Case studies of Advanced Construction and Demolition waste(CDW) Recycling initiatives and technologies In JAPAN

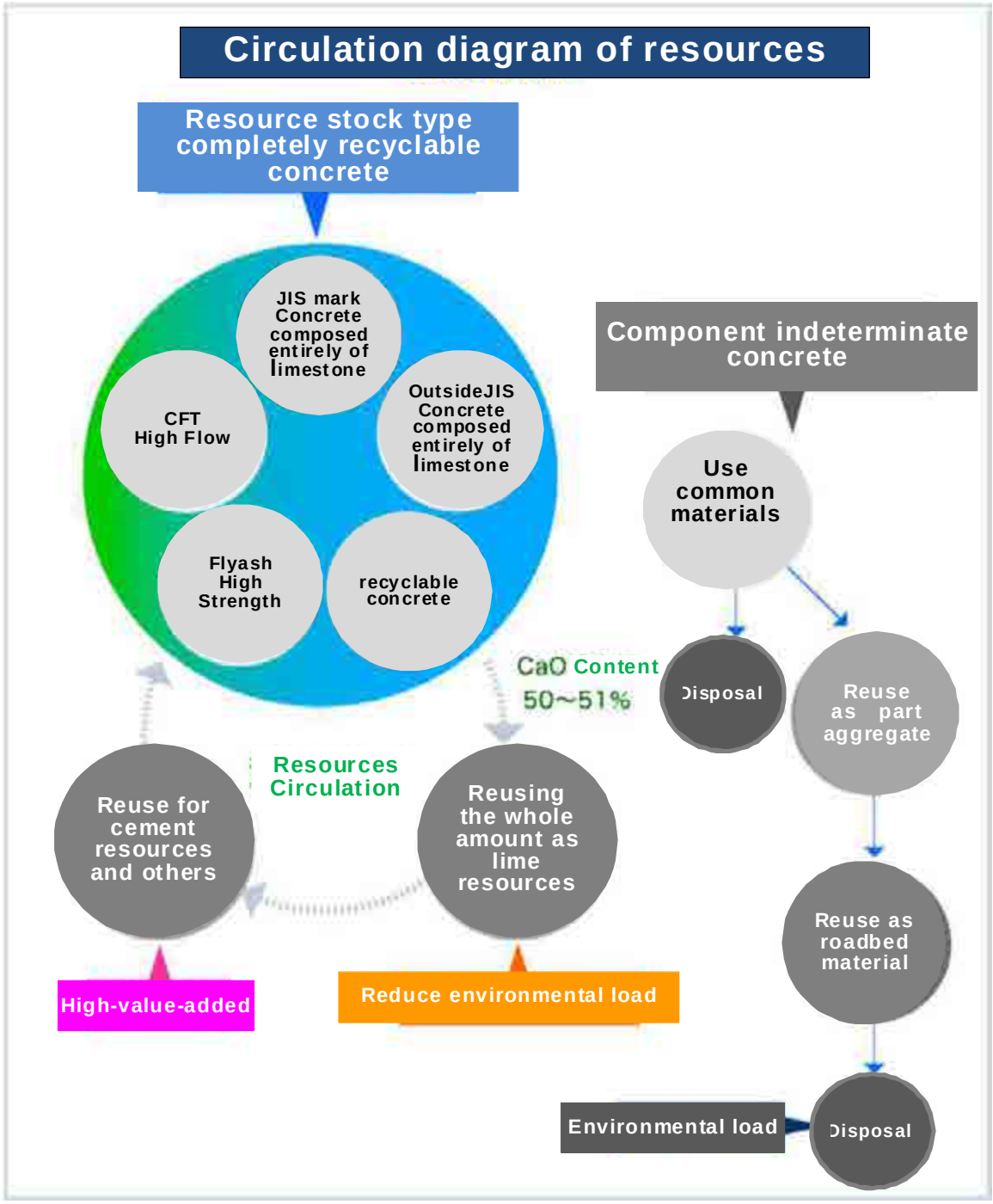
Affiliation	TOUZAKI Co.,Ltd	
Location	1-8-12 Shikahone Edogawa-ku, Tokyo 133-0031	
Position:	CEO	
Name/Surname	TADASHI TOUZAKI	
e-mail	tadashi@touzaki.co.jp	
Title	**Resource stock type Completely Recyclable Concrete (Concrete using limestone aggregate as the total amount of aggregate)**	
Theme classification		Prevention
		Re-use
	○	Recycle
		Reduce Co2
		Legacy
		Business to overseas
		Etc.
Technology development stage	○	Practical use
		Scheduled to be put into practical use by 2020
		Scheduled to be put into practical use after 2020
Specific content	- “Resource stock type Completely Recyclable Concrete” produced using only high-quality limestone aggregate and limestone crushed sand with chemical components confirmed, concrete itself becomes high-quality calcareous resources. -If you bake the concrete waste unprocessed raw as it is, it will be transformed into high-quality cement raw materials. That is, the concrete waste will be used as a raw material for cement. -Touzaki Co., Ltd. continues to make concrete that demonstrates its true value 100 years later in the form of high quality as well as "resource stock to the future"	
Appeal point	- As "closed loop recycling" of concrete waste, Concrete waste will be cement raw materials without processing.	

Resource stock type Completely Recyclable Concrete

(Concrete using limestone aggregate as the total amount of aggregate)

1. OUTLINE

"Resource stock type Completely Recyclable Concrete " embodies the concept and technology of "completely recyclable concrete" advocated by Professor Takafumi Noguchi of the University of Tokyo



2. FEATURES

(1) High durability

①Alkali aggregate not reactive

·Alkali silica reaction

Suppression of Alkali Aggregate Reaction (Civil Engineering , Building)
Implementation Procedure

·Alkali carbonate reaction

Cement Association Concrete Special Committee Report F·47

②Less drying shrinkage

⇒ According to the company's annual seasonal variation survey
(average = less than 600 μ)
(The examination is requested to the building materials testing center)

③The linear expansion coefficient α of limestone is small (about 5 μ / ° C.)

⇒ It can be expected to suppress temperature cracking

(2) Less pumping loss

·It does not contain silt (viscosity) in the fine powder part

↓

·There is no excess adsorption of chemical admixture and moisture

↓

·Less slump loss due to pump pumping

(3)Concrete waste is resource

·After dismantling the structure, the concrete waste generated

↓

·Reusable as cement raw material

(Completely Recyclable Concrete = Resource Stock Type Completely Recyclable Concrete)

(4) Fully compatible with ready mixed concrete (JIS A 5308)

(5) Acquired Ministerial Certification on High Strength Concrete

·Acquired Ministerial Certification on High Strength Concrete alone at factory (2010.2)
(Certification scope: moderate heat cement · design standard strength 80 N / mm 2)

·By actual machine tests, it was confirmed that compression strength of 120 N / mm 2 could be achieved even with concrete using limestone for the total amount of aggregate