

Status of Virgo - Feb. 2000

ESPCI (Paris), LAL (Orsay), LAPP (Annecy), IPN (Lyon), OCA (Nice)
Firenze, Frascati, Napoli, Perugia, Pisa, Roma

Virgo Construction Strategy

1. 1999-2001: Central Interferometer construction, commissioning, characterisation
2. 1999-2002: Arms construction
3. 1999-2002: Final Mirrors fabrication and installation
4. 2002→ : Virgo commissioning

Civil engineering

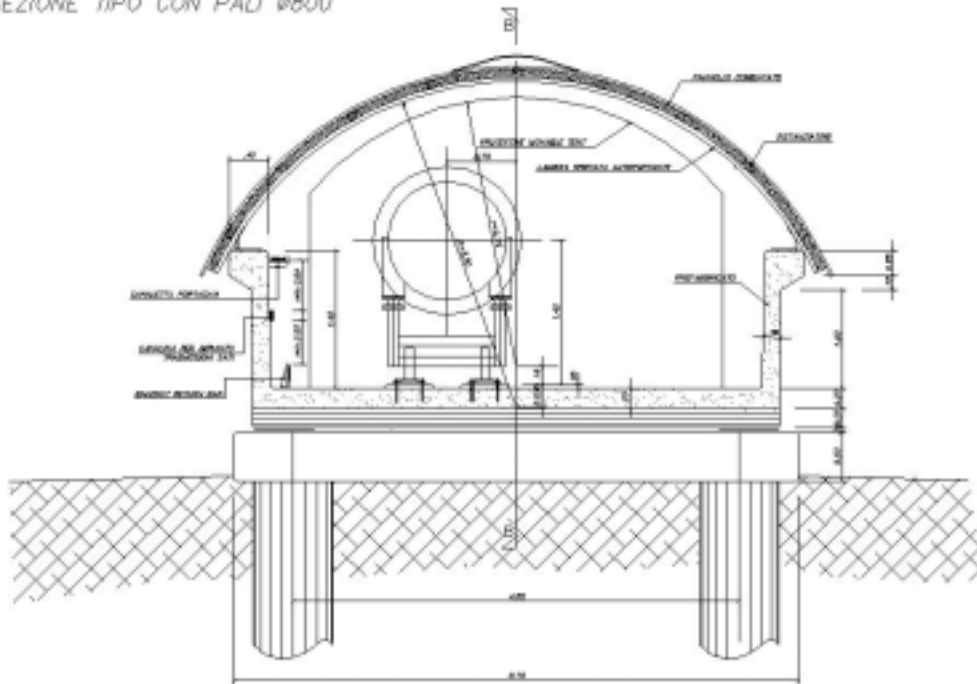
<http://www.virgo.infn.it/cascina.html>
<http://www.virgo.infn.it> (SkyView.jpeg)

Central Buildings completed and occupied

http://www.virgo.infn.it/images/Pictures/Cascina_Site_Sept98.html (GGView.jpeg)

Tunnels construction started May 99

SEZIONE TIPO CON PALI Ø800



piles: North arm completed

<http://www.virgo.infn.it/images/Pictures/2300/VIR-PIC-PIS-2300-018.jpg>

concrete structure: North arm started

<http://www.virgo.infn.it/images/Pictures/2300/VIR-PIC-PIS-2300-042.jpg>

roof: in preparation

arm buildings: North started

1/2 North arm to be delivered summer 2000

arms completed Nov. 2001

Vacuum System

8 Central towers and 140 m Mode Cleaner tube installed, (baked) and tested

<http://www.virgo.infn.it/images/Pictures/VIR-PIC-PIS-6100-009.jpg>

10^{-6}/10^{-9} mbar

2 Terminal towers ready to be installed 2001-2

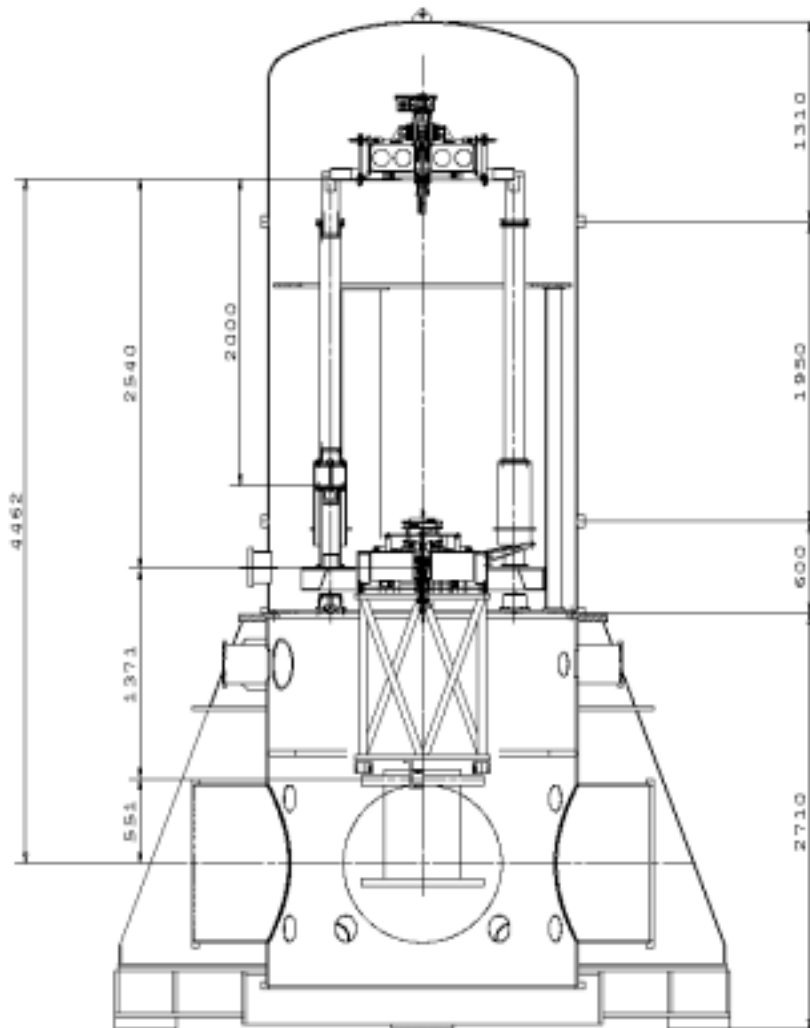
Tube modules (d=1.2m, L=15m): 60 out of 400 leak tested and delivered

Inst. N. arm Oct. 2000 - Nov. 2001

Inst. W. arm Sep. 2001- May 2002

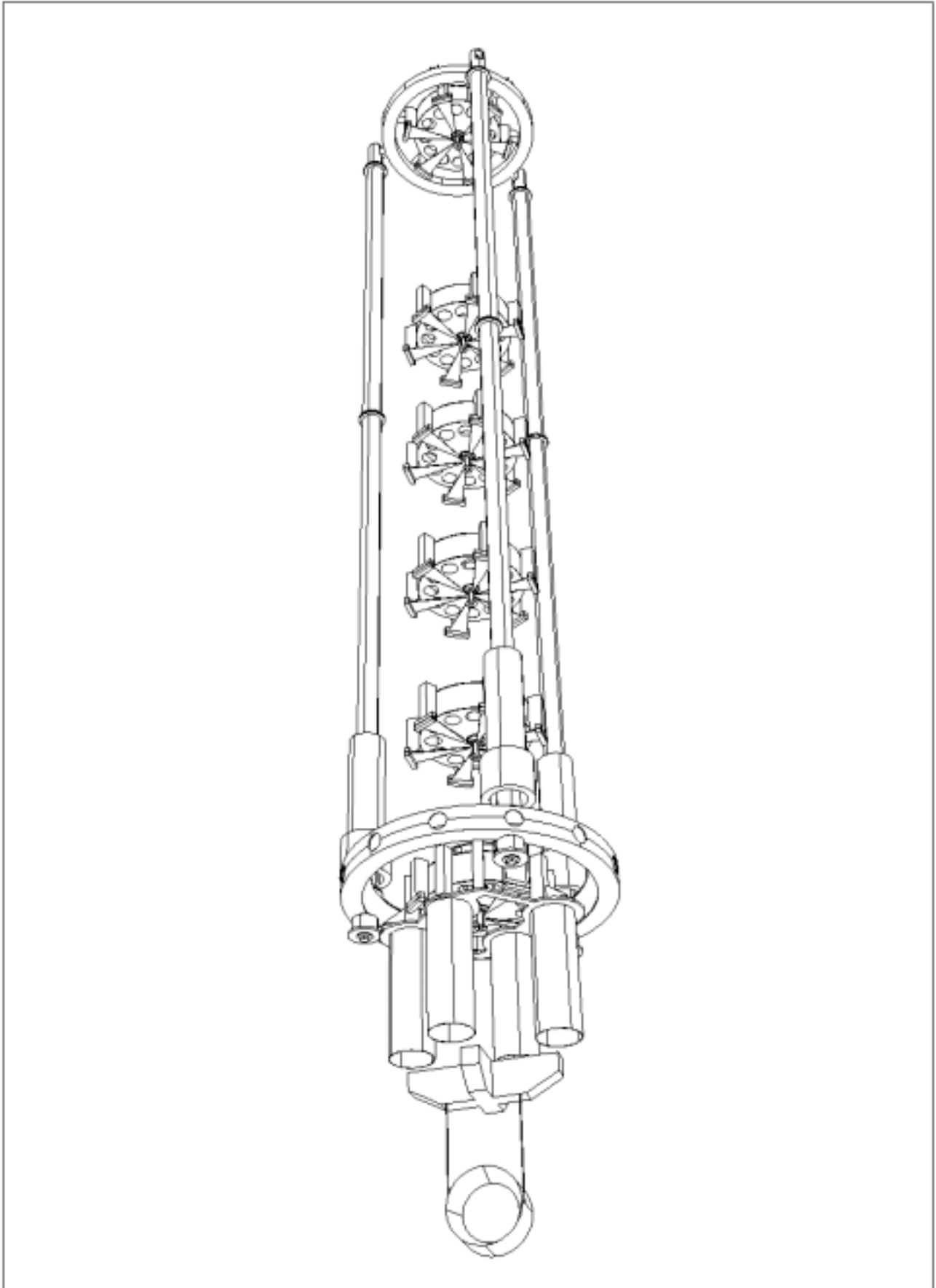
Suspensions

3 short susp. installed (Inj., MC, Det.)



TOWER_2000_MC+IS

reference drawing
Andrea Gaddi



I-DEAS Master Series 4: Design

7 long susp.:

beam splitter installed

<http://www.virgo.infn.it/images/Pictures/4600/VIR-PIC-PIS-4600-061.jpg>

N. input	50% installed
W. input	May 2000
Power rec.	Jul. 2000
N. terminal	2001
W. terminal	2002
Signal rec.	TBD

Payloads

Marionetta , R. Mass, Mirror (holder)

(will be) ready in due time

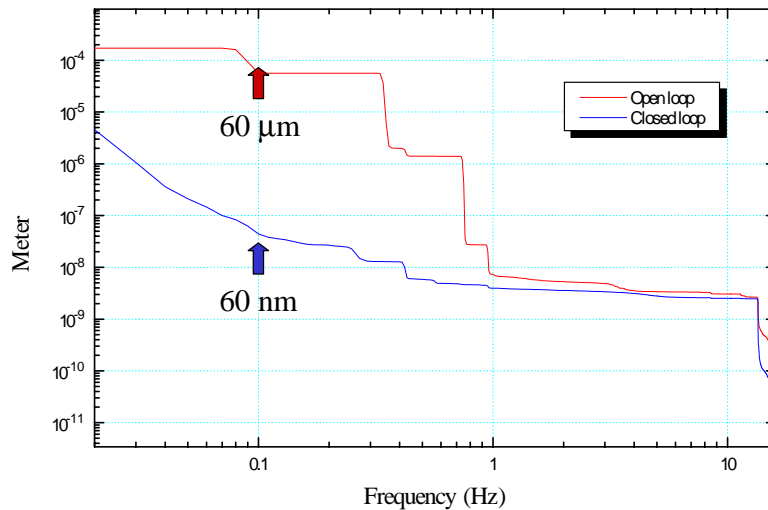
Suspension control

< 0.1 Hz <10⁻³m

Inverted pendulum (LVDT, accelerometers)

working (to be improved) on short suspensions

MC: Translation RMS (IP top)



VIRGO

:Losurdo - INFN Pisa

0.1 - 1.0 Hz **<10⁻⁶m**
marionetta
> 1.0 Hz **<10⁻⁹m**
test mass/r. mass
tuning, setting up, installation in progress

Laser

Installed and working, frequency noise within specifications

<http://www.virgo.infn.it/images/Pictures/4100/VIR-PIC-PIS-4100-001.jpg>

10 W at the entrance of input bench

<http://www.virgo.infn.it/images/Pictures/4100/VIR-PIC-PIS-4100-006.jpg>

To do:

long term power/shape characterization

matching to reference cavity

input and MC benches fine positioning

MC cavity locking

Injection system ready to feed CITF

Detection

Bench (optics, photodiodes, read-out) installed
position control working, to be improved

Mirrors for central interferometer

Small mirrors mounted on holders reproducing shape and mass of
final mirrors
several of them have been coated (specs ok)

Large Mirrors

Several blanks delivered
contract for polishing signed
Lyon coater is progressing
schedule is tight

CITF Commissioning

May 2000 - Dec. 2001
detail work plan ready

Simulation

Optics and mechanics
frequency domain, time domain
central and 3 km interferometers
To improve:
local control, inertial damping simulation
simulation speed (simplified mech. models) for locking studies

Data Analysis

Just started

DAD (overview document) written

To do:

evaluation of computing resources

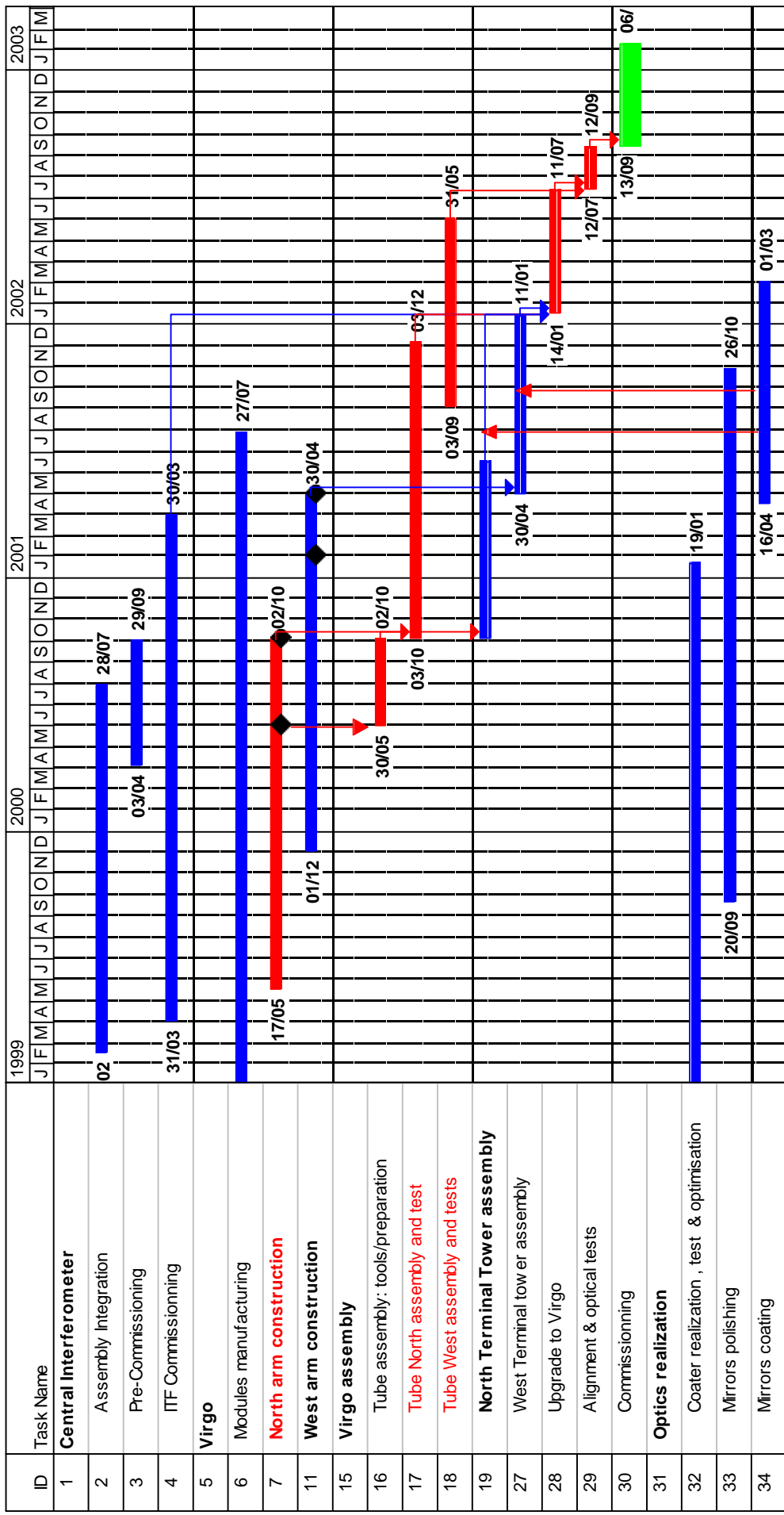
data distribution/duplication policy

preparation of CITF data analysis

preparation of coherent multi-interf. d. a.

(Caltech, 12-13 Feb. 2000)

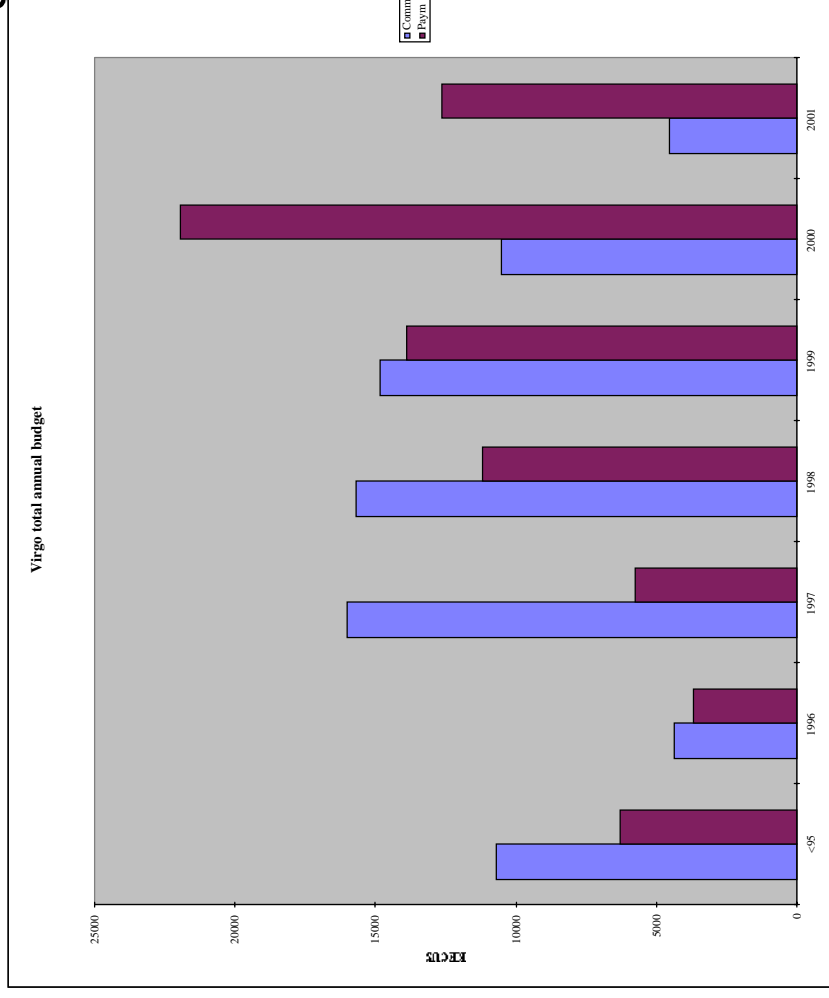
Planning and Budget





VIRGO Annual budget

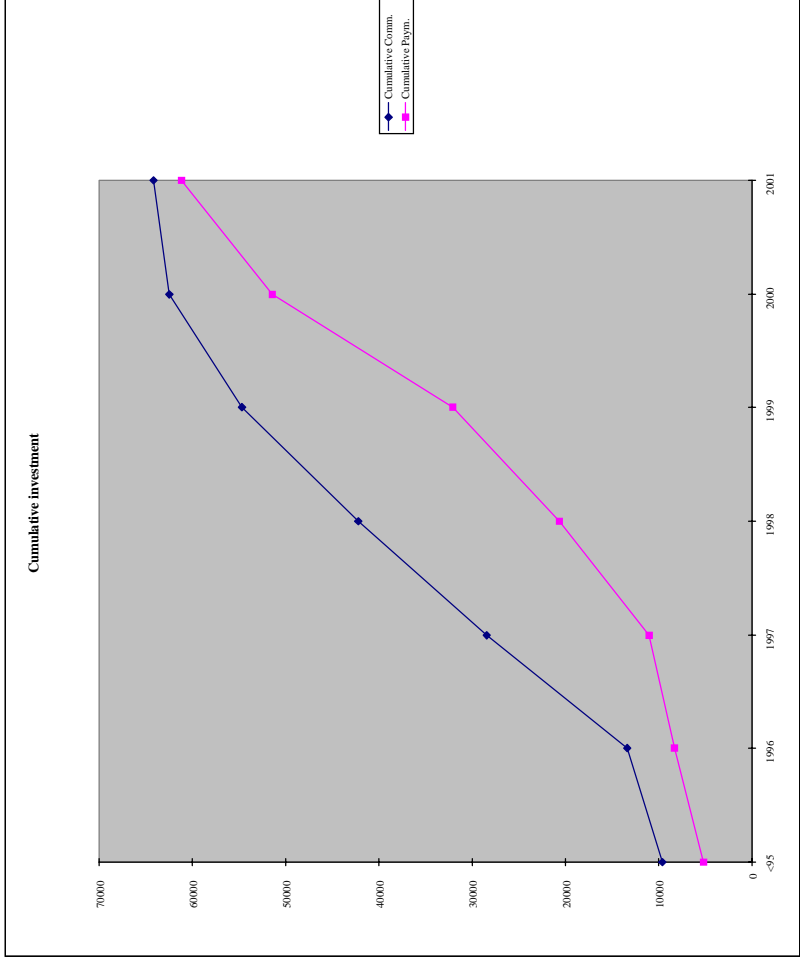
Total budget 76,5 MECus



Annual review 2000-D.Enard



Investments/payments



Annual review 2000-D.Enard