



ASV-4

The Fourth Phase of Advanced Safety
Vehicle Project
- technologies for collision avoidance -

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Kenji Wani
Road Transport Bureau
MLIT Japan

History of ASV

Phase 3:2001-2005



*Crash mitigation brake
Lane keep assistance
ACC, etc have been
introduced in the market*



*System verification tests
were done on the test
course of Tomakomai*

Concept of Driver Assistance
Based on “Design Principle”

Concept Specifications for
communication technologies

➤ *Consideration on
“Role of inter-vehicle communication”
for driver assistance to avoid crash*

Phase 2:1996-2000



Phase 1:1991-1995

- *Cooperation among academia,
industries and government*
- *Study of technical feasibility*

Design Principle
*Driver Assistance
Driver Acceptance
Social Acceptance*

ASV-4

Phase 4 ASV Promotion Project

Items

Promotion:

1. Assessment of the effectiveness of ASVs.
2. Information for drivers.
3. others

New technologies:

1. Development of inter-vehicle communication
2. Study of a comprehensive safety strategy
3. others

Goals

Promotion:

Full-scale introduction of autonomous detection type driver assistance systems

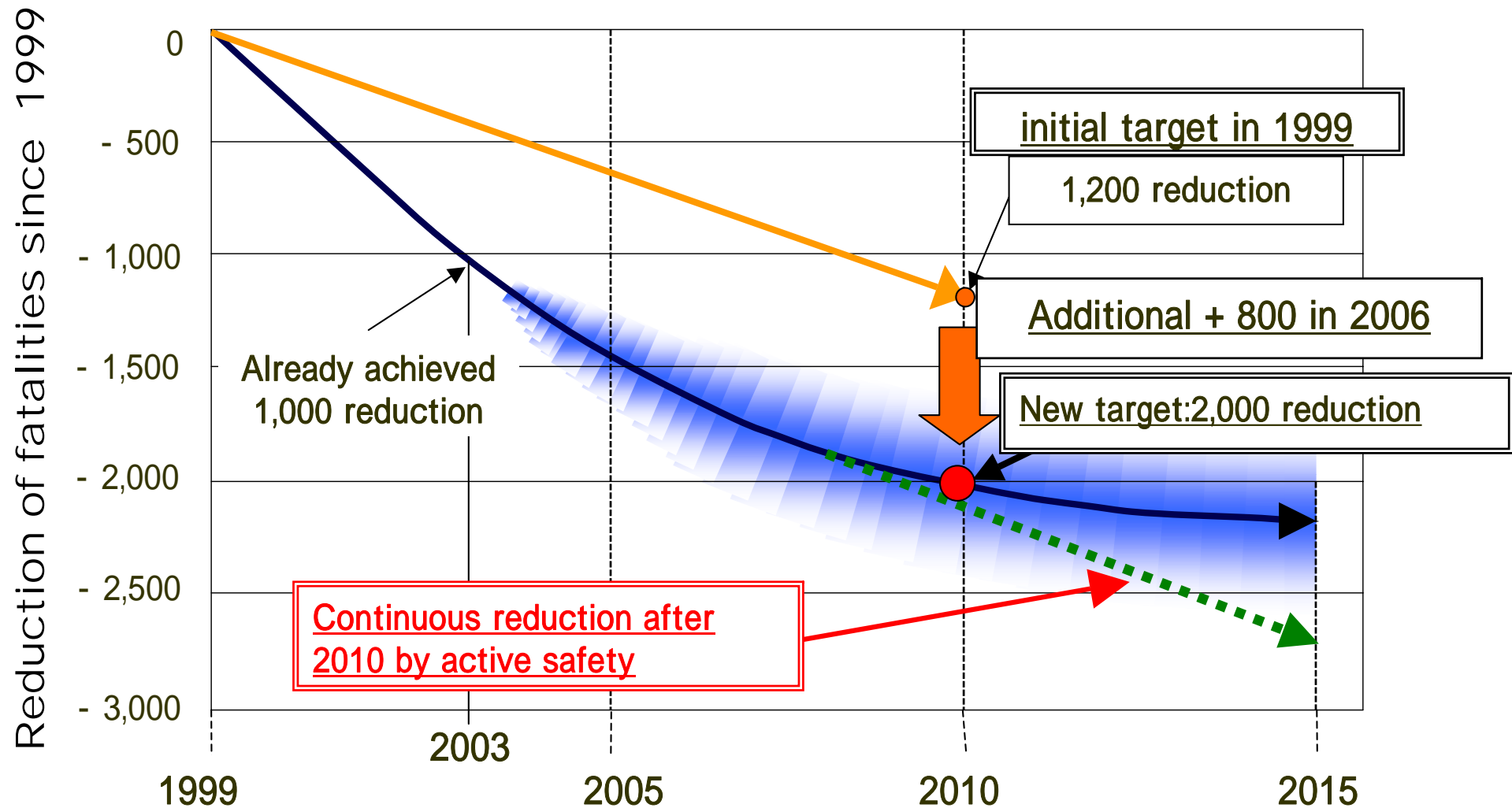
New technology:

Introduction of some inter-vehicle communication type driver assistance systems

Project Period

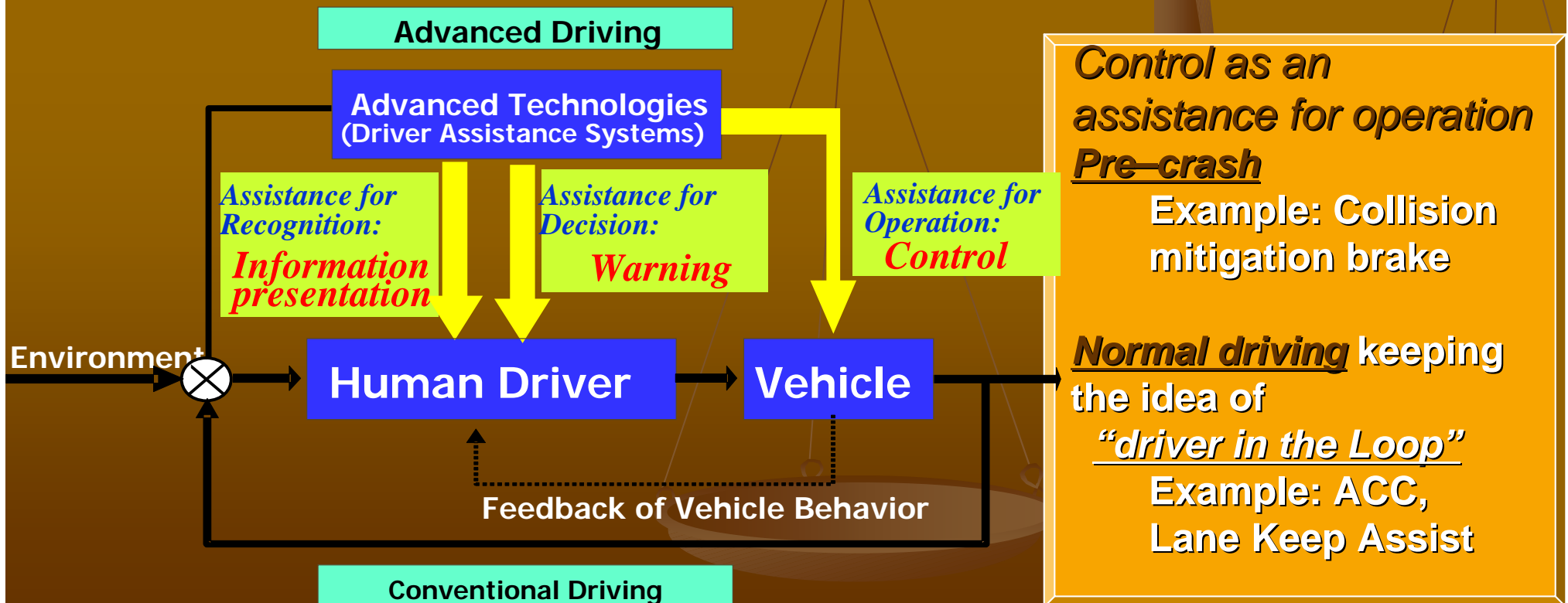
5 years from FY 2006 to FY 2010

Target of vehicle safety measures



What is appropriate driver assistance ?

- "Autonomous systems" with on-board sensors have been developed and introduced in the market along with considerations on better HMI from the viewpoint of "driver assistance" and "driver acceptance".



Collision Avoidance by **ASV** *Communication Technologies*

Role of inter-vehicle communication is to help autonomous systems

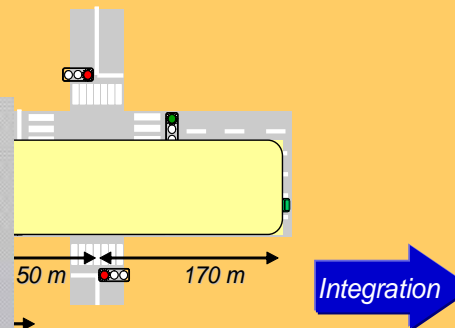
- Autonomous, on-board sensor type, driver assistance systems have been developing and systems are already in the market.
- On the other hand, such autonomous systems cannot respond to events that are not detected by on-board sensors. (How to detect invisible cars?)
- So, desired role of communications technologies is to cover invisible events to help autonomous technologies.

achievements in ASV3

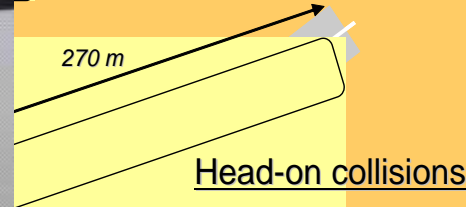
Concept Specifications for Communication Technologies

- Modeling of collisions to be covered by communication tech.
- Communication range derived from accident (collision) models
- Concept specifications defined from the communication range.

Collisions when making
a right turn



Verification test at
TOMAKOMAI in 2005




Head-on collisions

based on passenger cars
and motorcycles

Passenger cars, motorcycles, and trucks
are considered.

Trials on public roads of applications using communication technologies

- Trials are planned from 2007 by the cooperated efforts of industries and government (related ministries are joining).
 - Applications of “infrastructure to car communication” and “car to car communication” will be tried.
 - Target is to realize partial market introduction in 2010.
 - The ASV is joining the project and building on what was achieved in TOMOKOMAI.
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International cooperation

- The ASV project has been contributing to the activities of **UN/ECE/WP29/ITS informal Group**

2 years process to exchange of views to make clear direction of the role of WP29.

Common understandings on safety concept of systems to assist driver were discussed

- **Results of Verification** of car to car communication have been **shared through various occasions** like
 - the international symposium held in Tomakomai in 2005

Conclusion

- The new safety policy and achievements of ASV3 are the base of ASV 4.
 - “Concept of Driver Assistance” and “Concept Specifications for communication technologies” were important achievements of ASV3 and should be further developed in ASV4.
 - The ASV project is joining “Trials on public roads using communication technologies by the effort of industries and government”.
 - International cooperation is one of key issues.
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