cancer
- Already discussions in Africa about how this could impact that area

Technology advances will add to empowerment
- At least 70% of Africa will have access to Smart phones by 2030
  - NGO’s will be using them to monitor health in remote regions more closely
  - Nearly everyone will be able to connect to anywhere in the outside world
  - People will see how others live
  - Result: Enormous strain on governance as expectation rise
    - Already worries in intel, government, law enforcement circles about this
- There will also be wider access to lethal, disruptive technologies
  - Levels of harm / violence that previously only a state could inflict now becoming available to almost anyone

Bottom line: Because of tech advances there are reasons to believe that more people will be able to take initiatives on their own over some of the global challenges that they will face

Food, Water, Energy Nexus
- Problem: As a middle class rises it wants more protein in its diet, but livestock require a great deal of grain and water, straining resources already suffering the impacts of climate change
- Creates a negative factor caused by the rise of the middle class

Diffusion of Power
- Has been talked of a lot in earlier Global Trend studies
- Concept: More countries will have some power in the global scheme of things
- Only part that is new is the speed in which this will be happening
  - Now: North America, Europe and Japan have about 55% of global GDP
  - 2030: they will have only about 35% of it
  - Several charts in GT2030 show how these changes in different types of power are expected to happen
- China’s major increase in economic power will have an impact on the equities markets
  - Chinese savers put money in banks, which then make decisions about investments
  - Such behavior will reinforce state capitalism in the short term at least
    - This could change as China’s government changes
- Looking at individual regions
  - Pakistan issue: India will have an economy 14 times bigger than Pakistan’s by 2030
  - There are worries about the economic health of Europe and Japan
This connects to the Mega-trend of aging or demographics
  ▪ How will “old” countries act differently than those with younger populations?

- Growth of the impact of non-state actors
  ▪ There will be both good and bad consequences
  ▪ Development of ever-widening networks are being highly facilitated by the IT revolution
  ▪ Looking at the start of a post-Westphalian world
    ▪ Moving from state-centric to non-state-centric controls
    ▪ Non-state actors may be as important or more important than states

- Aging issues appear to be somewhat different than in previous studies
  ▪ This period will have both youth and aging problems
  ▪ About 27 countries will have very high birthrates
  ▪ Some countries will be aging quickly – not just China, Japan but also Korea, Taiwan, etc.
  ▪ Don’t know what the impact will be when the median age is in the 50’s

- Youth bulge examples: Pakistan and Nigeria will increasing their populations by 40%
  ▪ Youth bulges are known time bombs especially if countries can’t manage them well
  ▪ Problems occur if the state can’t raise the level of education adequately
    ▪ Both the quality and length of education are not good in these countries

- Problems in the *Arc of Instability* will be driven by problems with the youth bulge
  ▪ Becomes even more of a problem with very large countries like Nigeria

**Food, Water, Energy Nexus**

Many countries with projected youth bulges also face resource challenges

- Agricultural production in Africa could be much better – could be world breadbasket
  ▪ Instead productivity is declining
  ▪ Africa lacks necessary infrastructure – roads, distribution systems, fertilizer plants
- Problems compounded by climate changes including changes in monsoon patterns
- The green revolution over last couple of decades has helped by producing agricultural miracles which raised productivity
- Countries with high birthrates will suffer the most from resource and climate problems

Understanding of and worries about climate change are growing

- No good grasp on what actually will happen
- In the past impact was expected to occur after 2030
  ▪ Already seeing problems in northern West Africa
- Have a better but incomplete understanding of the extreme weather phenomena
  ▪ There are concerns about the increasing frequency of extreme weather events
    ▪ Can have major impacts on agriculture
  ▪ UK meteorological office has produced some new graphics on what is happening
- Can’t yet talk about country-by-country impacts, but the Global Trends effort will try next time

A bright spot – growing energy independence of the US

- Big shift is already underway
  ▪ Sometimes will be using new technology and sometimes just using old tech in new ways
  ▪ Example: fracking is causing a revolution
- Can see this as another example in the pattern of abrupt change – not incremental
  ▪ Example: proportion of unconventional gas production rose from less than 10% to 30-40% of the total with nearly limitless supplies
Still early in shale oil exploration and not enough wells have been drilled to get a good estimate on the extent of the oil available

Possibly by the 2020s the US could be a major exporter (maybe 8 million bbls/day)

Could have big impact on oil prices worldwide

Briefing in Nigeria and Russia opened a lot of eyes there
  - Both depend on high oil prices to support their social systems

Expect impact also from Iraqi oil production coming back on line soon

New technologies and efficiencies going into cars will also be lowering the need for oil

Good story also with carbon emissions as US switches from coal to natural gas
  - If US had signed the Kyoto Accords, it would have met one of its assigned goals
  - Problem: this could become a crutch dampening investment in non-fossil-fuel systems
  - Studies show that not going further now would still mean significant global warming

The Main Courses – Critical Game-Changers

Crisis-Prone Global Economy
Economic instability contributes to all the other global insecurities

GT2030 looked at the subject differently than before

- Multi-polarity had been considered in previous studies to highlight the growing number of power centers
- China will be a driver because it will be responsible for 45% of all investment in 2030
- Not clear how Europe will do given all of its aging issues
  - Part of its problem is that Europe is not good at integrating immigrants
- Worried about Japan because aging citizens are significantly drawing down their savings
- In developing world (China and India especially) there are worries about countries getting caught in a middle income trap – few sail through all the stages of economic development
  - There is pessimism about China’s chances to do so smoothly
  - Becomes a political issue with a need to move toward domestic consumption and away from state enterprises

Bottom line: Not clear how to manage a multi-polar economic system

- Previously, US was seen as the natural leader, driver in the global economy
- Now do not expect the US to have as much of a share in it
- US problems with own fiscal issues harms its credibility with the rest of the world on economics

Governance Gap
Problems visible at all levels and may be the hardest to solve

- Can talk about 50 countries moving from authoritarian regimes to democracies
  - Can’t expect a smooth transition since there will be zig-zagging and backsliding
  - It takes a long time to develop the institutions needed to support a democracy
  - Democracies have a difficult time rooting themselves in insecure environments
    - Do better if coming from authoritarian conditions
- However, there is progress
  - Latin America has well-rooted democracies, which in the 1970s no one would have believed possible
  - Africa is mostly not sliding back to military dictatorships
  - Even Pakistan is showing some signs such as the upcoming handover of one civilian
government to another

- China and the Gulf states are ripe for developing democracies
  - Countries need to reach a certain level of income to trigger a recognition of their need for a partnership with the government
  - Such situations could be either good or a source of instability

- Big question: In 2030 will major international institutions (UN Security Council, World Bank, etc.) still have the legitimacy they need to exist?
  - Many of the rising countries want more representation in such bodies
  - Can’t see an alternative order
  - In the next 15-20 years institutions must make changes to remain credible
  - May wind up with various coalitions of the willing, bi-lateral agreements, etc.
  - Already seeing fraying of the international order such as the lack of agreement on the Doha Round of trade negotiations
  - May see more regional bodies taking charge

Bottom line: Situation is not just black or white

- Things look better on trade issues
- But don’t expect a leap to new levels of cooperation

Potential for Increased Conflict
Involves both intra- and inter-state conflicts

- Historically, the number or conflicts and the number of causalities from conflicts is on a downward trend
  - Has been a blip up since 2009
  - Still below the 1990 level
- Interstate conflict is at a historic low
  - There are positive signs indicating that the decline will continue and red flags for increases
- GT2030 considers the risks of increased conflicts and the reasons for those risks
  - Multi-polar world is inherently unstable
    - But no power really wants to go to war
    - All know conflict is damaging whether or not you win
  - Expect to have rough road to get economies back in shape
  - Weakness could provoke some states into using aggression against outsiders
    - Can see that happen with China - might get more aggressive with its neighbors if its internal stability is jeopardized
  - If there have been problems someplace before, could have similar problems there again
    - India and Pakistan, MidEast, Iran, N. Korea – all destabilizing histories
  - Non-state actors
    - Made worse because they will have better access to precision-guided weapons, cyber capabilities, etc.
    - May also use proxies such as Iran does in the MidEast
    - Problems grow from their increasingly empowered capabilities

Wider Scope of Regional Instability
No great surprises – already familiar with areas of potential conflicts

- Top of list: MidEast and South Asia, which is the more negative given influence of Pakistan
• Pakistan can’t seem to develop a stable economy, with its problems exacerbated by its demographic issues
  o Weak governments find it that much more difficult to overcome its problems especially given ethnic rifts
  o Best scenario: rather like a chronic disease which can be managed, but not cured
• MidEast – GT2030 identifies the factors that exacerbate the instabilities
  o Arab/Israeli issues
  o Problems of Saudi succession
  o Egypt’s problems with coming together as a state again
  o Fear of extremists is growing
• Europe – must be concerned about its slow decline
  o Europe can’t handle all of its problems
  o There are popular concerns about the EU including its future structure
    ▪ Made worse when putting off decisions on how to restructure
  o However, there could be a Renaissance if the right decisions are made quickly
    ▪ Seems unlikely to happen
    ▪ Expect only a slogging along, making piecemeal decisions
• East Asia – primarily the competition between the US and China
  o Worst case would be a weak US and a weak China
  o Best case would be a strong US and a strong China
  o Would be best if they could meet each other halfway and not get dragged into defensive positions
• Africa – a patchwork of good and bad stories
  o Some places may offer opportunities to grow human capital
  o Many places will have problems with resources, demographics, etc.
• Latin America – different situations between Central and South America mostly
  o Some countries in Central America are generally becoming criminal states
  o But 10 years ago would have given a more dire predictions for instability
    ▪ Making strides on inequalities
    ▪ Needs a great deal more and better educational opportunities
  o Doesn’t have the huge demographic issues
    ▪ No huge youth bulge
    ▪ Could get an economic lift from their population particularly in relations with China
      • Problem of how to sustain this balance when over-reliant on commodities trade

Impact of New Technologies

GT2030 looks specifically at an array of 16 general technical foci, identifying their current status and predicted future potentials as well as the issues involved and the likely impacts
• Information Technologies get linked up with many areas including governance as we are about to enter the era of Big Data
  o Provides a surge of hope for improved governance
    ▪ Could be used by either authoritarian or democratic governments
    ▪ Provides better ways to monitor activities and changes in the environment
  o Also must deal with issues of privacy
  o Governments will be better positioned because they can more easily exploit Big Data for
monitoring capabilities
- Urbanization will have a huge impact in next 15 years especially when IT is involved
  - Most mega-cities will be in the developing world
  - There will be potential for Smart Cities allowing them to use their resources better
    - But first must deal with the high up-front costs
- Bottom line: Generally a positive story especially when bringing in quantum computing to help with monitoring and managing the environment and the economy

- In many technology issues there will be a need for government involvement to manage or instigate new technologies, but not necessarily government funding
  - Decisions to be made are often politically risky
  - In all cases there will probably be a need for enhanced government roles
- Advanced manufacturing and 3-D printing
  - Generally a good news story with remote areas being able to “print” items they need
  - US, Germany, others already in a good position with this and robotics
  - Problem: huge numbers of low-skill workers will be made redundant possibly causing instability in developing countries especially in Asia
    - Example: One major company has a goal of dropping 80% of its workforce in five years
    - This topic will need to be studied more fully in the next GT

Role of the United States
Topic was not covered in previous GT editions but GT2030 saw that need to explain basic concepts behind why the US will remain a driver in the international system but with more than a single possible trajectory
- Trajectory #1: US doesn’t get the economy moving again
  - Global economy would have a vacuum without the US leading it – the nightmare scenario for most
  - Few of those interviewed wanted the US less involved
- Trajectory #2: Stimulated by US energy independence the improved economy would be a good thing but could be complicated by structural issues
  - There are worries already about the US maintaining its technological lead position
  - Venture capitalists are concerned with the growing amount of government regulation they face
  - Political climate is not good – US government needs to decide on many issues soon
- No other countries see themselves as a peer competitor to the US
  - No one wants the responsibility
  - At the same time others may resent the US for taking on that global lead role
- Looking at hard power / soft power spectrum, the US still leads in all power elements but has been slipping in the economic realm lately

Desserts – Potential Worlds (Scenarios)

GT2030 built bookends to show the worst and best case scenarios but some reviewers wanted even more dire situations
**Stalled Engines**
- Worst possible case involves the US turning inward causing all problems to get worse
- Situations could be caused by a pandemic forcing a decision to put up barriers to the outside
- Despite all the problems, it must be recognized that globalization cannot be reversed
  - Countries now are much too interdependent and connected
- Result would be an ugly situation, but a World War III was not considered plausible

**Fusion**
- Some considered this too good and unrealistic
- Shows US and China with a higher level of cooperation but would need a crisis to make it happen since there is no natural way to get there
  - Used India/Pakistan crisis to show everyone what there would be to lose without cooperation
- However, moving to a more prosperous world would cause problems with resources

**Nonstate World**
- One type of fragmentation
- Non-state actors become even more active and dangerous to the world because of a lack of security infrastructure
  - They lack the means to handle issues such as proliferation and criminal networks

**Gini-Out-of-the-Bottle**
- Another type of fragmentation where there is a great deal of inequality between countries and even inside countries
- Many sorts of problems especially in Africa which is already having conflicts over secession issues
  - Relates to inequalities
  - But now must eventually worry about inequalities and possible break-ups in the EU

**Conclusion**
*GT2030* provides alternatives to consider. The “Dessert” menu may still be scant, but as a whole it was designed to get discussions going.

**QUESTION & ANSWER SESSION**

*Re: Distribution of GT2030 to New Generations*
- *GT2030* was specifically designed to be downloadable in many formats including E-books to be attractive to students
- *GT2030* staff do enormous amount of lecturing on the topics
- Consulted with a great number of academics
- However, the primary mission is to support policy-makers and resources are limited
- Animations of some of the graphic material might be useful in a future edition

*Re: Disparity of the Economies of Japan and China*
China has a huge wealth disparity internally because such a large percent of the population is not connected to technology and not included in the richer coastal region’s advances.

It is remarkable how fast China rose and how fast Japan slid economically.

Re: Governance

- There has been a shift toward empowering the individual and away from state power.
- Failing states (some never were really states, only lines on a map) face even more problems.
- New wrinkle is that individuals now have much greater capabilities to do both good and harm.
  - Complicated by the fact that many states are not flexible about how to handle the issues that individuals can now handle themselves.
  - Changes today equivalent to changes that occurred in the 16th century with the introduction of the printing press.
    - Dissenters made use of that new technology and pushed it along.
    - Eventually the Catholic Church learned how to handle the new technology and used it to respond.
- Problem: the state cannot yet control the very large issues such as the climate but the populace does not yet see that the state can’t do it.
  - So blame the state for problems.
  - Get vicious cycle of governments being turned out because they are being held accountable for things they can’t control.
  - This was a big worry for policy-makers who have been briefed on GT2030.
    - Can’t plan for medium and longer term because must deal with current crises.

Re: GT2030 and Social Media

Use of social media is something new but GT2030 may have overachieved.

- On the December roll-out of GT2030 over 60,000 Tweets were sent in 20 minutes.
- There has been an overwhelming interest in being briefed on findings.
- It is good that people want to talk about the concepts in GT2030 because feedback is needed for the next edition.
- It took some time to get through the intel wickets to allow this to happen, but there was support from senior levels to make this happen – including an open blog.

Re: Assumptions in GT2030

Started differently by looking at the track record of past studies and had an early conference focusing on assumptions.

- Big assumption in previous editions was that there would be more continuity than change.
- Outside reviewers said that the big concepts were correct but that GTs were wrong on the speed of change.
- Problem: thinking about abrupt change is hard to do.
  - GT2030 does spend more time discussing scenarios and looking at how specific events can change trend lines.
  - Supported by Maynard Keynes assertion that it is against human nature to think about big changes.

Re: Youth Bulge Problem

Used work of a Stimson Center demographer who correlated the youth bulge and instances of civil
discord and conflict

- The number of countries with youth bulges will drop somewhat
  - That should lead to a drop in interstate conflict
  - But there still could be enough internal inequalities to cause problems domestically
- Imbalances can cause tensions even when the overall age of the country is in the mature range

Re: Collapse/Shutdown of the Internet
An Oakridge conference addressed this as a possible existential threat – causing destruction beyond the level of a super storm like Sandy

- Fear was that such an event that would undermine the social and economic fabric of the society
- One scenario considered solar storms that take down one part of the grid triggering the failure of other parts in domino fashion
  - There would be problems of determining how to bring the grid back up and how long it would take
  - As an outcome of the conference, already developing brakes on the system to prevent the domino effect
  - Probably the most worrisome scenario
- Other issues are possible such as a major conflict that spills out onto the internet when trying to protect against cyberattacks
- A conference in Dubai considered internet issues
  - One side (China, Russia, etc.) wanted much more state control on the content on the internet
  - Too much of the world is reliant on the internet now making it hard to take a country off line – even China could not do as much as it wanted to
- Bottom line: only a very few, very dramatic situations would bring down the internet

Re: GT2030 and the Quadrennial Defense Review
GT2030 should influence the analysis done for the upcoming QDR by testing the initial assumptions of the QDR drafters

- QDR drafters are well aware of the big issues such as resource insecurities, climate change, extreme weather, urbanization
- GT2030 helps with thinking about Black Swans – unexpected events – some of the potential ones are listed included things like solar storms
  - These are things we know about but don’t prepare for because they are so unlikely
- QDR needs to be aware of the internal inequalities that occur in many places, which may not be as drastic as in the GT2030 scenario
  - Can still expect strains to develop in those countries and we need to understand them

Re: Russia
There is growing pessimism about Russia actually “modernizing”

- They are growing the technological expertise that would lead them to integrate more with Europe but there are problems
- Facing demographic challenge which they apparently don’t understand completely
  - They say when their population drops 15 million they can import more Central Asians
  - But that will bring new problems and they haven’t done well in integrating earlier immigrants
  - Likely to foment violence and discrimination – not the way to build a society that works
Three scenarios involve Russia but all are just slight variations on concept of Russia as spoiler
  - Exacerbated by its level of corruption
  - Hard for them to get needed foreign investment when there is no rule of law
Little chance for change given the level of corruption in the country

Re: Women’s Rights
A World Economic Forum report recently noted that the overall situation is getting better for women
  - Education and health gaps are closing
  - Women’s progress in getting into government is very slow
    - Scandinavia has gone the furthest toward parity but did not get all that far
    - Will be decades before there is gender parity in most governments
  - Education in much of the world is still rudimentary for both sexes
  - Urbanization brings more opportunities for women
  - Expect little changes by 2030

Re: Super-precision and Cyber Weapons
A large section of GT2030 is devoted to asymmetrical weapons especially those in the hands of non-state actors who now even as individuals are significantly more empowered by the availability of such weapons.

Re: North and South America
Both North and South America have tremendous natural resources but there are already areas feeling the impact of climate change
  - Climate issues are not likely to be as bad as elsewhere
  - Little chance of major conflicts in this area but could see more criminal conflicts
    - Drug trade deaths are going up
    - Causing real worries in some of the smaller states
      - Caribbean countries become a criminal state, undermining every institution
      - Would then be hard to dislodge the criminal organization
  - South American needs a better education system
    - Brazil is only recently opening up its own PhD programs
      - Previously, all had to leave the country to study further
    - This is changing but very slowly
  - There is a patchwork of countries – some to worry about include Argentina and Venezuela