



WIGOS WORKSHOP 2019

Session 4.9

Discussion: How do we develop products and train experts?

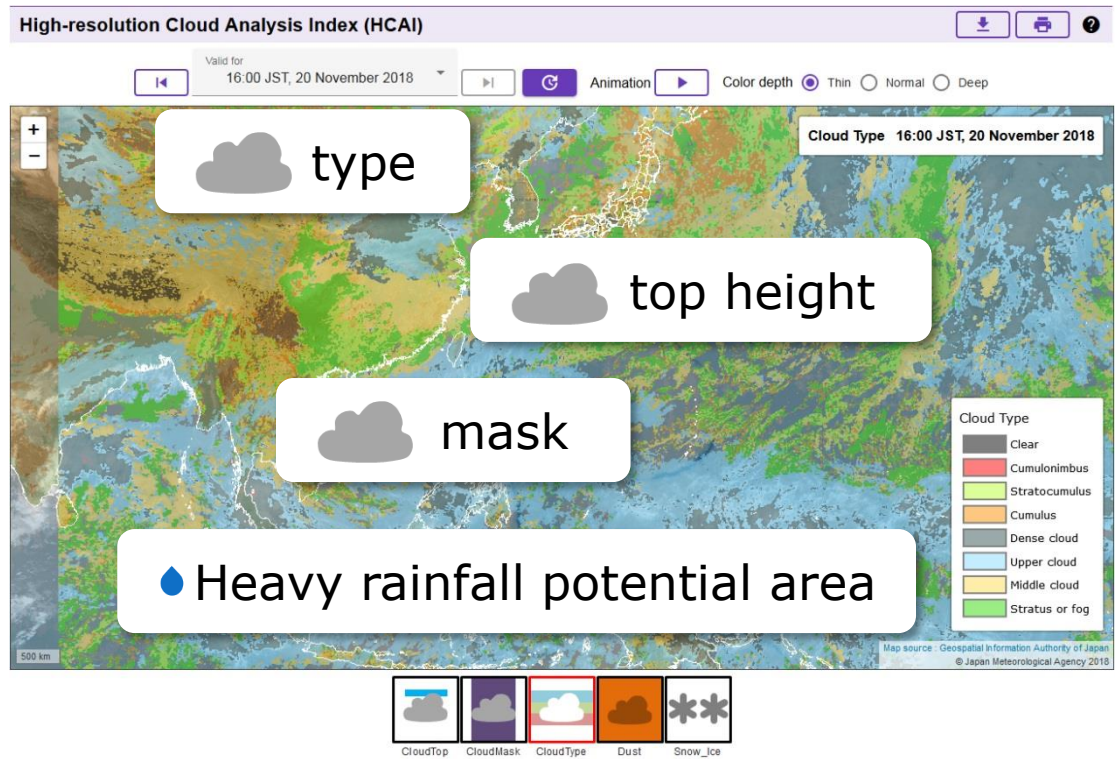
- JMA's 10-year plan and collaborative approaches -

All participants

with Seiichiro Kigawa (JMA)

Pre-workshop survey results

Q4.9-1 What are the points to be improved for HRP and HCAI provided by RSMC Tokyo for nowcasting?



4

We provide satellite-derived products via JMA's website regarding cloud and heavy rainfall.

Home	Weather/Earthquakes	Services	Publications/Periodicals
News Releases	For NMHSs		

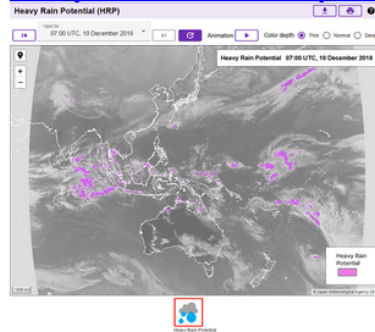
[Home](#) > [For NMHSs](#) > RSMC Tokyo for Nowcasting

Regional Specialized Meteorological Centre Tokyo for Nowcasting

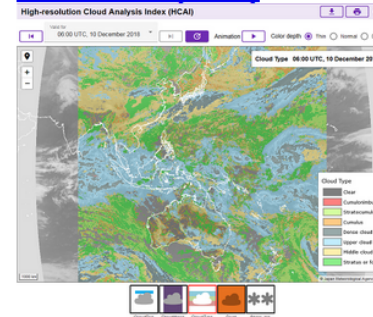


JMA's RSMC Tokyo for Nowcasting supplies national meteorological services with graphical nowcasting products to help improve capacity for disaster risk reduction.

[Heavy Rainfall Potential \(HRP\)](#)



[High-resolution Cloud Analysis Information \(HCAI\)](#)



Web-based real-time products



On 20 December 2018, JMA began providing graphical products titled Heavy Rainfall Potential (HRP) and High-resolution Cloud Analysis Information (HCAI) via its website as part of its regional center operations.

Heavy Rainfall Potential (HRP)

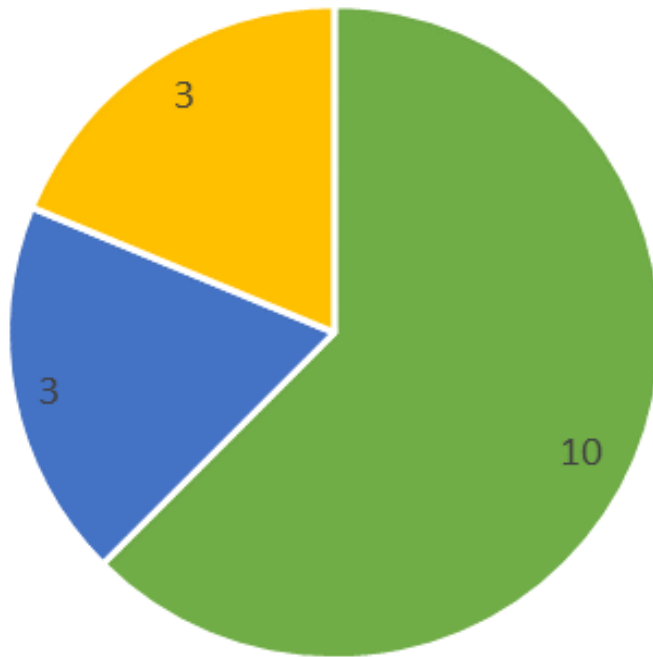


HRP provides information about the possibility of rainfall with an intensity of 20 mm/h or more associated with deep convective clouds. The product is derived from Himawari-8/9 satellite imagery and covers the area of 60°N – 60°S and 80°E – 160°W. It is updated every 10 minutes to support monitoring of rapidly developing convective clouds.

Areas where rainfall is possible or probable are identified by detecting convective clouds that have tops with a low brightness temperature because the tops of such clouds causing heavy rainfall reach higher altitudes or even the

The JMA's website describes the details of the products.

Q4.9-1 What are the points to be improved for HRP and HCAI provided by RSMC Tokyo for nowcasting?



- 1. Accuracy
- 2. User interface
- 3. Higher frequency

Two thirds of NMHSs indicated that “accuracy” should be well-considered.

Q4.9-2 Are you willing to participate in the product development?



Web-based
real-time product

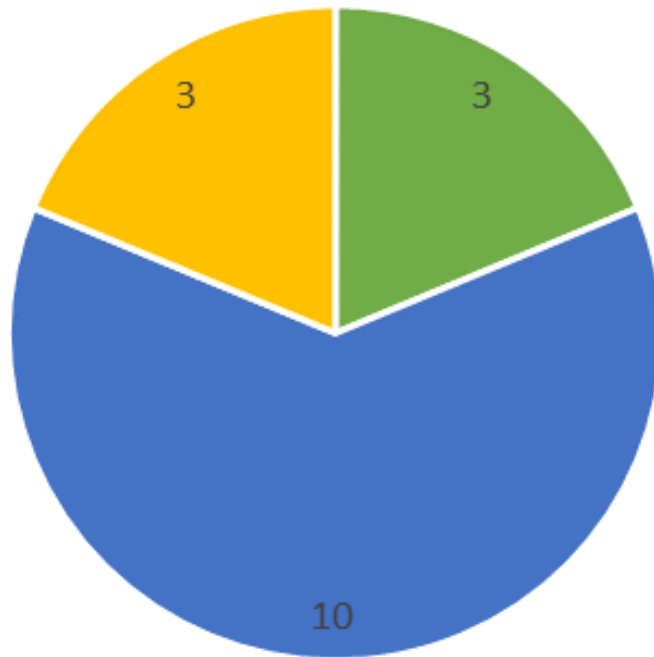


Product
development

8

This regional centre provides nowcasting products to the region with their development framework.

Q4.9-2 Are you willing to participate in the product development?

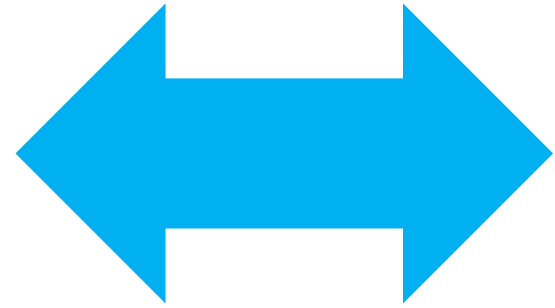


- 1. Yes
- 2. Yes, if conditions are met
- 3. No

Two thirds of NMHSs said “Yes, if conditions are met” to participate in the product development. A clear understanding of conditions is needed.



Transfer



Partnership

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Because our collaboration is based on “partnership”,
“conditions” depend on our negotiations.

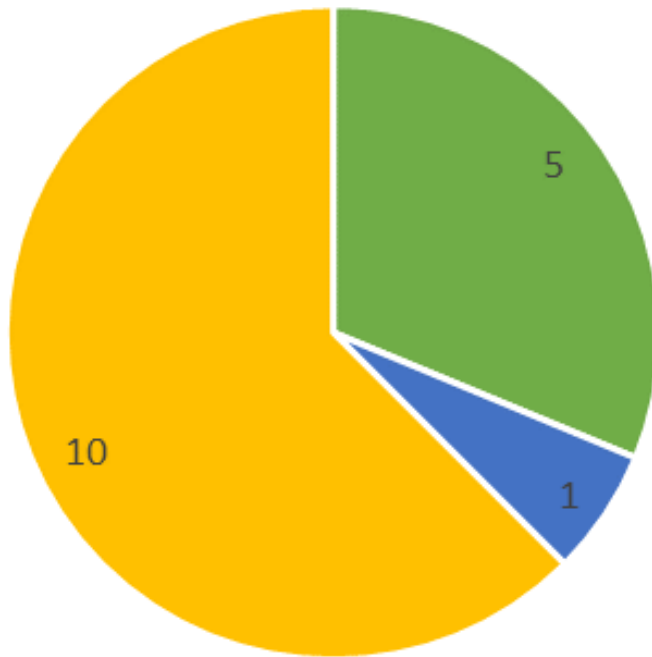
Q4.9-3 What are the important points for Phase II development work?

FY		2018	2019	2020	2021	2022	2023-2027	
		Phase I			Phase II			Phase III
Provision of materials and training for users		<ul style="list-style-type: none"> Draw up product specifications for Phases II and III Provide user manual 			<ul style="list-style-type: none"> Standardize product specifications Provide training 			<ul style="list-style-type: none"> Provide mobile training centers
		Engage in activities for technical/			development transfer			
Satellite	Identification of Rapidly Developing Cumulous Areas (RDCA)	<ul style="list-style-type: none"> Conduct evaluation to determine detection uncertainty Improve detection accuracy 			<ul style="list-style-type: none"> Develop regional lightning nowcasting in Asia 			<ul style="list-style-type: none"> Develop severe storm alert content for Asia
	Himawari products (HCAI & HRP)	<ul style="list-style-type: none"> Launch Phase I website in December 2018 						
	JAXA/GSMaP	<ul style="list-style-type: none"> Conduct evaluation to determine uncertainty in rainfall analysis and prediction 			<ul style="list-style-type: none"> Develop regional integrated QPE/QPF in Asia 			
Radar	Southeast Asian Radar Network -Regional WIGOS Project	<ul style="list-style-type: none"> Improve quality checking techniques Expand and enhance international exchange of observation data 						
Surface	Tokyo Action Plan	<ul style="list-style-type: none"> Devise and implement training on quality improvement 			<ul style="list-style-type: none"> Improve quality management 			<ul style="list-style-type: none"> Enhance observation networks

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Products development has been conducted based on this JMA's 10-year plan. Phase II will start in 2020. Key products will be developed in Phase II timeframe.

Q4.9-3 What are the important points for Phase II development work?



- 1. Project management
- 2. More countries to participate
- 3. Combination with human resource development

Two thirds of NMHSs indicated that combination with human resources development is important for Phase II work.



Web-based
real-time product

Product
development

TOKYO
WIGOS

Quality
Management

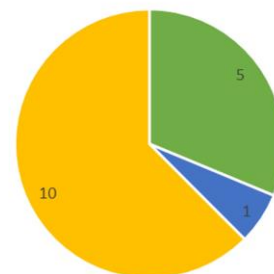
Training & support

JMA combines the development of nowcasting products with such training and support to provide expertise.

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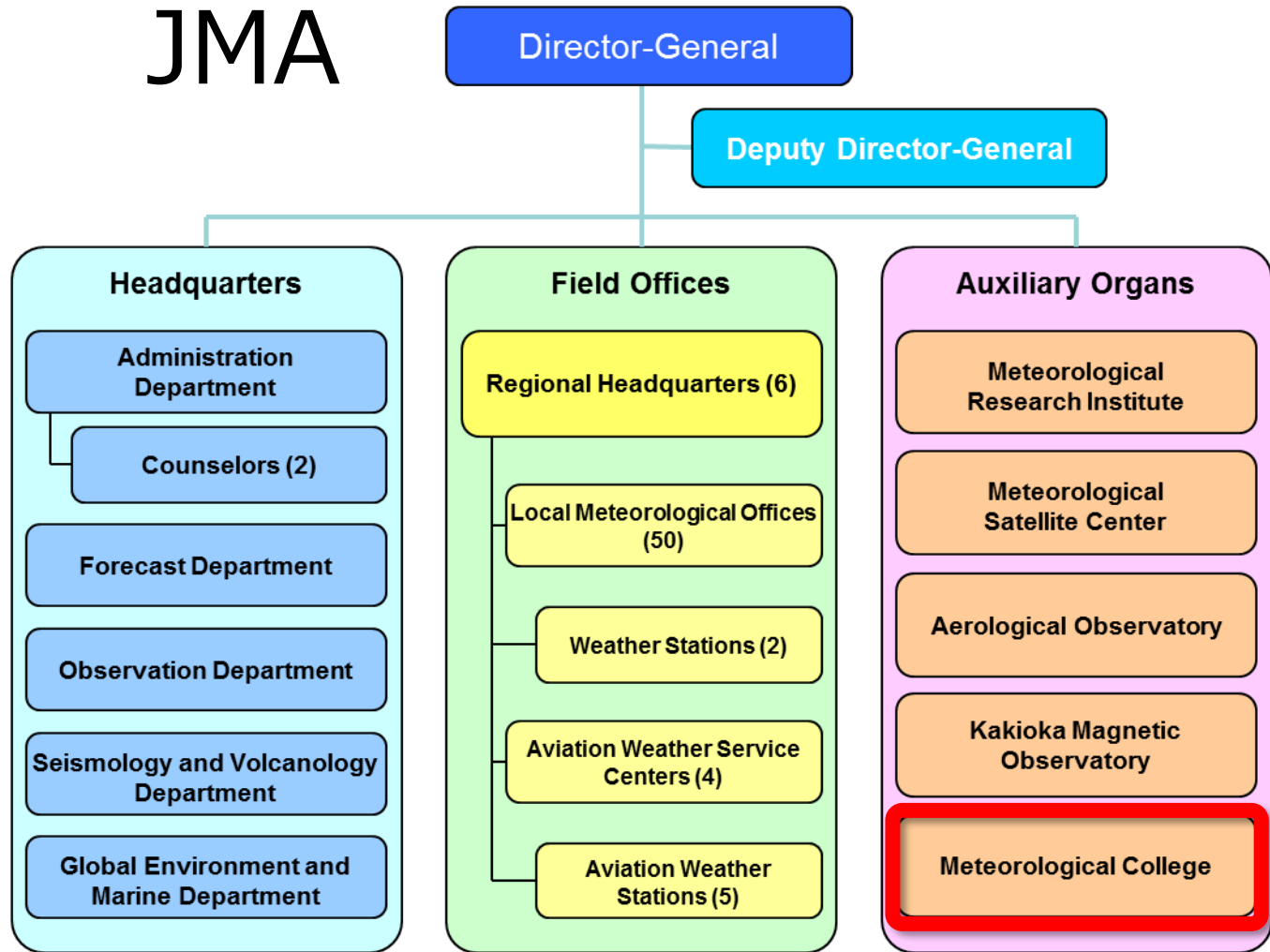
RA II WIGOS Workshop - Regional WIGOS Centres (RWCs) and its services for Members, Tokyo, Japan, 6-9 March 2019

12

14

JMA introduced on Day 1 that JMA combines the development of nowcasting products with such training and support to provide expertise.

JMA



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To broaden our understanding and deepen our discussion, we would like to introduce JMA's Meteorological College here. Mr. Tanaka will outline how the college works.

Meteorological College

Discussion



18

[Discussion] Do you have any ideas to balance human resources development with products development?



2020



Collaborative
quality
improvement



2023



QPE/QPF/
Lightning
nowcast in
Asia

2028



Severe storm
alert content
in Asia

24

The plan comprises three phases toward the development of a high-level nowcasting product created using data from surface, radar and satellites observations.

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[Discussion #1] Do you have any ideas to balance human resources development with products development?

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[Discussion] Products development might take several years since it depends on operational system development.

2020 Collaborative quality improvement

2023 QPE/QPF/Lightning nowcast in Asia

2028 Severe storm alert content in Asia

24 The plan comprises three phases toward the development of a high-level nowcasting product created using data from surface, radar and satellites observations.

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16 [Discussion #1] Do you have any ideas to balance human resources development with products development?

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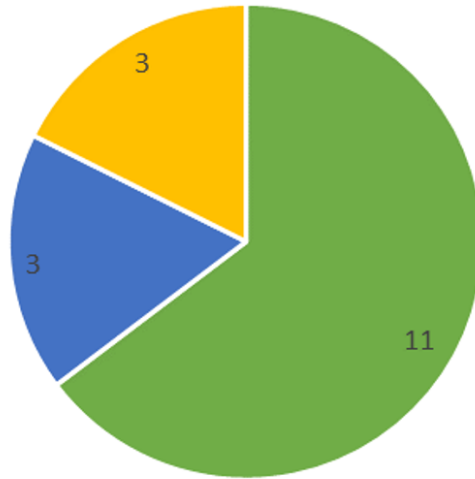
How many years can you wait for developing human resources?

- 1. One decade
- 2. Several years
- 3. A few years

[Discussion result #1]

20

Q4.8-3 What is necessary to improve skills of observers?

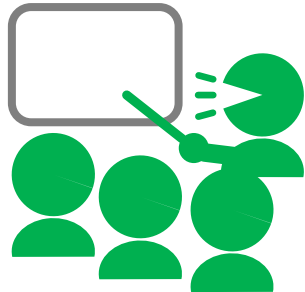


- 1. Training or technological transfer
- 2. Develop experts to be instructors
- 3. Training materials in national languages

Two thirds of NMHSs indicated that training or technological transfer is necessary.

[Discussion] The first option of Q4.8-3 was a regular training approach.

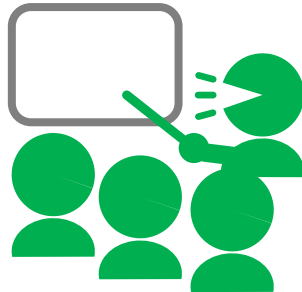
Year 1



3

+

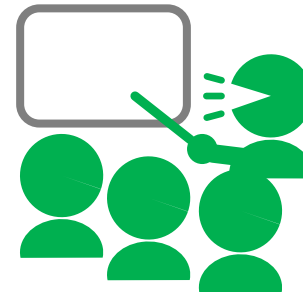
Year 2



3

+

Year 3

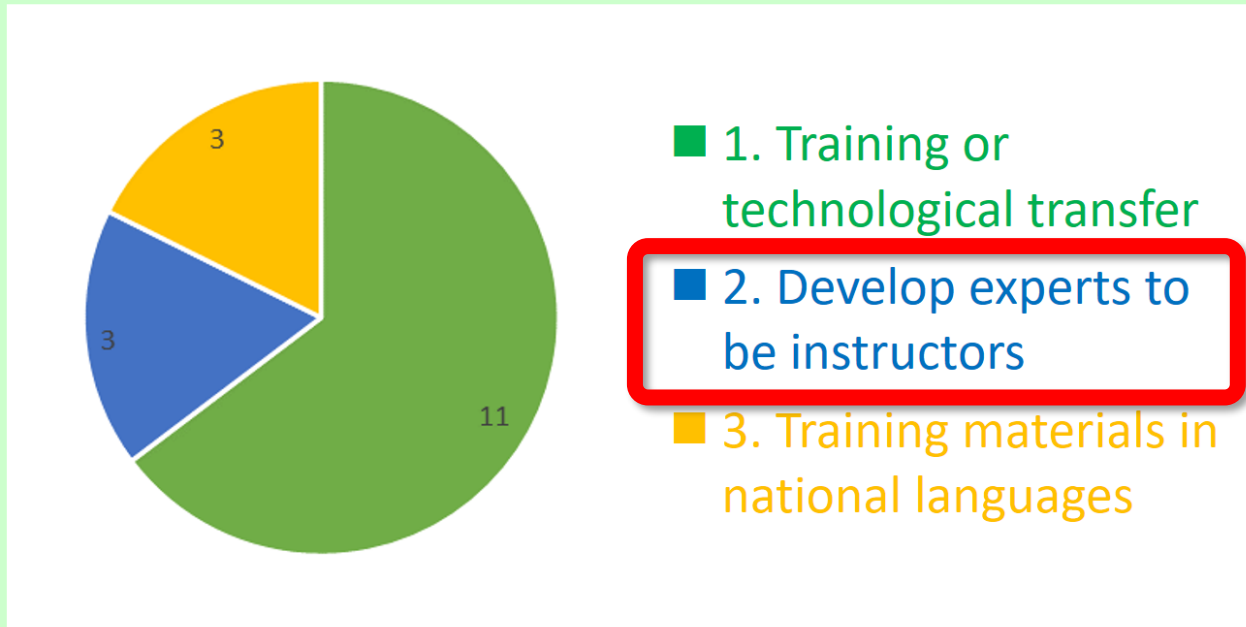


3

= 9

[Discussion] In this case, 9 trainees finish the training in 3 years.

Q4.8-3 What is necessary to improve skills of observers?

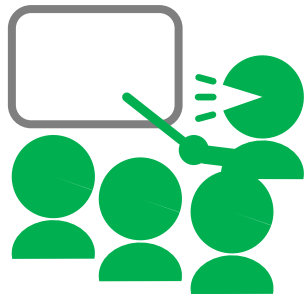


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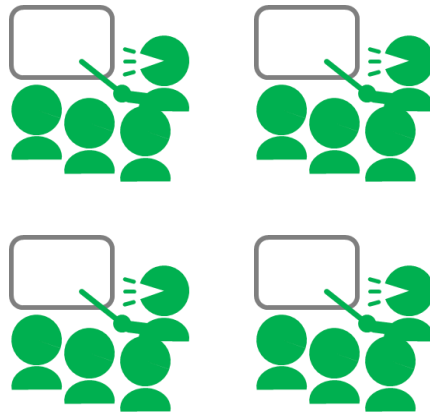
[Discussion] The second option was a “teaching how to teach” approach.

If instructors would be trained in Year 1

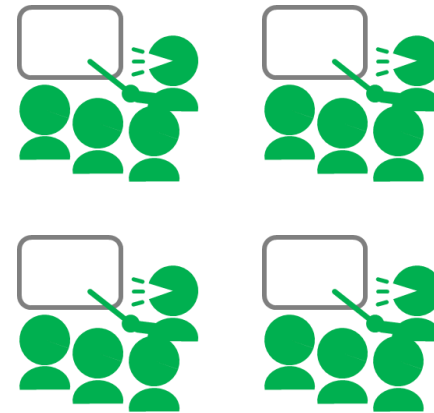
Year 1



Year 2



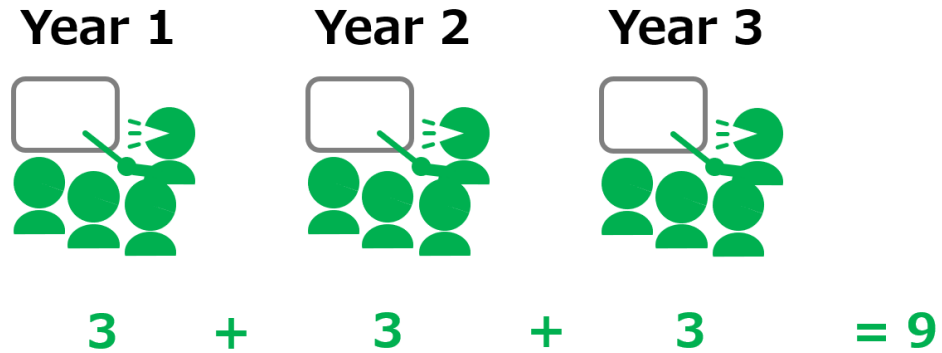
Year 3



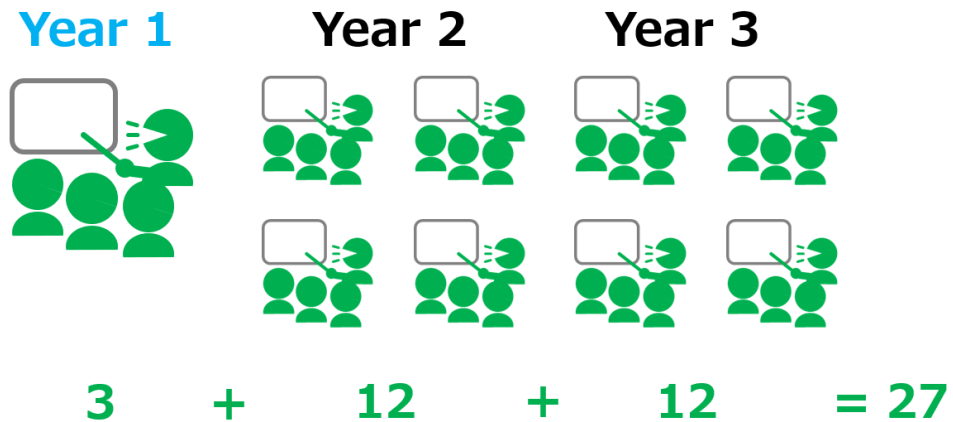
$$3 + 12 + 12 = 27$$

[Discussion] 27 trainees can finish the training in 3 years.

Regular training approach



“Teaching how to teach” approach



[Discussion result #2] Which of those do you expect?