



Ci3 India - **Consolidation** Round Table - October 19, 2016



**Action Item 1 – Identification and formulation of
KEY PERFORMANCE INDICATORS (KPIs):
ACTION TEAM MEMBERS:**

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What do **WE** mean by KPIs?



- **Ci3 India** consolidated 'overview' (consolidated from definitions in literature):
- **Key Performance Indicator (KPI)** - the measure of performance of an activity that is critical to the success of a person, **project, organisation or industry**
- e.g. from (a) 'macro' level - **industry** wide KPIs
e.g. to track overall productivity, worker health & safety
- to (b) 'meso' level - **organisational** performance KPIs
e.g. financial ratios/ indicators
- and (c) 'meso' level - **project** performance KPIs - e.g. to evaluate project time and cost performance levels, accident levels
- to (d) 'micro' level - **activity** KPIs - e.g. to evaluate time and costs of concreting or earthmoving activities; or bricklaying/ plastering tasks etc.

CONCEPTS UNDERPINNING our ACTION OBJECTIVES



- We need **KPIs** along with **NORMS** and '**BENCHMARKS**'
- to compare our 'scores' against good practice,
- Is it true that “you can not manage what you can not measure” and “we can not improve what we do not measure”.
- What are the risks of relying only on performance indicators?
Unsuitable KPIs can distort performance because:
“what gets measured and rewarded is what gets done” and
“some things that count can not be counted while some things that get counted do not count”!
- Also, one can not measure everything

So we need to prioritise and compare the benefits/costs of each potential KPI

Objectives of Action Item 1



BRIEF with INITIAL OBJECTIVES

1. To identify and develop in stages, a set of useful Key Performance Indicators (KPIs) for the Indian Construction Industry

2. To formulate project level KPIs in stages, initially focusing on building construction clients and initially targeting their use by a 'Benchmarking club' of leading building construction clients

- **Note:** The sharing of project information and KPIs must be carefully regulated, so that confidential data remains confidential. For example:

[i] Only benchmarking members' group averages (and not specific company data) will be available within the group, i.e. to those who have contributed their own required data in well-defined specific areas; and

[ii] It is proposed to set three levels of "willingness to share data" (1) with Public (e.g. on improved Safety statistics, to boost Industry Image); (2) with a Ci3 India 'Benchmarking Club'; (3) for Internal (organizational top management) use only

Objectives of Action Item 1

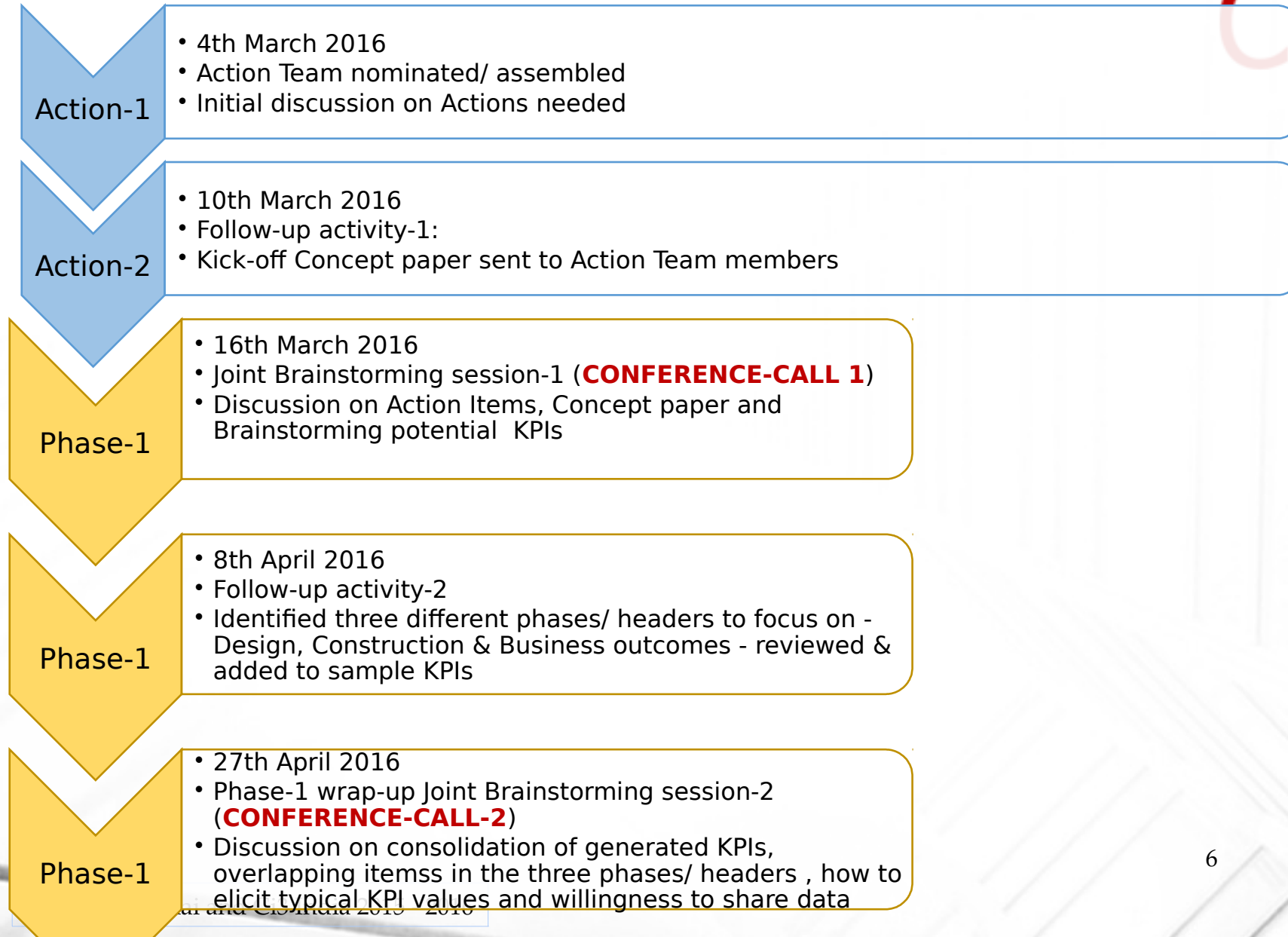


PROPOSED EXPANDED OBJECTIVES:

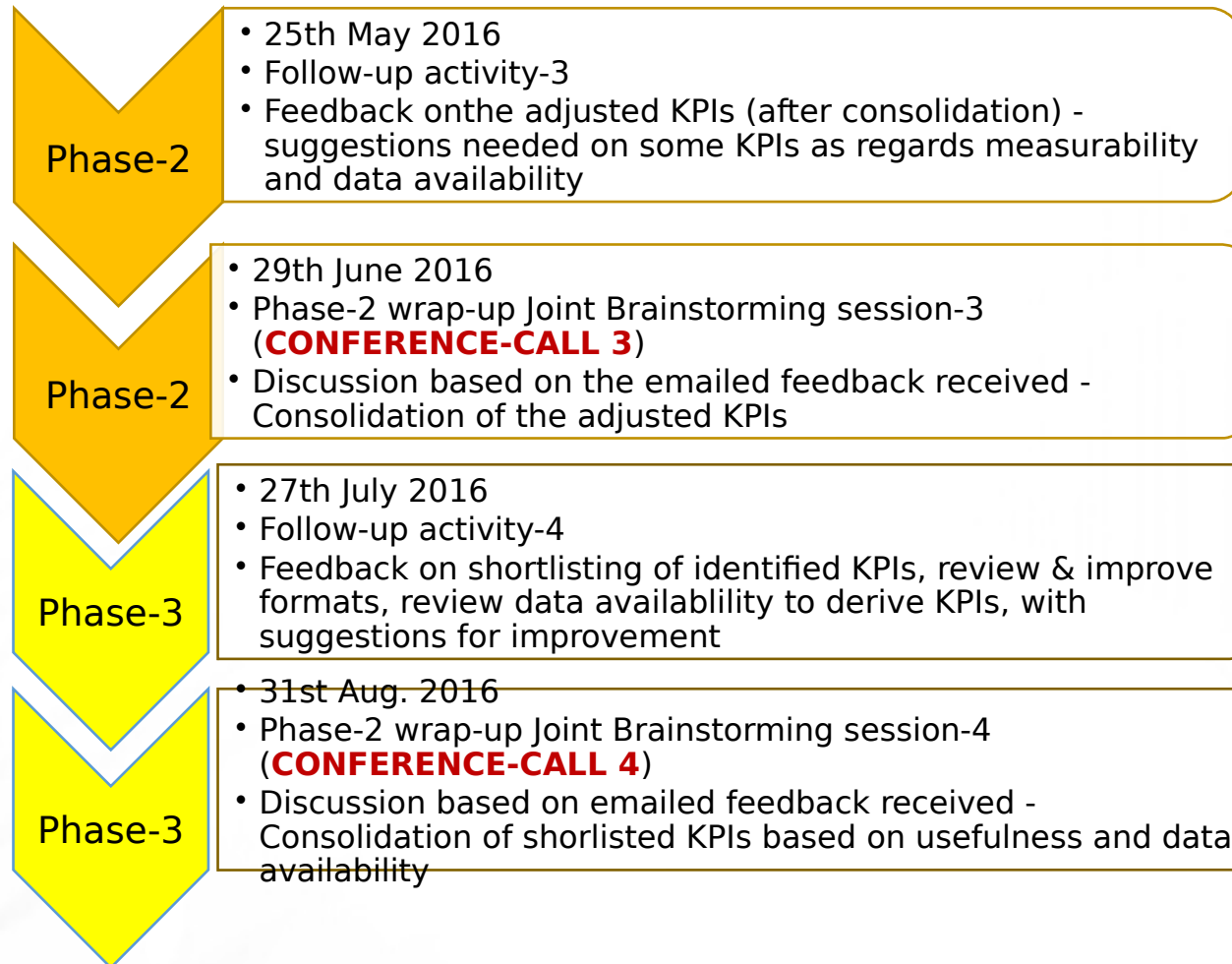
- A. To identify and develop in stages, a set of useful Key Performance Indicators (KPIs) for the Indian Construction Industry;
- B. To first formulate project level KPIs in stages, initially focusing on building construction clients and initially targeting their use by a 'Benchmarking club' of leading building construction clients; and to formulate complementary sets of KPIs for:
OTHER INDUSTRY STAKEHOLDERS (e.g. contractors) and
OTHER INDUSTRY SUB-SECTORS (e.g. highways);
- C. To facilitate focused sharing of project information and KPIs*, so as to continuously improve project level performance levels vis-à-vis industry averages; and
- D. To further *extend* the above project level KPIs and formulate, if considered useful after or during the exercises in C above:
- [i] to ORGANISATIONAL KPIs for different types of construction organisations so they may benchmark against organisations of the same type; *and*
- [ii] to OVERALL INDUSTRY LEVEL KPIs for the Indian Construction Industry, so as to compare with other countries.

Highlights of Team 1 (KPIs) Actions after 2nd Roundtable - (1)

C3



Highlights of Team 1 (KPIs) Actions after 2nd Roundtable - (2)



Literature Survey Overview (1)

- COMPARISON with some other COUNTRIES



- A few countries have developed **industry-wide Construction Industry KPIs & Organisational KPIs** over the past few years e.g. the UK, Hong Kong, Singapore. *Examples:*
- **Hong Kong Construction Industry Performance Reports** - published annually since 2013 by Construction Industry Council, Hong Kong.

Note - a review of the KPIs used in Hong Kong in comparison to those used in the UK, Singapore and the USA - commissioned in 2015; & being conducted by a team from the University of Hong Kong

- **UK Construction KPIs** are also published annually, by 'Constructing Excellence'

UK KPIs - **more detailed than Hong Kong** + track changes from 2003 in most cases, even from 1999 - some 'Economic KPIs'; and from 2002 for 'Construction Consultant KPIs'

Note 'Construction Consultant KPIs' also include 4 dimensions of Client satisfaction with Consultants' performance)

Please See WORKING PAPER Appendix A - for details + Examples

(1) Examples of KPIs from Hong Kong

from Hong Kong Construction Industry Performance Reports - compiled & issued annually

by Construction Industry Council in collaboration with Rider Levett Bucknall Limited

- **2013 report** available on CIC web-site

5 AREAS	4 CATEGORIES	2 SECTORS
<ul style="list-style-type: none">• Productivity (7 KPIs)• Health & Safety (3 KPIs)• Environment (3 KPIs)• Manpower (3 KPIs)• Dispute Resolution (3 KPIs)	<ul style="list-style-type: none">• Whole Industry• Civil Engineering Works• New Building Works• RMAA* Works <p>* Repairs, Maintenance, Additions, Alterations</p>	<ul style="list-style-type: none">• PUBLIC• PRIVATE

- **REVIEW** commissioned by **CIC** – awarded to **HKU CICID*** - consultancy to review

“Consultancy Services for **Assessing the Performance of the Hong Kong Construction Industry, Key Performance Indicators (KPI): An International Comparison**”

* **Centre for Innovation in Construction and Infrastructure Development**

Extract: HONG KONG Headline KPIs (Separately for each Category and Sector)

KPIs	DEFINITION
P1	(On site) Man-days per HK\$1,000,000 gross value of construction works [PRODUCTIVITY KPI]
P2	(On site) Man-days per gross floor area [PRODUCTIVITY KPI]
P3	Construction cost Indices [KPI of COST TREND OF CONSTRUCTION WORKS]
P4	Percentage of gross value of construction works to GDP [KPI OF THE ECONOMIC SIGNIFICANCE OF THE CONSTRUCTION INDUSTRY]
P4a	Percentage contribution of construction activities to GDP at basic prices [KPI OF THE ECONOMIC SIGNIFICANCE OF THE CONSTRUCTION INDUSTRY]
P5	Gross value of construction works per capita [PRODUCTIVITY KPI]
P6	Number of manual workers engaged per HK\$1,000,000 gross value of construction works at construction sites [PRODUCTIVITY KPI]
P7	Number of manual workers engaged per 1,000 sq. m. gross floor area [PRODUCTIVITY KPI]
HS1	Industrial accident number / rate (reportable industrial accidents per 1,000 manual workers) [KPI OF SAFETY PERFORMANCE]
....

(2) Examples of KPIs from UK

UK Construction Industry Performance Report 2015 - based on UK Construction Industry KPIs

Broad Groups of KPIs:

- **Economic Indicators** →
- **Client Satisfaction**
- **Contractor Satisfaction**
- **Profitability**
- **Predictability**
- **Respect for People**
- **Environmental Indicators**
- **Housing**
- **Non-Housing**
- **Consultants**

ECONOMIC KPIs - All Construction	MEASURE
Client Satisfaction - Product	% scoring 8/10 or better
Client Satisfaction - Service	% scoring 8/10 or better
Client Satisfaction - Value for Money	% scoring 8/10 or better
Contractor Satisfaction - Performance - Overall	% scoring 8/10 or better
Contractor Satisfaction - Provision of Information - Overall	% scoring 8/10 or better
Contractor Satisfaction - Payment - Overall	% scoring 8/10 or better
Defects - Impact at Handover	% scoring 8/10 or better
Predictability Cost - Project	% on cost or better
Predictability Cost - Design	% on cost or better
Predictability Cost - Construction	% on cost or better
Predictability Time - Project	% on time or better
Predictability Time - Design	% on time or better
Predictability Time - Construction	% on time or better
Profitability [Return on Sales]	Median % profit before interest & tax
Productivity (VAPE Current Values)	Median value added/ FTE employee (£000)
Productivity (VAPE Constant 2011 Values)	Median value added/ FTE employee (£000)

VAPE – Value Added per Employee:

Note – 2015 Report gives % figures for years from 1999 (or 20012/ 2003) to 2015 + Trend (vs. 'Last Year' and 'All Years')

Realistic & Robust KPIs? – More [Examples from UK](#)

Similar tabulated Breakdowns of:

Economic KPIs - All Housing

Economic KPIs - All Non-Housing

AND

Respect for People KPIs - All Construction

Environment KPIs - All Construction

Construction Consultant KPIs

Some Highlights from 2015 Report

60% of construction projects are completed **late**. (Note: 55% in 2014, **so worse in 2015**)

Better on 'Cost Predictability' – on or within budget on 69%

In Non-housing - **design phase** on time in 52% projects; **construction phase** in 45%

Client satisfaction with overall product has fallen three years in a row to 81%

“Overall ...seems construction is making limited progress towards government's [Construction 2025 performance targets](#)

- aim to cut delivery time by 50% and reduce costs by 33%.

R & D METHODS USED:



mainly based on:

(1) **Literature Review**

(2) **A strong KPIs Focus Group (Ci3 India Action Team 1)**

➤ Focus Group worked in stages in **Delphi-type progressive cycles**

KPIs were firstly formulated under two different project phases ('Design', 'Construction') as well as under overall 'Business Outcomes'

Also to evaluate different key stake-holders ('Consultants', 'Contractors')

Next short-listed to discard what was less useful and/or where data collection would not justify the benefits.

INTERIM FINDINGS & RESULTS



- *Please See WORKING PAPER Appendix C - for currently shortlisted KPIs*
- **EACH ORGANISATION can SELECT their OWN SUITE of KPIs from this 'Large listing' + ADJUST/ ADD ETC. to suit their needs**
- **NEED** further SHORTLISTING + some REFINEMENTS
- **NEED** WEIGHTING FACTORS (Weighting Indicators) – to adjust Typical Values for specific contexts/ scenarios
- **NEED** TYPICAL VALUES –
i.e. Need (A) to collect data to assign TYPICAL VALUES to these KPIs
- **NEED** to set up and sustain 'BENCHMARKING CELLS/ CLUBS'
 - to *derive* expected values
 - and *evaluate* improved performance levels
 - at *both project and organisational* levels.

Structure & Expected Contents of Action Team 2 White Paper- due 10 Dec. 2016

- *Based on Working Paper +?*
- *Suggestions solicited TODAY + any more before 25 Oct. 2016 please*
- *Then we will formulate a Specific Activities List with a Time-line*

THANK YOU - for your patience

+ for your feedback !!!

Action Team 1