INTERNATIONAL ACTUARIAL ASSOCIATION **Comments Template on Exposure Draft of ISAP 3**

Deadline: 14 March 2014

Please use this template to comment on the Exposure Draft of ISAP 3 Actuarial Practice under IAS 19 Employee Benefits, and the ISAP 3 Glossary (ED) markedup.

	Identification and instructions	
Name of Individual:	Please indicate if your comments are personal, or represent your organization:	Personal Comments: Giovanna Ferrara Gennaro Olivieri Elsa Pettorrusso Simona Salvarezza Federica Zappari
Name of organization		
Disclosure of comments:	Please indicate if your comments should be treated as confidential, and if so why:	Not confidential
Instructions for filling in and sending the template	Please follow the following instructions for filling in the template: ⇨ Do **not** write in the yellow shaded cells ⇨ Write in the white cells ⇨ When commenting on a specific paragraph: ○ Please use a separate row for each paragraph, sub paragraph, or bullet. ○ Please include the full reference in the first column such as "Introduction 3rd paragraph 2nd bullet" or "2.6.1.b.ii" ○ Please insert/append extra rows as needed. **Please send the completed template, renamed with the organization's or individual's name, attached in Word Format, to** ISAP3.ISAP.comments@actuaries.org**.**	

	Specific Questions asked by the ASC	Response
Q1.	Is the guidance clear and unambiguous? If not, how should it be changed?	Please see comments below.
Q2.	Is the guidance sufficient and appropriate? If not, how should it be changed?	Please see comments below.
Q3.	Is it clear how the guidance in the proposed ISAP relates to the guidance in ISAP 1? If not, how should it be changed?	Please see comments below.
Q4.	Is the guidance at the right level of detail? If not, what text should be omitted because it is too detailed? In what areas do actuaries need more detailed guidance?	Please see comments below.
Q5.	The proposed ISAP does not currently provide specific guidance to actuaries advising the reporting entity on the information that should be included in the IFRS report to meet IAS 19's disclosure objectives (the appendix contains educational material on these disclosures). Should the ISAP be expanded to provide guidance in this area? If so, what should the guidance be?	Please see comments below.
Q6.	Are there other matters that should be included in this standard on actuarial work in connection with IAS 19 Employee Benefits? Are there some included here that should not be?	Please see comments below.

	General Comments on the Exposure Draft	

Comments on specific paragraphs of the Exposure Draft		
Full paragraph reference	**Change proposed to the paragraph (markup preferred)**	**Reason the change is needed (can be kept very brief or left blank if obvious from the change)**
2.6.3	In the statement 2.6.3 the point iv. should be replaced by: iv. Determine a single weighted average interest rate that produces substantially the same present value of the defined benefit obligation for disclosures in the IFRS report; v. Calculate net interest and service cost by taking into account the first rate of the spot-rate yield curve. The justification of the required modification may be found in the note below the table (Annex_IC*)	A group of Italian Actuaries has carried out a careful analysis of the Exposure Draft of Proposed International Standard of Actuarial Practice 3. While expressing their great appreciation for the remarkable work presented, they would like to propose some modifications, in order to ensure the proper functioning of the Projected Unit Credit Method (PUCM).

*Note (Annex_IC)

Valuation by using a vector of rates (curve yields)

Projected Unit Credit Method (PUCM): formulae.

IAS 19 (paragraph 67) prescribes that the present value of the future liabilities (DBO) should be valued by using the Projected Unit Credit Method (PUCM). This means that if at the time 0 we expect to pay in the next years the amounts $T(m)$ in respect of one individual, whose seniority at the time 0 is equal j, and then the present value of the obligations should be determined as

$$DBO(0) = \sum_{m=1}^{mf} \frac{j}{j+m} T(m)\, v^m$$

Where it is assumed that the payments are due at the end of the year, *mf* is the final year for the obligations and the valuation is performed by using **an only one flat rate.**

When a **vector of rates (curve yield)** is used then the formula is:

$$DBO(0) = \sum_{m=1}^{mf} \frac{j}{j+m} T(m) \prod_{m=1}^{mf} \frac{1}{1+if(m)}$$

Where *if (m)* is the forward rate as valued at the time 0 for the years from 1 to *mf*.

Of course we may write the previous formula by using the spot rates ***is(m),*** i.e.

$$DBO(0) = \sum_{m=1}^{mf} \frac{j}{j+m} T(m) \left(1+is(m)\right)^{-m} .$$

It is required to determine the present value of the obligations at the end of the first year, whose formula is:

$$\boldsymbol{DBO}(1)=\sum_{m=2}^{mf}\frac{\boldsymbol{j}+1}{\boldsymbol{j}+\boldsymbol{m}}\boldsymbol{T}(\boldsymbol{m})\prod\frac{1}{1+\boldsymbol{if}(\boldsymbol{m})}$$

Moreover it is necessary to define the Net Interest (*NI*) and Service Cost (*SC*)

In this case the formula for Net Interest for the first year is:

$$\boldsymbol{NI}(1)=\boldsymbol{DBO}(0)\times\boldsymbol{if}(1)$$

While for the Service Cost the formula is

$$\boldsymbol{SC}(1)=(1+\boldsymbol{if}(1))\times\sum_{m=1}^{mf}\frac{1}{\boldsymbol{j}+\boldsymbol{m}}\boldsymbol{T}(\boldsymbol{m})\prod\frac{1}{1+\boldsymbol{if}(\boldsymbol{m})}$$

The following formula holds for every *m*

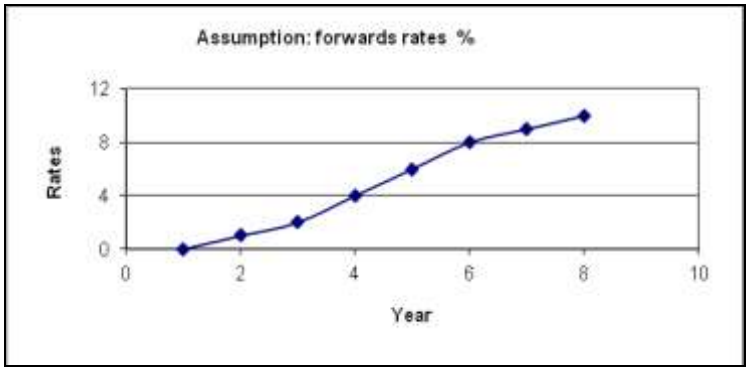
$$\boldsymbol{DBO}(\boldsymbol{m}-1)+\boldsymbol{IC}(\boldsymbol{m})+\boldsymbol{SC}(\boldsymbol{m})-\boldsymbol{T}(\boldsymbol{m})=\boldsymbol{DBO}(\boldsymbol{m})$$

The Nassau example

In order to illustrate the functioning of the formulae, we will use an example worked out by Alfred Gohdes in Nassau (2012) after the Pension session. He assumed a vector of rates over a period of 8 years, as the following one

Table 1. Vector of rates (curve yields) as estimated at the end of the year 0

Year *t*	$1+if(t)$	$\prod_{t}^{8}(1+if(t))$	*1+is (t)*
1	**1.00**	**1.47063**	**1.04939**
2	**1.01**	**1.47063**	**1.05664**
3	**1.02**	**1.45607**	**1.06463**
4	**1.04**	**1.42752**	**1.07378**
5	**1.06**	**1.37262**	**1.08240**
6	**1.08**	**1.29492**	**1.08997**
7	**1.09**	**1.19900**	**1.09499**
8	**1.10**	**1.10000**	**1.10000**



Moreover it was assumed that

***T(m)* = 0 for *m*<8**

***T(m)* > 0 for *m*=8**

Hence the main formulas are

Present values:

$$DBO(0) = \frac{j}{j+8} T(8) \prod_{1}^{8} \frac{1}{1+if(m)} \quad [1]$$

$$DBO(1) = \frac{j+1}{j+8} T(8) \prod_{2}^{8} \frac{1}{1+if(m)} \quad [2]$$

Service cost:

$$SC(1) = (1+if(1)) \times \frac{1}{j+8} T(8) \prod_{1}^{8} \frac{1}{1+if(m)} \quad [3]$$

Net interest:

$$NI(1) = DBO(0) \times if(1) \quad [4]$$

To apply the formula we assume that $j = 2$ and $T(8) = 1000$

1st Year of valuation

In the first year of valuation, by applying the formula and using the yield curve as sketched in table 1, the quantities for the disclosure are:

***DBO*(0) = 136** ***DBO*(1)= 204** **Weighted average interest rate = 4.94%**

We noticed that, in this particular case, the weighted average interest rate corresponds to the spot rate related to the residual duration.

It is clear that the difference between the two present values (as the first rate of the yield curve is equal to 0 and T(1) = 0) is given by the service cost, i.e. the rights accrued by the member of our fund (i.e. 68). Then:

***DBO(1)* = 136.0 + 68.0 = 204.0**

If we consider the weighted average interest rate in order to calculate the net interest and the service cost (as appears from the present ISAP 3 statement 2.6.3 under iv.) we have to introduce an adjustment factor to reproduce the present value at the end of the year 1. In fact we have

***NI'*(1)= 6.7** ***SC'*(1)=71.4**

And then

***DBO*(1) = *DBO*(0) + *NI'*(1) +*SC'*(1) – T(1) +*AF*(1) = 136.0+ 6.7 + 71.4 – 10.1 = 204.0**

We noticed that this adjustment factor is clearly artificial and does not add any indication to the disclosure.

2nd Year

Let us assume that we have the same vector of rates as previously, i.e. the following rates.

Table 2. Vector of rates (curve yields) as estimated at the end of the year 1

Year *t*	$1+if(t)$	$\prod_{t}^{7}(1+if(t))$	*1+is (t)*
1	**1.01**	**1.47063**	**1.05664**
2	**1.02**	**1.45607**	**1.06463**
3	**1.04**	**1.42752**	**1.07378**
4	**1.06**	**1.37262**	**1.08240**
5	**1.08**	**1.29492**	**1.08997**
6	**1.09**	**1.19900**	**1.09499**
7	**1.10**	**1.10000**	**1.10000**

In the second year of valuation, by applying the formula and using the yield curve as sketched in table 2, the quantities for the disclosure are:

***DBO*(1) = 204** ***DBO*(2)= 274.71** **Weighted average** interest **rate = 5.66%**

While the net interest and the service cost related to the first rate of the table 2 (1%) are

***NI*(2) =2.04** ***SC*(2) = 68.67**

***DBO(2)* = 204.00 + 2.04 + 68.67 = 274.71**

If we consider the weighted average interest rate in order to calculate the net interest and the service cost (as appears from the present ISAP 3 statement 2.6.3 under iv.) we will have

***NI'*(2)= 11.56** ***SC'*(2)=71.85**

And then

***DBO(*2) = *DBO*(1) + *NI'(*2) +*SC'*(2) – T(2)+ *AF(2)* = 204.00+ 6.72 + 71.36 – 10.08 =274.71**

Following years

The process will be the same. When we consider the first rate of the yield curve in order to calculate Net Interest and Service Cost, the relationship

$$DBO(m-1) + IC(m) + SC(m) - T(m) = DBO(m)$$

is verified for every *m and* it is not necessary to introduce adjustments in the financial statement (i.e. *AF (m)* = 0). In the first case the results are collected in the following table

Table 3 – Items of the financial statement in the case of the suggested amendment in the ISAP 3 statement 2.6.3 under iv

Year	*DBO* at the beginning	A. B. Net Interest *NI*	C. D. Service Cost *SC*	E. Benefits T	(1)+(2)+(3)-(4)	AF	*DBO* at the end
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	136.0	-	68.0	-	204.0	-	204.0
2	204.0	2.0	68.7	-	274.7	-	274.7
3	274.7	5.5	70.1	-	350.3	-	350.3
4	350.3	14.0	72.9	-	437.1	-	437.1
5	437.1	26.2	77.2	-	540.6	-	540.6
6	540.6	43.2	83.4	-	667.2	-	667.2
7	667.2	60.1	90.9	-	818.2	--	818.2
8	818.2	81.8	100.0	1 000	-	-	-

In the second case, by using the weighted average interest rate the results are:

Table 4 – Items of the financial statement when using the weighted average interest rate (as in the present draft ISAP 3 statement 2.6.3 under iv)

Year	*DBO* at the beginning	F. G. Net Interest *NI'*	H. I. Service Cost *SC'*	J. Benefits T	(1)+(2)+(3)-(4)	AF	*DBO* at the end
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	136.0	6.7	71.4	-	214.1	-10.1	204.0
2	204.0	11.6	71.8	-	287.4	-12.7	274.7
3	274.7	17.8	73.1	-	365.6	-15.3	350.3
4	350.3	25.8	75.2	-	451.3	-14.2	437.1
5	437.1	36.0	78.9	-	552.0	-11.4	540.6
6	540.6	48.6	84.2	-	673.4	-6.2	667.2
7	667.2	63.4	91.3	-	821.9	-3.7	818.2
8	818.2	81.8	100.0	1 000	-	-	-