

(1301)

with Chandra & KR Sreedhara Murthy
They relate ~~#~~ ~~the~~ Nuclear Power Sources,
(NPS)
Direct Broadcast Services (DBS) &

Rentelung Principles. Maybe we
will take it up later. We have

already covered ^{2nd} UNISPACE of 1982.
We will give some detail of anecdotes which
cover these items later #

We will now go to other items
of ISRO, personal front etc small, big
medium etc before returning to NPS, DBS etc.

We will now touch upon some
small items and some unique persons /
~~with~~ institutions which were comp up (with
necessarily in ISRO & go to some items of
papers given ^{back} by SD.

M^o Arifullah: In the early days of
ISRO HQ at Cawsey Bhavan, there were

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a few key persons from Admin/
Accounts of ISRO HQ. They need to be
remembered - some of them had worked
in the "free mode" of PRL but adapted
to the Govt norms - from 1972 onwards
ISRO became Govt & its rules being
taught shortly - 1975 full conversion.
When I returned from USA (end 1973)
almost a year later 1 April 1975
it was all Govt rules. All ^(almost) old timers
of ISRO were apprehensive of the
transition. SAC led by YP, SR Thakur,
~~BB~~ ~~PDB~~ EVC etc were ridiculing
the new rules - wanted to defy them.
They were 'protestant' group. VSSC
since BP was there had been streamlining
even well before 1975. Also they were

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Cautious fearing problems in their pension! Some also took pleasure in telling the Scientists/Engineers that "rules don't permit". Partly this was considered the general attitude of all govt offices. It was also the way in which the govt servants (who were also called civil servants/public servants) gained ~~power~~ power over the public (they were to serve). The inflexibility of socialist - license-permit-quota - ~~raj~~ inspector-raj Nehru built up by adopting all the British system in admin & leaving the most of the powers with ICS (later turned IAS) bureaucracy, was generally ridiculed all over though most public was

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were not admirers of private sector.
These were ideas obtained from newspapers.
So the worry in ISRO was that
ISRO may be suffocated. In fact
DAE/BARC had become quite a
bit bureaucratic especially in
their purchases — all centralised.
(TNS ensures that this mistake
is not done in ISRO/DOS by delegating
all these powers to the Centre level
— a unique decentralisation). But
these nuances were not known to
most persons in ISRO (including
me during 1974 the year of transition
to 1975. ~~to~~ Later ~~to~~ from ~~to~~ later

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1975 onwards, more ~~so~~ so from
1976 when PDB left & I was
Asst. Sec. Secy ISRO ~~at~~ de facto
Admin head of ISRO HQ, I
started understanding.

~~The~~ At ISRO
Not enough to have rules
& top officers of DOS. At operational
levels, the clerks, Admin, assistant,
Asst Officers (Admin, accnts) etc are
important. They need to be guided,
led and sometimes controlled by some
middle level Admin officers (Admin Offia,
Sr. Ad.O, etc) Similarly for accounts.

Accounts persons Examined in
Cant account system were not there in
ISRO at that time. Hence we took persons

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on deputation from outside Govt agencies.
~~He~~ Did not try want a full time
absorption as we wanted to keep avenues
for promotion of ~~the~~ ISRO's currently
lower cadre staff at a future date.

For Admin at ISRO HQ, N. V. G. Wanniar
who was PS to VAS for many years
was ~~at~~ taken by PDB himself from
the beginning. He knew ISRO well. He
knew senior ISRO Scientist/Engineers from
all Centres. Having worked with VAS
his command on language was also good.

While there were reasonably
well known rules for promotions for Sc/Engns
(Reviews) (merit review promotions -
Called now on Govt as in situ promotion
- promotion at the same place without

(1307)

waiting for a vacancy to arise) ~~for~~
admin staff ~~also~~ then from 1972 onwards
when SD, MAV, BP, & TNS et al came
a process of formally putting these
as orders ~~to~~ had started. One JS
or AS was also Member (Personnel) for

ISRO Council. ~~He~~ In that capacity the
DOS senior officer acted: Not as Depty Space

This was a subtle but important
distinction. ~~He~~ He would also use the

ISRO HR Admin Officer to help

him draft / maintain records et

and they won't form the files of DOS.

DOS officers were governed by the vacancy
based promotions with different grades
— exactly as in ~~GOI~~ any depty GOI.

#2 (1308)

They were small in number. There were no Scientist / Engrs in DOS. JS, AS ~~he~~ were borrowed ~~from~~ on deputation. (IAS, IAAS, IFS etc)

The merit - review system for admin/accts staff was retained in 1972 also. TNS did not take it away during ~~late~~ transition to Govt.

But it was objected to by later by Govt (I think Member for Finance) and it was dropped. Still the period for merit promotion used by ISOs earlier was retained to consider "Zone of promotion" and used merit based tests / interview for promotion - seniority - cum - merit. This allowed some meritorious admin/accts staff to get ~~prom~~ promotion earlier when

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when vacancies occurred. As ISRO was a growing organisation along with creation of posts for Scientific/Technical Staff, some admin posts were created, adjusting to "suitable levels" ~~the~~ so that ~~ISRO~~ internal admin/accts staff ~~can~~ could get some promotions.

As for the technicians (the technical staff who were not Scientists/engineers — i.e. B.E & above or M.Sc & above) they had a merit review system to ~~raise~~ rise up irrespective of vacancy. There were elaborate skill tests as a part of the merit-review process. Skill their levels were below that of Asst. Admin. Officer — probably a method to

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keep them below Administration
" not even non-gazetted officer"!
That was how (I think still)
jobs functioned! (functions!). Later
under pressure from Unions
two further scales were ~~gene~~ created
for technicians. Something which
could take them to Under Secy level
(in ISRO Sc/Eng grade up to SD).
But with a clear understanding that
they would not ask for officer
level etc. They had to continue
to be ISRO technicians.

Much later ~~or~~ since some
of them desired to become engineers
a special syllabus with rigours of
a B. E. was created. Those who get

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first class in the tests can be appointed as Engr. SB (it was the entry level for BE/B-Tech in those days) and then they would be eligible for further ~~promos~~ merit promotions like any other Sc./Engr.

A very progressive system. Dr. S. Ramonath from VSSC — a special person, happens to be also the brother of Nobel Laureate S. Chandrasekhar, ~~is~~ was a confidant of BP, respects for his Systems grasp & Admin. — He was Controller VSSC during some difficult periods too in addition to being Director PPEL.

There had been "strikes", "lock outs" etc. too. I have described about some ... earlier somewhere in these notes. Post Janata regime in 1977

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~~(1132)~~

Govt servants who did not have unions officially (allowed only for companies ~~etc~~ - govt or private) were given a Joint Consultative Machinery (JCM). It gave a platform for negotiations. There were JCM's at Centre level, then coming all ISRO level. The all ISRO level JCM (Departmental JCM) was supported by ISRO HQ admin with JS/As leading it. Chairman ISRO was nominal Chairman of it but he rarely came. Really speaking they had very little: technical or administrative staff, as their scales, provisions and facilities were far superior to those of other govt departments at

(13/3)
~~(11/33)~~

at equal levels. They were also aware that if under their pressure ISRO/DOS push some proposals to Govt then they may lose some of the existing privileges too!

Still the comparison was w.r.t. ISRO's professional staff — Scientists & Engineers, who had better terms than any ^{other} Govt officers (except for all India cadres like IAS, IFS etc who ~~are~~ ^{were} (are) actually ~~for~~ governed by ~~the~~ vacancy promotion system only but ~~to~~ through strict Cadre management of restricting intakes, protecting seniority of persons who were overlooked for plum positions etc.

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~~(1134)~~

Though they ~~has~~ may have been
sidelines from becoming ~~ES~~ IS at
Centre or in getting selected as Cab. Secy
etc, as per seniority they will get
their pay scale fixed, though work wise
(and prestige wise) they may not
be happy. But for ~~the~~ other professional
cadres of ^{telecom} engineers or civil engineers
or economists ^{or geologists} etc in Govt, such a
restricted intake is not possible.

So many suffer as the seniors had
not yet retired! In ISRO the
~~the~~ in situ promotion takes care
of ~~it~~ such a stagnation). But
still within ISRO too the in situ
promotions which was a great boon
for a technical person to ~~not~~ get

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~~(1135)~~

promoted to higher levels, those who did not get in the "normal" time had grouches. Also when a few exceptional meritorious persons are given before the normal period, tongues wag about favouritism etc.

But for admin/technician staff — the support staff — the merit review promotion of ISRO Scientist/Engineers ~~is~~ was a point of jealousy, though not openly talked about but internally. So they also want some exceptional concessions not available to other govt departments.

"Are we also not contributing to

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~~(136)~~

Space Programme. We machine precision parts; we do ~~so~~ so many skilled jobs..." would say a technician.

"We handle the most difficult purchase - specifications of space quality products; do the fastest admin/purchase support with speeds unheard of in usual job departments. It can be risky if we had made procedural mistakes; we are held responsible!"

So would say admin/account staff.

There ~~are~~ were (are) some part truths. But Gnt's problems ~~is~~ was the huge number of similar

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staff in other govt departments. It would be difficult to ~~close~~ the control the situation if ~~the~~ small flood gates ^{were to be} ~~are~~ opened in ISRO!

In addition to the above administration within ISRO HQ was a tough job. Some are genuine speed of actions requires to brief Chairman, PMO, Planning Commission etc, to keep up excellent cooperative arrangements with ~~user~~ other govt agencies / user agencies / consultative Committee members ~~etc~~ media persons etc. If admin staff at all levels do not cooperate & start quoting some

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(1138)

rule or another — as there were many since 1960's & often some of them contradictory! They put notes properly & carefully. They run around to get things cleared.

In addition the Office Scrutiny/Eyes in ISRO HQ ~~are~~ were very high string. ~~#~~ ~~to~~ — some in Centre used to refer to them as "spoiled brats!" SD ~~to~~ could not interfere with it as he needed delivery!! I used to face some of it as Sr. Secy ISRO (~~as we would have~~ (as I had explained in earlier ~~chapters~~ sections/Chapters). But the real hell was ^{faces} by the Admn/Accts. officers, Admn ^{Asst}, clerks etc. Not the personal staff of

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~~(1139)~~

these Scientist / Engrs. (Personalite JPS
change on to his personal staff who
get promoted in a post somewhere
else — as it was based on some other
vacancy somewhere else. ~~Actual~~
Such personal staff ~~think~~ thought
themselves to "big losses" themselves and
chase admin. ! Fortunately most
Scientist / Engrs of ISRO HQ did not
get into this mode !)

NVA Warner did remarkably
well when he was Admin. Officer.
Janardhanan handled transport —
the most difficult task — every body wanted
just — then as they ask. Phones were
ubiquitous. Mostly we had to get
taxis — often in "violation" of
the frequent Min of Finance "economy

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- drive" instructions. If a car breakdown
- not infrequent, as those were days
when Ambassador ruled & driver had
to hunt for a ~~taxi~~ ^{tele} working
telephone booth to reach. Senior
persons from Centre used to
come ~~in~~ near mid night flights,
~~so far~~ with frequent delays.

Tanardhanan had a telephone
at home!

~~the~~ After Y J Rao's uprooting
from SHAR, three persons who
worked with him at SHAR were
~~then~~ sent out to different places
— Cupalaratnam ^{Admin Officer} to NRSA, ... (Iyengar
person with Res Namam) to VSSC Acct Offr
& Indira AAO to ISROHQ.

~~(1321)~~ (1321)
~~(1141)~~

There were no takers for Indira who was AAO but ~~she~~ worked as PS to YJR and was very powerful. So her posting was thrust on me (I think I have written about it before) - . . .

Her coming into ISRO HQ was a terrible disturbance. She claimed naturally seniority as she was "number two" to NVGN and wanted a few persons "under her authority". She wanted Janardhanan to get approvals from her! . . . NVGN was firm . . . We talked & posted Indira to P&R unit with VK Nair (They were also considered Admin). He had a hell . . . & I had to deal with her . . . Often she ~~would~~ break down

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(1142)

When she talked to me; I used
to keep the door partly open &
asked my staff to be alert for
my call! I sympathized with her.
The bigger ^{high level} fights ^{within} ISRO came
on her head! ... After some time
a year or more, she was given
full responsibility to handle all
admin formalities for Annual Report
printing — difficult administration
as it will be ^{very} limited quotation and
also will have to incorporate new
photos etc flexibly. So the ~~old~~ initial
call for quotation had to be carefully
worded, anticipating all the user
requirements. Her nature is being
tough; so V.K. Nair an excellent
P&PR officer of ISRO HQ had to

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bear the ~~too~~ brunt. In between
in the office, V.K. Nair told me
that she would burst into diatribes
on ~~Dharna~~ PMSD etc.... I used to
console VKNair, ~~and~~ told him how
~~But in the~~
to handle such situations.

Anyway in the end we
had an excellent Annual Report for
Dept of space — some thing special amongst
~~for~~ GOI. Within ISRO HQ, there would
be lots of politics on the contents esp
by IPS. I used to have only VSid/
Chandran for aesthetics, overall get
up etc. → Chandra / P Sudarshan for
language. TNS used to look overall
content for "Govt" viewpoint — not to
create some controversies. Also in
those days there was a taboo
against giving the names of

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revenge

(1144) (1324)

of private companies who ~~can~~ did ~~subcontracts~~ work for ISRO — there were many big & SME's — such care will also be

taken care of by him, though we also carefully edit.

That year the job was so good — remarkable TNS asked me how I got it done. I told Indira was in charge... He specially wrote a commendation to be placed in her ACR.

That was a change for her after the trauma of transition from influential position with YJR and literally "dumped" within ISRO — ~~most~~ all centres refusing to take her — just an AAO!

I need to narrate about Mr. Anifullah. He was one of the bedrock,

BSE Skills Limited
Statement of changes in equity as on 31st March 2018

Particulars	As At March 31, 2018 (Rs)	As At March 31, 2017 (Rs)
Balance at the beginning of the year		5,00,000
Bonus shares issued during the year	5,00,000	
Shares bought back during the year		
Balance at the end of the year	5,00,000	5,00,000

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of ISRO HQ admin. [I don't know whether I have already - I checked...? Any way it is important to write about him]

He was only an Admin. Asst. Purchases & various other things for ISRO HQ (Other than transport was handled by him). In fact all peculiar problems used to be referred to him. Patiently & smilingly he would handle them.

He used to be the leader of the staff association as well. But he was not mixing up staff grievances with day-to-day work of office. He was representing their issues also very well. Since he knew various constraints of the govt system, he had a sobering influence on the demands of staff.

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I would not try to influence him on those issues. Only once I had to call him & advise. That was when there was a theft of a purse from a lady worker. Since women had no pant pockets ~~they~~ some of them had a ~~the~~ habit of leaving the purse in the office drawer or in their handbags; while going for ~~tea~~ lunch / tea / coffee etc they assume safety! ~~from~~ Not all colleagues ^{were} ~~care~~ the same. So ~~some~~ one day ~~a~~ some person had flicked the purse on the payday! The lady did not see Gill she left office & When she lodged the complaint immediate reaction of all the staff was to have a strict security check of all persons who leave the office. They were very strong in their feeling. We

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could have easily introduced it and be done with it. In those days there was no CIST for ISRO HQ. It was only ISRO's own ~~as~~ staff recruited for the work at Cauvery Bhavan CBAB Complex (Kempagowda Road)

In addition, if some real thief ~~is there~~ was there even after such a security check he/she can throw the purse ~~thru~~ through some window outside that sprawling complex, go out later & hide it in a safe place & come back.

I feared the consequences of the daily check... The security officer (Sivaram had some interesting ideas on checking!) can start enquiring about everything with a person. Or one had to report all valuables before coming inside the office & get a

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a note from Security — as we did for Customs when we ~~take~~ took cameras etc outside India; endorsed in the passport...

I called Arifullah.. Talked about this. He said how strongly the staff felt about. I told him

"Arifullah, we can introduce it in no time! But think of consequences. You know how security persons behave. & Our Sivaram will love such situations. Though technically we insist that all officers have to be checked; the security will be just nominal for senior officers; open the box; touch it here & there.. & make them okay... But lower the staff their checks will go up; attendants, safaiwallahs, lower level clerks etc will be

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grilled; there can be a body check; pockets etc..

Think of some embarrassing situations. A lower level staff might have brought some money from home to pay somebody or to buy something. Still he/she had to explain the Security about how they got money etc... As this is to be a daily check, even when they go out of office during office lunch time etc... Some of our staff go out for duty outside to purchase, pick up parcels etc.....

~~"If you all"~~

"Pl. explain to them. Then if it is demanded, we will do it!"

Arifullah was always a sensible person. He would see

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the consequences..." He later told me that they understood.

We advised the women to keep the valuables always with them, when they lean their desk.

There were no incidences after that. The thief was not caught... but there were suspects... We left it off...

Azifullah can get done things which ~~are~~ were normally impossible...

One such event and the "funny" part of ISRO HQ still remains in my mind. ~~The~~ In those days getting a telephone number allotted was nearly an impossible job; waiting lists were 2 to 3 years. In some exchanges they won't give any more numbers... Dr. Sid (VS) wanted to shift his ~~tele~~ telephone from his house in RTO

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to ~~say~~ the one in Jayammahal Vilas
extension... for VS ~~enough~~ such thing
had to be instant - no one week,

two week ~~ek~~... Arifullah will
say, let me try.. but he got it
done in two or three days, transferred,
~~ek~~ tested, ~~ek~~. VS had told him
that he should get it done and
come up with a draft notification
informing every one in ISRO of the
change!

Arifullah did it, though
such notification was not his job.

Having completed an impossible
~~task~~ task, he was happy and
went to VS with the draft in
hand. On the corridor ~~at~~
a hell ~~had~~ was let loose.

VS was yelling his way on
Arifullah; I came out of my

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I went near; there was
~~to~~ tear-droplets in the eyes
of Aarifullah - who would have
been some 40-45 years then.

I took him to my room.
It is impossible to make VS
see reason when he was in
~~such~~ such a rage (which
used to come out almost
once a day!!). At the same
time he could also be very jovial,
I have good sense of humour
too... That too almost daily...
Such extremes...

I made Aarifullah sit down.
~~The~~ VS's rage was on a simple
spelling mistake. His name
SIDDHARTHA would not be
written by most people wrongly.

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~~Dr~~ One D will usually be missing. I told Arifullah "You know him... He won't shout now & forget!... I am very sorry for you. You have done an impossible job. It was a period of celebration?"

Later Arifullah continues his work as usual including for VSS. We only remember ~~the~~ about big scientists in ISRO... Dr. Some live persons like TNS. ~~ISSR~~ (Of course I find many persons in ISRO now @ 2018, and definitely ~~the~~ outside ~~the~~ ISRO don't know who Dr. BP was. Without him there would have been no ~~the~~ SLV-3 or even ISSR... it was under VSSC.)

(P.T.O)

BSE Institute Limited**Notes forming part of the Financial Statements****17. Other financial liabilities (Current)**

Particulars	As at March 31, 2018 (Rs)	As at March 31, 2017 (Rs)
Deposits from Students	38,99,782	17,78,095
Provision for Leave Encashment	2,81,883	1,09,966
Total	41,81,665	18,88,061

18. Other current Liabilities

Particulars	As at March 31, 2018 (Rs)	As at March 31, 2017 (Rs)
1. Income Received in Advance	9,60,04,907	7,79,45,506
2. Advance from Customers	-	2,08,500
3. Statutory Remittance	21,23,845	1,19,45,728
4. Others	31,138	27,157
Total	9,81,59,889	9,01,26,891

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ISRO had been built up by many such persons like Arifullah. It would be in all centres.. Others may or may not remember them or mention about them. From

typists to machinists to accounts/ admin persons to "lower" level scientists to ~~top~~ middle & top levels.

Why they glued together ~~was~~ in spite many such terrible things inside (not-rare events !!), I still cannot figure out !!

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APSU Episode

Not sure whether repeat. But important one — hence writing.

∫ AEM ~~vs~~ versus VSSC & in particular later attacks by VRG on AEM's persons like Karunanidhi when VRG became Director VSSC had been described earlier.

SD started realising that in the post-BP era (ie from 1980 onwards) it was necessary to give much more autonomy to the senior "groups" within VSSC — each of some of them bigger than whole of SAC or ISAC or SHAR — the later 3 being represented in ISRO Council. The Directors had lots of power. But VSSC which was much bigger, which absorbed ~~more~~ ^{much}

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of ~~the~~ budget and did many more
R&D / 'production' talks had just one
Director — with all others having
^{great} no visibility at all — ISRO level..

Therefore promotion chances of many
middle — senior persons under them
was also low. & The general opinion
~~to~~ in ISRO (partly true) was that
within SAC promotions were much
more relax easier & relaxed. One
senior person from SAC (not senior than
those in VSSC) could become SHAR Director.
PPK — ~~not~~ senior from many in VSSC
could become INSAT-1 SSPD Director
(though it is not equivalent to a
Centre but he had lots of autonomy
of operations as "Head of Department"
defined in ~~in~~ administrative sense
for delegation of paras.) URR. Contd
(P.T.O)

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become visible because he got out of VSSC to Bangalore; he would have languished as Group Director in VSSC (in fact SC Gupta was his "boss" as Group Director Avionics!) That was the problem for Kalane too being in the lower pecking order in VSSC, So was Kurup about whom we will write separately.

When BP was at the helm this was not a big problem though there were ^{persons} murmurs in VSSC about SAC & ISAC getting so much visibility. Also post-BP many who were young had become middle senior, ~~and~~ with many more recruited in ISRO recruits under them: more ~~to~~ budget, more

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tasks, ~~and~~ more responsibilities and occasionally more titles for them as 'section head' — ~~as~~ aspiring to become Head of Division (which ~~is~~ was ~~so~~ easier in SAC, ISAC, SHAR)

Middle-senior like Kalam aspiring to become full Directors. Those who were in Senior Camps like AEM,

SC Gupta feeling the pinch. SCG was subdued in aggression: persons under him had to fight out to get things done.

For AEM things were more difficult — among the senior-senior he was junior!

Also the ~~warring~~ ^{warring} tribes got together against the Liquid Programme. They could say different reasons:

① We don't need liquid at all

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~~to~~ everything can be done with
solis - GSLV, Missile etc

o It is not indigenous developer
as in solis - this will spoil
the "culture" of ISRO.

Also there were internal heart
burns because those in Liquid
Program / VIKAS got ~~much of~~ many
foreign trips to France. In those
days foreign trip was a special
bonus in office ~~work~~ life.

SD's dilemma was that
he recognised the importance of
liquid programme. VIKAS was a
faster route - he could not afford
the slow pace of from ~~SLV-3~~ SLV-3 to
upgradation to PSLV to GSLV. Already
he had import INSAT-1 fully from

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from USA. He was trying to
fast forward indigenisation of
satellites — Remote Sensing, Communications
hopefully to catch up for full
indigenisation of INSAT-1 system
(which was achieved later after
SD's retirement — but he had
laid the foundations for it
via APPLE ~~+~~ & later IRS)

For LV programme it ~~was~~
appeared much tougher. Next
in horizon after SLV-3 was ASLV.
It did not match the needs
of Remote Sensing Satellites needed
for India (even the lower versions
identified in Hantharanga Committee
report)

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The PSLV under Study with Dr SS as ~~the~~ the Chairman of Study Group, had ~~to~~ in its CORE the Vikas engine.

Therefore to ~~make~~ realise it as fast as possible was crucial for indigenous route for launch vehicle. Vikas Engine ~~was not~~ development was not a licence production as was done by Defence PSU's for aircraft, avionics systems for Defence. It involved lot of work within India. Basic design parameters have been fixed ^{by SEP/France, Drawing were there.} Many persons from ISRO trained — technician to Eng level in fabrication, testing etc. There was so much to be done by the Indian team — many trials, experiments with parts, subsystems,

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analysis of results, system tests,
establishment of test facilities etc.
If Director VSSC was helpful
it could be done even without
specifically delegated powers. But
it was not to be and also the
"tribes" in VSSC including ~~Kurup~~ Kurup
& Kalam joined up to create ~~with~~
impediments for the AEM.

AEM started pleading
with SD for giving ~~the~~ the necessary
powers to do his day-to-day
activities of purchase etc. without
'headaches' & hindrances. SD realised
the need. But how to give him was
the problem. If he gives him
other senior-seniors in ISRO would

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ask for it. If two or three of them are given in some form greater autonomy then others left out will grumble. And about Director VSSC (VRG) will "feel" ^{to} "downgraded".

"He does not have the power of BP"! ... Those who are having more power ~~would~~ would also behave in a way that Director VSSC has only minimal roles and all the uninteresting jobs like upkeep of the Centre, general security, etc would be left to him and perhaps Chemical Comp! These were real dangers!!

Finally one day after lots of consultation with VRG & AEM and perhaps others, SD decided

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establish the already existing

~~PTU~~ Pressure Transducer Unit (PTU)

into APSU (Auxiliary Propulsion Systems Unit) with Unit Head (AEM) having

the powers of Head of Dept. One

could adjust the some of the budgets of Liquid Propulsion projects under it

(which would be done by ISROHQ/ DOS) while sanctioning. Then AEM

would have some flexibility without totally depending upon VSSC; it was

not a satisfactory solution as still for

many things of Liquid & Mahendragiri

works ~~the~~ AEM had to depend on

VSSC, Director Approval: A problem

which was not there when BP

was Director VSSC!

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~~But~~ VRA considered it as undermining of his power and perhaps worried that others ~~might~~ ^{might} ask for it. He would not have been just merely imagining it. After I finish this APSU part I will refer to a note from me to him on these lines.

Finally SD wrote a cute order forming APSU, and wanted me to go and show to Director VSSC (VRA) & bring back. There was a major meeting in Bangalore for which I had to be present for preparations. But ~~the~~ SD suddenly felt a hurry and wanted me to go & come. Only option of ^{road} was continuous ~~road~~ journe journey to TVM & back!

(1346)

So Setty & I took a taxi
(Vihar's regular supplying services
for ISROHQ) & started journey. Probably
around ~~to~~ Salem, there was a
smashing sound on ~~over~~ the
dash board of the car. It was in
the left side and I was in that
back seat; Setty to my right.

God grace; a great reflex action
by me; I had ducked and sat
down in the car ~~to~~ ^{nearly} getting out getting
seat. Otherwise my eyes would
have been seriously hurt by
the flying sharpnells.

There was only one hole
when we recovered & saw. But
the whole dash ~~to~~ board had
cracked. We did not have much

(1347)

time to investigate. The drive was safe as ~~it was~~ the hit, which was probably a stone thrown from the bus which passed us coming from the opposite side, was in the left extreme. In any case the car was full of sharpnails and ~~the~~ it could not be repaired in time. So the driver phone up Vihari to rush another taxi...

Journey continued. I recall it was a hot day. We both did not sleep. But we felt the need for driver to take at least two hours sleep. We arranged for it in a govt circuit house on the way. We kept awake... Restarted the journey... Reached

(1348)

VSSC early morning... Hurris
bath & breakfast. Had told
the driver to eat, take rest & sleep
till lunch time, then we start. We
got a good room in the guest house.

Morning 9 AM itself met VRG.
As usual he was sweet... "How are
you? Want some rest eh!" He was
not even ready to see the draft order.
He went on repeating that some senior
persons from VSSC wanted to discuss with
us first before we come back to him.
I knew it was his typical stalling
actions. So we went for that. ~~It was~~
I recall it was with SC Gupta, Kurup,
Kalam & some one else.
They saw the order. But did not

(349)

do anything on it. Went on one after another repeating the question, why this order... Setty was quiet ~~most of the time~~ all over. I started asking them the following types of questions:

- how such an order affect your Group or some other Group in VSSC

- what changes you need to this draft to take care of such antipack problems.

They were unable to ~~ans~~ answer all including Kalam & Kurup, 549 went on talking about whole of VSSC and sometimes philosophically that if some problems ~~are~~ ~~the~~ were there

(1350)

it was not unique to Liquid Comp
etc.

My question was:

~~if you~~ - AEM had asked
for such powers and close to a
year Chairman had consulted
Director VSSC and many of you.
" If you people also want such
powers, ask for it. Why stop
this? "

More than three hours
were wasted and we closed. Went
to Director VSSC and he was
never to say "Pl. convey our
senior persons views to Chairman".
I told him: "There was nothing
concrete ^{from} by them either in terms
of specific objections or ~~any~~ suggestions. ~

(1357)

Any way no point in discussing
any further.. If you have any
you can tell us or Chairman..

We have to go back urgently...

We ~~at least~~ would like to reach

B'lore by mid night, at least! #

We will ~~we~~ give a full report
of what happened to Chairman ISRO "

We returned... Fortunately
no events on the way...

Reported to Chairman ISRO
all what happened and left the draft
back to him..

I think he issued the
APSU order within a few days...
There were jokes in VSSC on APSU,
LAPSU etc. It gave a ~~trist~~ breather

(135)

to AEM and liquid team. Then VRA had his actions through PMNair by having a CBI enquiry on Nambinarayan, making the liquid team members like Kasi Viswanathan scared... He won't even speak! ... I had ~~reported~~ written about it in the earlier part in this Chapter.

It took URR taking over as Chairman ISRO to make AEM LPSC Director. Sometime later after that AEM had told me (as we talk in Tamil)

"^{சென்னை} Director, ISRO Council Member - சர்வாட்சரணம், உயர்நீதிமன்றம், சென்னை. ~~உயர்நீதிமன்றம்~~ சென்னை! "

(1353)

“^{Centre} Becoming Director / ISRO Council member etc ~~was nice in~~ gave a nice feeling in the beginning... it has all turned sour now...”

Yes he was right. The Unitary System of ~~the~~ ISRO with Chairman ISRO / Secretary DOS / Ch. Space Commission concentrates power. Also as I had pointed out in my article "Management of Indian Space Programme", the cross-centre projects reduces the original ~~total~~ authority of ~~Chairman ISRO~~ Centre Directors. Chair ISRO's interventions were sought for. SD tried to ~~not~~ avoid his direct ruling often at the cost of speed of decision making. URR ~~is~~ was a man in a hurry. Also he could not allow the tight schedules to ~~slip~~ slip...

(1354)

Coming back to post-APSU
~~the~~ order period, as I mentioned
SD wanted to ~~formally~~ create ~~a~~
formal structures within ISRO
to have larger autonomy to ~~a~~
~~few~~ some of the senior leaders
within ISRO. I just have VSSC,
SAC was not enough. There was
a crying need in VSSC which
could be managed as a single
unit along with SHAR only because
of BP (1972-1979). SD had
discussed with me a number of
times. There is a two page
note "To be opened by addressee only"
starting: "Chairman ISRO may
please recall his earlier discussions

(1355)

regarding creation of certain autonomous units in VSSC to ensure proper management of a fairly large system. He was thinking of in terms of APSU model for some specific areas.

The APSU model has been executed at SAC for DECU...!!

Then I had put up for urgent actions in VSSC on the lines discussed with SD

(i) Chemical laboratories under M.R. Kurup

(ii) REPLACE under G.R. Sathya ...

The note is attached ~~to this~~ at a continuation.

(1358)

It is dated Feb 1, 1984.

Then there is a rubbing
by me 3/2/84 "Ch. has seen
and gave it to me. He said
all units also to be brought up
such Valiamala etc
and ~~MW~~ Microwave remote
Sensip in SAC "

Probably SD was ^{wary} ~~wary~~
~~wary~~ of doing these all through
1980 - to 1984 till he left.
Had he done it ^{he would get} ~~some~~ ^{some}
thing for Kalam also (It turned
out to be good luck for Kalam !!)
He avoided perhaps worries out the
flurry of inter Centre - Unit rivalries
coming to him! As KSP ~~used to~~ say
SD had "Globalised" problem. He knew
~~he~~ was only seven more months.

Greenster
That
note
for
next.

(1357)

TO BE OPENED BY THE ADDRESSEE ONLY

INDIAN SPACE RESEARCH ORGANISATION
Headquarters

Chairman, ISRO may please recall his earlier discussions regarding creation of certain autonomous units within VSSC to ensure proper management of a fairly large system. He was thinking in terms of APSU model for some specific areas.

The APSU model has been executed at SAC for DECU. In order to be effective for VSSC, it will be necessary now to do such an autonomous unit for the following two areas:

1. Chemical related items which is under Shri M R Kurup, can be a separate unit and Shri Kurup could also be named as the Head of the Department of the Unit, and
2. REPLACE, in order that it can feed ISRO programmes well, such as satellite applications etc, can be made into a separate unit and Shri C R Satya could also be named Head of the Department of the Unit.

These Units need not have additional manpower to support them. The existing personnel from Administration/Accounts/Purchase of VSSC can be called out to run these units.

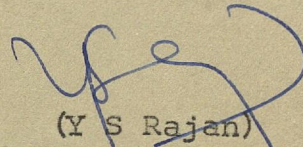
In addition to the above, it appears absolutely essential to have Heads of the Department powers for

(1358)

: 2 :

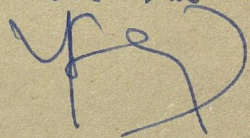
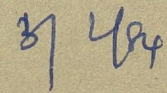
Director, LPP and Project Director, PSLV so
that they can function without depending on
VSSC general system.

If Chairman decides on this matter, suitable
orders can be worked out.



(Y S Rajan)
Scientific Secretary, ISRO
February 1, 1984

Chairman, ISRO

Ch has seen & gave it
to me. He said all other units also
Whom up such 
as Valiamala, et
MW in SAC 

(1359)

In the following I am giving some notes on the items already ~~of~~ dictated into the SONY Voice Recorder ~~sets~~ and stored in my Motorola PC.

Just indicative notes. Then a few papers that are in the 1983 timeframe I will make a quick mention & attach. Then then much of it may be through Voice Recorder ~~& refer~~ with reference notes in this write up - otherwise I found that progressing into later years may be very difficult only through writing.

(1360)

M.R. Kurup

Kurup played an important role for ISRO right from the early days of inception — setting up the Rocket Propellant Plant (RPP) for making Centaur licenses Centaure type sounding Rockets (RH-300?)
~~Later during the~~ It was independent of SSTC as TERES was, reporting to VAS. ~~for~~

Later in the merged SSTC too, where the Propellant Group was under VRG, RPP was independent. He played another crucial role as one of the independent advisers (unnamed) to BP.

Folder 01 in Voice Record
dated 10/28/2018 (28th Oct 2018) titled
M. R. Kurup related.

(1361)

I have covered a few things about him till his death.

Mahendra Giri Liquid site selection

Some elements of it have been covered earlier in texts. A quick summary of the selection process and the one adopted for final selection by SD, Rajchunggappa episode etc are covered in

Folder of ^{Oct} 10/30/2018 under

title Mahendragiri related

Indira Gandhi ^{last} Consultative

Committee, DFVLR visit, Death -

my observations

These are some poignant events ~~for~~ about IG for me. Her last CC for Spaa, Atomic Energy etc

(1362)

how she made me speak,

Oct 31 ~~at~~ when we were in DFVLR meetings
in Germany
L (all during the first months of ORR
taking over as Ch etc.), the visit
in Delhi, etc

Folder 01 - ^{Oct} 10/31/2018 under title
I Get.

~~to~~ UN COPUOS, NPS, DBS,
RS principles etc.

While a good part of our
role in UN COPUOS are covered in
other pages, some specific items
how discussion etc are briefly mentioned
- some big para politics, our role
which was important then etc

Folder 01 ^{Oct} 10/31/2018 - under
the above title.

(1363)

RRSSC establishment relates
Krishnan Umri, Gita Varadan, ~~et~~
URRSAC

Again NNRMS is extensively
discussed in several other pages.
Some specific ~~part~~ small part
of RRSSC establishment, US denials,
Krishnan Umri etc are discussed
in Folder 01 ~~et~~ ^{Nov} 11/01/2018

ADRIN/DIPAC

Linked to RRSSC computer procurement
through discussions were over a
several years — the early ~~e~~ years
of K. Santharam (Sandy's) interest
in it — his involvement with ISRO
etc. Briefly given covering several years
since 1980
Folder 01 under that title ^{Nov} 11/01/2018

(1364)

Book 9 was

~~Again~~ This is a brief
narrative — not complete — I may
do elsewhere other items. But
glimpses given

Folder 01 ^{Nov} 11/01/2018, under their
title.

Personal life of 1980's

Very compressed form given.

Folder 01 11/02/18 Nov.

Dr. Brahm Prakash, BP relates.

This is some thing ~~sp~~ special. I have a
full special folder on him with a
Brochure Eulogy — My letter to
Mrs Prakash (copy) with a poem — which
somehow remained unpublished as it
went into ~~the~~ as enclosure to ~~her~~ my

(1365) reply

letter to her. Her letter original.

Resolution passed by Space Commission
a copy. ~~Also he~~ The poem sh'd
have come under Agony & Harmony
in normal course — MISSED.

I have to amend it — May be
to put in website — FB etc

The folder also contains
a copy of ~~Text~~ of my article
on ~~Indian Spa~~ Management of Indian
Space Programme — in ~~Dr~~ Bramana
& Important Folder.

in Voice Recorder it is with ~~Dr~~ the title
above Nov. 11/02/2018

→ This will continue
probably by disposing of a few
old papers & with me — written or ~~VR~~ ^{VR} form
with small notes.

(1366)

In the papers I had some left. One on ~~the~~ ISRO restructuring has already been placed earlier ~~in~~ (a few pages ~~ago~~ before this).

A few were left giving ~~me~~ some glimpses of activities - all relating to internal management of personnel or projects - SD was going slow.

~~ED~~ First one I am placing below ~~is~~ is about EOS restructuring within HQ. This note is before the major Seminar on NNRRMS. Even while many ~~NR~~ & NNRRMS ~~Plan~~ Planning Committee activities were going on with full ~~a~~ vigour & speed, ~~the~~ one other important activity was the IRS Utilisation programme. ~~It~~ It was

(1367)

one of the unique innovative advance action by ISRO. Curb systems in India at that time (even now) ~~ignore the~~ ~~get for~~ go for big projects but ~~prep~~ do not prepare the users of those projects who would necessarily be ~~to~~ slow.

Firstly they have to learn to change their existing methods of working.

Also overcome the fear of the unknown including whether ~~it~~ the new addition(s) would their own career progression (promotion etc)

It takes time. ISRO has done such user preparation well: SITE, & ~~STEP~~ before INSAT. ~~But~~ for TV & Telecom. But nothing much was done for Met Data - just leaving to IMD.

#8 (1368)

But IRS, ~~#~~ as it was more complex project with many detailed applications possible in ~~all~~ almost all areas from Agriculture to Water Resources to Geology to Forest to ~~any~~ urban to flood etc, user community had to be trained. ~~It~~ Also it was not that the ISRO / ~~App~~ SAC / NRSA application groups know everything. They also have to learn along with the users. Only advantage for SAC / NRSA persons was that they were ahead in technological issues. So ISRO HQ via NNRMS ~~RESPOND~~ (for releasing grants to academic ^{& research} institutions) started IRS-UP well ahead of IRS project formal start. It did require not only those who coordinate from NNRMS side but also

(1369)

Scientific/technical personnel at the Centres who may have to do some experiments to meet the user demands before giving to them; in some cases user agency scientists themselves would do most of the applications and they would require some knowledgeable persons ~~to~~ from ISRO to interact on some technical details. In addition from ISRO/NRMS ~~side~~ / EOS office side one had to take an overview of all the planned & ongoing activities for IRS applications, some interface with satellite group, and also get ready for large scale dissemination via NRSA.

Once later While I had sent many notes to SD on EOS as a whole he was also unable to have ~~an~~ integrated

~~136~~ (1370)

system for EOS within ISROHQ / and
in ISRO Centre. Later when he asked me
to write on it, I had given a write up
may be in 1986 or 1987. One that will be
placed in these papers with explanation
later. One integrated look in a
diagrammatic form is placed as
p. 1371 here.

~~Unfor~~ Unfortunately, R'S'
(1970's)
system from the beginning at SAC & ISROHQ
suffers. ~~It~~ VS brought ^{Dr} PR Pisharoty (PRP)
during ~~the~~ 1960's itself and started nuclearity
as R'S' activity ~~was~~ at that time itself.
The famous Coconut with disease detection
through a helicopter mounted IR camera
— probably given by CNES.

He started building capacity
slowly. I think TA Hantharam was recruited

(next page)
Picture

(1371)

→ 006 1372
copy

SOIL MAPPING
URBAN GROWTH
CROP INVENTORY
GEOLOGY, FORESTS
WATER RESOURCES

LANDSAT SPOT

SEA SURFACE TEMPERATURE,
SNOW COVER, VEGETATION INDEX
METEOROLOGY/OCEAN VER. TEMP.
MOISTURE PROFILE, RAINFALL

NOAA TIROS-N



SATELLITE COMMUNICATION
FOR QUICK INTERACTION

ROUTINE GROUND TRUTH DATA DCP
GEO LEO

INTEGRATED MULTIPLE USE FOR NATURAL RESOURCES MANAGEMENT SYSTEM

(e.g. Forecast of optimum sowing time;
Drought trends; Flood forecast etc)

1/2 HOUR INTERVAL
DATA
WEATHER PREDICTION
CYCLONE TRACKING
RAINFALL

Other Geostat
VHRR
Optical
IR

INSAT VH

AIRCRAFT
Imageries

FINE RESOLUTION DATA
OFTEN AS SAMPLE
GROUND TRUTH

SROSS-3
Atmosphere

MINOR AERONOMY:
AEROSOLS, OZONE etc
GEO-PHYSICAL GEO-DETECT SAT
(Variety of sensors)
STUDIES OF
SOLID EARTH

PASSIVE MW/OPTICAL/ACTIVE?

OCEAN/MET

MOS-1

OCEAN COLOUR,
TEMPERATURE
AIR-SEA INTERACTION etc

IRS 2series

ERS-1

ACTIVE/
PASSIVE
MICROWAVE

OCEAN/WAVE HEIGHT etc
LAND APPLICATIONS; GEOLOGY
FOREST, CLOUD PENETRATION
CAPABILITIES

(1372)

by him. He was in USA — brilliant scientist, but quiet and not pushy — difficult to survive in ISRO/PRL even in those days! Became worse later. ~~Incidentally~~

Post SAC formation with YP overall ~~in~~ Director, R's & even ~~for~~ Communication Control systems took back seat. YP was all around the soft "TV soft~~er~~ ware" of SITE — * it was joked in ISRO as "tenderware"
1970-73 I was not in ISRO when all these transitions took place. I think RD Sharma also ~~to~~ was brought into ISRO during that period by PRP
~~PR~~ ~~PB~~ PDB only took marginal interest in ~~them~~ it even after he became Scientific Secy ISRO (first one)

(1373)

from his mere job Scientific Coordinator
allowing ^{some} rockets for scientists, dealing with
all international cooperation. EVC was
only with SITE & NASA part of SITE &
later INSAT related items in USA.

RDS, an ambitious man,
managed to get out of SAC and join
Proj SD in the early days of his becoming
Chairman ISRO. RDS was called
Scientific Secy to Chairman ISRO
as distinct from PDB who was Scientific
Secy ISRO (PDB was ISRO Council Member
— a powerful body then etc)

When I came to ISRO HQ
RDS was very much active. He was
acting as he was all in all in Chairman ISRO
office. The way SD began me the

(1374)

Aryabhata work, it did not matter for me what RDS did not or did not. But ~~I~~ I could see he was using the HR platform not for any foresight work or planning RS' or any other integrator space activity. He was continuing as an RS' experimental scientist, acquiring Hasselblad Cameras, heavy aerial flights etc.

Later SD completely the situation for him by naming VS; KSP, JPS & me as Staff Officers in Chairman ISRO/Secy DOS office! Forming an SPAG...

So a great opportunity to have planned EOS activity in an integrator way was ~~lost~~ being lost. It is then PDB had brought to ISRO Hel some ~~the~~ ~~complet~~ persons

(1375)

who completed PhD in PRL into
ISRO — Dr V R Rao, Dr SEC, Dr SKD,
Dr MS Narayanan ~~etc.~~

~~SK~~ Post-PDB I adjust
SKD for publications

MS Narayan wanted to do
real scientific work in meteorology but
he was frank to ~~to~~ me as to how
he was misfit in ISRO HQ tasks —
which he understood. I suggest to
him to complete a ISRO report
documenting all the scientific results
from Sounding Rocket Program of
ISRO & then leave for SAC. He
did so. His report turned out to be
a classical reference of ISRO work.

Dr. SEC stuck on to
paper pushing in RESPOND — and

(1376)

assumed to be the Space Science
man in ISRO HQ (~~other co~~) (some
other colleagues pumped him - partly
to reduce my "influence" on more of
ISRO work). I have extensively
discussed about it in ADCOS...

Dr. VK Rao was in ISRO HQ
partly assisting RDS and partly
trying some ground truth
experiments. Did not have an
overview of EOS systems.

Originally I was more a
SatCom person & Sat. Tech person.

My professional experience in it
in ISRO earlier (~~1977~~ (1960-70) & ~~MIT~~ MIT,

NASA (1970-1973) was in that.

Since JPS wanted an exclusive

(1377)

territory for himself in
the POWERFUL INSAT project —
lots of Dollars etc., I had to
be moved out of it post my
Aryabhata work. So remembering
(R's), EOS came to be
willy-nilly. Still RDS was claiming
his hegemony....

Finally RDS went away

So I became the ~~boss~~
"chief" for EOS in ISRO HQ. In
a way it turned out to be good as
I had to deal with many socio-
economic departments/agencies ~~the~~
which helped me later in TIFAC work.
A real expansion!

(1378)

~~Ask~~ A strong physics back ground, electronics & communication back ground, some exposure to ~~the~~ ERT-5 of NASA at GSFC itself etc were helpful. But I did not know the details of computer based image processing. In general — cyberspace — was not my area though I knew all the needed ~~type~~ ^{for} input-output knowledge and what can be achieved as a user. Also to demand more from the Computer persons — in an interactive manner.

Chandra was the best in ~~the~~ ISRO HQ to understand EOS in totality — System level, user level, etc

(1379)

Also being good in maths, could look for stratified sampling to improve accuracies with greater confidence levels.

Dr. VRR was senior and was sticking in within ISROHQ as he, like RDS, knew that there was power here. At the same time he just wanted to be a researcher, working in some narrow field - no great front line work either! He wants titles too. I had to manage the situations - VL Sriramiah contributed by SAC for computer related to ~~RS~~ RS could not fit in at all. I don't know what he did in SAC! As usual another case of Centres palming off their ~~own~~ rejects. So we have to get Aetia Varadan later.

(1380)

Therefore ~~as~~ there was a big vacuum for the oversight front at a senior level to help me. Krishnan Umni had a major task at hand and for him to take on the "within ISRO interfaces" ~~with~~ would be difficult: ~~the~~ ISRO persons gang ~~to~~ together to reject a foreign body! It was then too! Even now @ 2018. G. D. S. Ramath, G. J. were brought in when R. S. did not have many ^{person} inside SAC. Most of SAC was around ~~in~~ communications & related electronics. DSK started Data Processing division in SAC drawing some persons from SAC in communications etc (AKS Gopalan was one such brilliant person).

(1381)

So I was trying to draw up from the ~~the~~ SAC rejects "TA Hanikava" (TAH), brilliant otherwise, senior in age & level, Baldev Desai (who also came from ~~TIFAC~~ TIFR but not so much fitted with SAC elite!) — they would be part time. From NRSA, only LRAV was there but he was crucially needed for NRSA operations as BLD ~~cannot~~ could not handle NRSA operations otherwise!

SD had also some times used to discuss about better utilisation of TAH & Baldev.

It is in this context I had put up a note to SD which follows under in original as p. 1382 —.

URGENT

(1382)

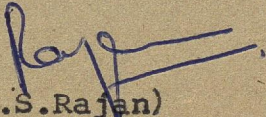
For Chairman's eyes only

CONFIDENTIAL

Indian Space Research Organisation
Headquarters

Jan. 7, 1983

1. Chairman wanted to have a draft order concerning the HQ tasks of Dr. Baldev Sahai and Dr. T.A.Hariharan, and also a separate draft order designating a role in EOS for Dr. V.R.Rao and Sri S.Chandrashekar. A draft concerning Dr. Hariharan and Dr. Baldev Sahai is in Flag-1 and that concerning Chandrashekar and Dr. V.R.Rao is in Flag-2.
2. Though one could have an additional title of Associate Director for Drs. Hariharan and Sahai, it is desirable to ~~the~~ leave it as Sr. Advisor/Advisor. Associate Director may connote an automatic number-2 etc. which can cause some confusion. In defining tasks and roles I have used slightly different language for Dr. Baldev Sahai and Dr. T.A.Hariharan. The reporting structure is particularly left unmentioned. Only the overall review role of Director, EOS is given. I will not find any problem in this. Both Dr. T.A.Hariharan and Dr. Baldev Sahai are mature enough and are unlikely to cause problems.
3. Chairman may particularly note that for Chandrashekar and Dr. V.R.Rao I have adopted a new title as Chief rather than Manager, Deputy Directors etc. I would personally think Dy. Director is good for Chandra; however, his level is SE and the question that others at SE being 'Managers' only may come. I have a feeling that the title Manager may upset Chandra. He has always contributed to the organisation far above his level. Dr. V.R.Rao is SF and as such Dy. Director title is okay. I consider both V.R.Rao and Chandra equal and complementary to each other. Therefore I request that Chairman retains the Chief title which is new and neutral. Regarding V.L.Swaminathan, senior SE and D.N.Sastry, SE we can wait for a year as decided by Chairman, ISRO.
4. If and when Chairman finalises these orders these two may please be issued simultaneously. I do find one imbalance; there is no senior person from NRSA named as Advisor/Sr. Advisor. As of now, I don't find any at NRSA who can contribute at HQ level. We can assure Prof. B.L. Deekshatulu through our actual operations that NRSA will not suffer from any biases in HQ on that account.
5. Chairman may please decide for issue of both the Orders placed at Flag-1 and Flag-2. The earlier IRS order referred is in Flag-3.


(Y.S.Rajan)
Scientific Secy., ISRO

Chairman, ISRO

(1383)

URGENT

For Chairman's use only

DRAFT
FOR APPROVAL

Strictly Confidential
(Till approval & issue)

Government of India
Department of Space
Indian Space Research Organisation

Ref: SC/CH/

January.....1983

Sub: Certain tasks relating to specific
ISRO/DOS Earth Observation System
tasks - regarding

Ref: Office Order No. SC/CH/R.22.1/173
dated November 8, 1980 concerning
Indian Remote Sensing Satellite
Project, IRS Utilisation Project
and EOS office_____

1. In view of the expertise built up by the scientists of the Space Applications Centre and the National Remote Sensing Agency in the utilisation of remote sensing techniques and their joint efforts with various user agencies; and considering the large tasks of the current decade profile in strengthening the user interfaces for IRS utilisation and for the establishment of a National Natural Resources Management System, it has been decided to associate the services of selected senior scientists from ISRO/DOS Centres/Units in furthering the EOS/HQ functions in these areas. These scientists will, in addition to

(1384)

-2-

their specific responsibilities in their respective units/Centres, progress the EOS Programme Office tasks within the overall framework of EOS office and ISRO/DOS policy guidelines.

2. Dr Baldev Sahai, SAC, in addition to his responsibilities at SAC, is hereby designated as Advisor, EOS (States Utilisation) [AD, EOS(SU)]. While NRSA & SAC scientists will do the joint actual utilisation tasks in the States, Advisor EOS (SU) will be responsible for identifying and energising utilisation cells/units/Centres in the States. He should get in touch with various State units, discuss with them their plans of utilisation, identify areas requiring strengthening etc. Actual tasks relating to DOS assistance/advice will be executed by SAC, NRSA or in certain limited cases by ISAC. He should also evolve an information system at the EOS office about the progress and problems relating to the utilisation activities of the States.

AD

- 2.1 Director, EOS will periodically review the above in the context of overall ISRO/DOS policies, plans and also based on the advice from SAC, NRSA and the user agencies.

(1385)

-3-

3. Dr TA Hariharan, in addition to his responsibilities at SAC, is hereby designated as Senior Adviser EOS (MWRS, Met & G). He will be responsible for the ISRO/DOS HQ functions relating to overseeing and progressing of Microwave Remote Sensing, Meteorology and Geodesy (MWRS, Met & G)

3.1 In the field of Microwave Remote Sensing, his immediate tasks will be to strengthen the utilisation efforts and development of user interfaces. Towards this he should, in consultation with SAC, NRSA and other user agency scientists, generate an integrated plan of action for

- (a) Utilising/obtaining data from the hardware already existing with SAC/NRSA/other agencies
- (b) using hardware under development/procurement (at SAC, NRSA etc) for obtaining data
- and* (c) arranging for microwave remote sensing data from foreign sources (like ESA/NASA/CNES/DFVLR etc)

3.2 He should also institute an information system to monitor and evaluate the progress of the

....4

(1386)

-4-

above and generate a realistic Microwave Remote Sensing Programme for the 1985-90 Plan period.

- 3.3 In the field of meteorology his task would be to promote the use of space technology for meteorological research and operations, in consultation with SAC, NRSA, IMD, NIO etc.
- 3.4 In the field of geodesy he should make a consolidated review of activities done so far in the country and generate a plan of action with specific focus on Earth Observation applications.
- 3.5 Director, EOS will provide necessary support for the above and periodically review the above in the context of overall ISRO/DOS policies and plans.

(S.Dhawan)
Chairman, ISRO/Secretary, DOS

21

(1387)

Draft for Approval

Government of India
Department of Space
Indian Space Research Organisation

Ref: SC/CH

January.....1983

Office Order

Sub: ISRO/DOS -EOS

Ref: Pursuant to Office Order No
SC/CH/R.22.1/173 dated
November 8, 1980

1. Shri S Chandrasekhar is designated as Chief (Systems & Planning), EOS. His tasks, among others assigned by Director, EOS/Scientific Secretary, ISRO/Chairman, ISRO will include dealing with overall systems and policy will matters relating to EOS. He will also deal with all matters concerning IRS Project and programme elements and IRS utilisation at the ISRO/DOS Headquarters
2. Dr VR Rao is designated as Chief (Utilisation & NNRMS), EOS. In addition to his other tasks assigned by Director, EOS, he will specifically deal with, at ISRO/DOS HQ level, all aspects of EOS utilisation activities related to NNRMS system except IRS utilisation part. He will

also p

(1388)

-2-

also specially concentrate on utilisation aspects by remote sensing units in the Central Government Organisations.

3. Specific attention to matching of IRS utilisation, EOS utilisation, NNRMS, Microwave Remote Sensing utilisation, and space meteorology/geodesy will be done periodically by Chief (S&P), Chief (U & NNRMS), Advisor EOS (SU) and Senior Advisor (MWRS, Met & G). Director, EOS will review overlaps and decide on specific cases.
4. Chief (S&P), EOS, Chief (U & NNRMS) will report to Director, EOS.

(S. Dhawan)
Chairman, ISRO/Secretary, DOS

X

→ P.F. 01389

(1389)

~~That not.~~

Those drafts & my notes
~~with~~ would describe the complicated
"personnel" situation for me in EOS.
~~In~~ Within Centres also such situations
were plenty. But due to huge
size of ~~Divisions~~ Camps, Divisions
& Sections, they could manage
such conflicts, incompetency of
some individuals & also some prima
donnas.

But in ISROHQ it
would be difficult because it had
to be small in size, as ISROHQ
itself ^{was} ~~to~~ small. ~~Also~~

The order was not issued,
~~in the~~ to the best of my knowledge.

(1390)

Also the 'lose' management
of LV projects could not be sustained
any longer after SLV-3. Though VS
was to see LV projects of SLV-3 &
Vikas - BP & optics for me in SLV-3 B⁵.

VS also got sick for substantive period
after which he went to Delhi - CSIR
(promoted to H grade in CSIR HQ
taken by then DA, ~~Shri~~ Sidhu)

Even otherwise SD had
decided to have people from
Centres as I had explained elsewhere.
So Setty, Chandan etc came in.

After 1980-82 stint of Kalam
(he could not integrate with ISRO HQ)
being Spt. Director & Special L/V services being
simultaneously Comp Director of Aeronautics

(139 v)

in VSSC (as Dan & Kump was
for ISREL, & Safety Office in ISRO HQ)

But Dan & Kump opened a brand
new activity for ISRO through J. Raja
& Jinnah from VSSC. Kalam

through A. Sivatham Pillai (ASP). Only
after Kalam's departure he could
be free of him and was in ISRO HQ.

~~He~~ ~~In the~~ K. Radhakrishnan
was brought in ~~to help~~ primarily
to help P. Sudarshan in Budget &

Economic Analysis (at his request)

Later I suggested ~~that~~ to KR that
he ~~is~~ gets some experience in EOS.

KR was ~~with~~ proactive ~~feared~~
(could also be described as ambitious)
I involved him in general overview work
also.

(1392)

SD desires to have an
identifices system in ISRO HQ
with specific persons responsible
for monitoring iters - discuss
within themselves & alert Cham ISRO
only when needed.

In this process TNS AS
& SSVinukthan JS in DOS were
also to be involved. I have pencilled
one name TS Narasimhan. ~~This~~
~~was~~ ~~to~~ ~~be~~ He was the Director in
~~M.F.'s office~~ Member Finance of Space
Commission who chose to sit
in ~~Mumbai~~. He used to have
Bombay

(1393)

an Assistant Officer at Bantay;
it was Mungla who also sat
with him & assisted for Atomic
Energy & Space. ~~Later~~ As all
offices tend to expand, MF
asked for one additional officer
to be placed at Bangalore exclusively
for DOS. Actually work does not
demand it because ~~are~~ only a
few things went to MF. Also it
went after rigorous scrutiny by
an Addl. Secy | Jt Secy of DOS.
But people suffer from
"my man" approach. TNS suggest

(1394)

to SD to oppose it and also that if to be had, let that officer sit with MF. To have him seated at DOS ~~the~~ office itself would cause many operational problems. MF office was ~~not~~ created to have an independent look — a quick oversight.

Anyway SD yielded and had ^{TS, Narasimham} _{or T.R.} as

Director MF office seated in DOS. TNS told me "Sey does not realise what a serious damage it is going to cause to the functioning of DOS on the long run..." "

(1395)

I was not there too long with ISRO / DOS after that. But

~~IS~~ ~~FRAT~~ Narasimhan turned out to be a petty level officer — doing too little work, instead of looking at files he started gossiping with some disgruntled persons in ISRO HQ / DOS and more so in Centres (which he started visiting on the pretext that he was to brief MFD). He starts behaving like ^a low level detective ~~with~~ of the system.

Then he would create some problem in the files using

(1396)

often such irrelevant
extraneous information. TNS
used to give him tough time.
But SD took it as TNS's abrasiveness.
JPS might have added some
fuel to this perhaps "shaking
some deal" with Narasimhan

that he should fast track INSAT
files and might have shown
some carrots of foreign trips
on INSAT related matters!

Narasimhan used to sometimes
come & cry to me about the
troubles created by TNS.

I think TNS was
right as such a single person

(1397)

on behalf of MF, ~~etc~~ using the
office of MF could become
a Super Dept, which was not
envisaged by Commission.

I think future disasters
was perhaps overcome because
~~now~~ a number of MF's who came
later were those (mostly from
Kannataka Cadre) who were
JS and AS in DOS & they get
a cozy posting of MF for
Atomic Energy & later Earth Sciences.
So they became
internalised: which was also not

(1398)

good, as "independence" of
the MF's office "look" on
some of the files might be
coloured — also they may
get beholden to Chairman ISRO/ISRO/ISRO.

‡ Hence I had only
pencilled in T S Narasimhan — as
he should not be as a regular
part of ISRO HQ/DOS monitoring.
SD may perhaps have "utilised"
TSN as a check on TNS, just
as he had JPS as a check
on me & a few other ISRO HQ colleagues.
Creating "fights" which we had to defend!
The draft order will explain
the ~~the~~ whole thing. (1399 —

INDIAN SPACE RESEARCH ORGANISATION

HEADQUARTERS

MEMORANDUM

STRICTLY CONFIDENTIAL

FOR CHAIRMAN'S EYES ONLY

File / Ref:

For : CHAIRMAN, ISRO

(1399)

From : Y S RAJAN, ISRO HQ

Date : January 20, 1983

Subject : Monitoring of ASLV/PSLV/IRS Projects
at ISRO/DOS HQ

Chairman may kindly recall his discussion on the subject with KR and myself.

As desired by Chairman, a draft of the OM to be issued by him to all concerned at HQ as well as Centre Director^s/Project Directors/Chief Executives of System Projects, is placed in FLAG-1. **

The information flow-chart (which was shown to Chairman during the discussion) is placed in FLAG-2. **

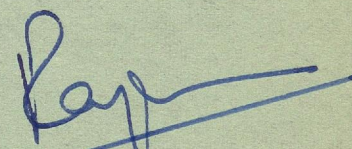
The suggested composition of the team 1 to 5 is given in FLAG-3 for quick look. **

The list of the mandatory reports to be received by Secretary, DOS/Chairman, ISRO is given in FLAG-4 for reference.

Chairman may please decide^{on} the further course of action.

Regards

Encl: as above.


(Y S Rajan)

(1400)

1

MONITORING OF ASLV/PSLV/IRS PROJECT AT ISRO/DOS HQ

Effective monitoring of the large and complex projects such as ASLV/PSLV/IRS calls for systematic flow of information and close interaction between a number of programme offices/focal points of ISRO/DOS, the Projects and Centres/Units of ISRO/DOS. While the Chairman, ISRO/Secretary, DOS receives many reports and reads them, it is necessary to have a systematic study of these and aggregate the information for action. Following arrangements shall be made with immediate effect for processing of reports/minutes relating to the launch vehicle projects and IRS at the ISRO/DOS HQ.

1. Management Information System

A comprehensive information system shall be developed and installed at HQ, which must be capable of servicing the decision-making process at HQ, and must cover adequately the technical, financial, schedule and manpower aspects. Following team is entrusted with the responsibility to develop, install and operate the information system.

..../

(1401)

: 2 :

- 1. Shri K Radhakrishnan
- 1. Shri S Krishnamurthy
- 1. Shri S K Sinha
- 1. Shri E K Kutty
- 1. Shri T S R Sharma

The team shall devise suitable formats for receiving periodic information from the Projects etc and send monthly executive summaries to all the concerned Programme Offices/Focal points of ISRO/DOS HQ and Secretary, DOS/Chairman, ISRO.

2. HQ processing of budget and financial control matters for ASLV/PSLV/IRS Projects will be the ~~responsibility~~ responsibility of Shri P Sudarsan, Director, BEA. He shall take up, process all items needing clearance from Secretary, DOS/Chairman, ISRO in consultation with DOS finance.

3. All technical aspects of these Projects will be monitored by the following teams:

* Inertial Guidance & Electronics Project (IGEP)

P N Jayaraman
K Radhakrishnan

* Liquid Propulsion Project/Auxiliary Propulsion Systems (LPP/APS)

A Chandran

.... /

(1402)

: 3 :

* Solid Motors Project (SMP)

P Sudarsan
Sreenivasa Setty
Nagendra

* Structural Analysis/Test

Sunderaramaiah

* Fabrication of Stages, Heat Shield
Interstages, etc

Sreenivasa Setty
A Sivathanu Pillai

* Vehicle Integration

Sreenivasa Setty
T S R Sharma

* IREX

Sreenivasa Setty
P N Jayaraman
Rajaratnam
S Krishnamurthy

* ISTRAC

P N Jayaraman
T S R Sharma

* MISSION

S K Sinha
T Vishwanathan

* RELIABILITY Q A

J Raja

(1403)

: 4 :

* IRS Project
S Chandrashekar

* Civil Works
R D John
Sreenivasa Setty
T N Seshan
S Krishnamurthy

4. Shri T N Seshan and Shri S S Viswanathan, [?] T.S. Nandan

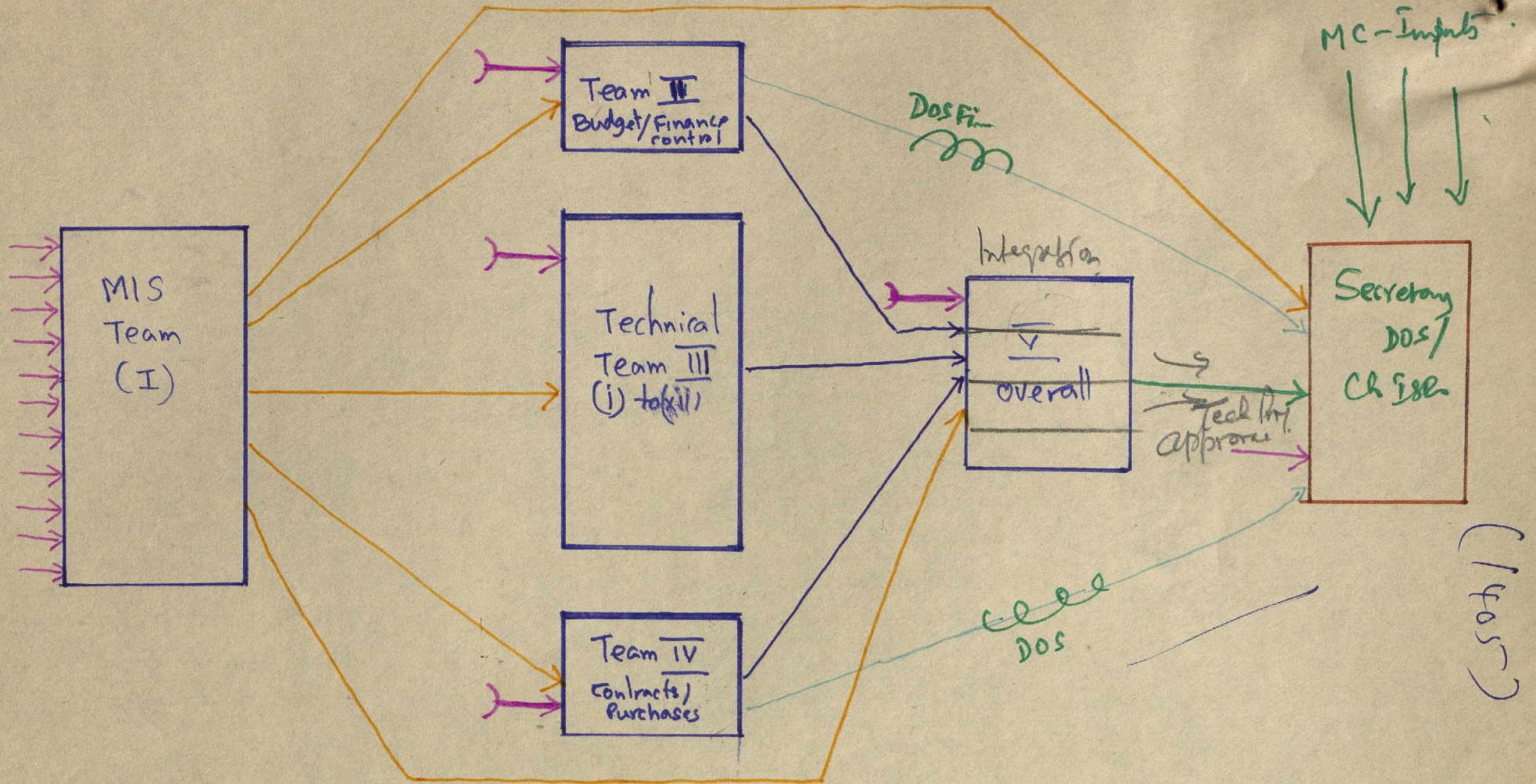
shall be responsible for monitoring the management of all contracts and large purchases.

5. The overall techno-managerial issues related to the ASLV/PSLV/IRS Projects and related activities, including interfaces with the launch vehicle and spacecraft teams shall be monitored by a team consisting of Shri Y S Rajan, Shri T N Seshan and Shri K Radhakrishnan. This team shall receive monthly reports from the team (1) to (4) and present a consolidated report to Secretary, DOS/Chairman, ISRO periodically highlighting major issues/problem areas and suggested corrective actions.

6. In light of the above all reports such as agenda papers of Management Councils/Boards minutes, periodic reports from Projects (ASLV/PSLV/IRS) etc received in Chairman, ISRO/Secretary, DOS' office will be sent to the Control-room in-charge (Shri S Krishnamurthy for the present). Team 1 will utilise these to generate MIS referred to in para 1. Technical/financial/contractual/overview issues resulting from Boards/Councils/periodic/aperiodic reports will be sent with brief overview and background by the Team(s) identified above to team 5 for further processing.

(S Dhawan)
Secretary, DOS/Chairman, ISRO

Distribution



→ Info from PMB/MC etc → MIS reports
 → Critical issues-report → Overall
 ee Formal admin approval.

(1406)

COMPOSITION OF ASLV/PSLV/IRS PROJECT
MONITORING TEAMS AT ISRO/DOS HQ

- Team-1 : MIS
KR / SKM / SK Sinha / EK Kutty / TSR Sharma
- Team-2 : Budget & Finance
PS
- Team-3 : 1) IGEP: PNJ / KR
2) LPP / APSU: AC
3) SMP: PS / S Setty / Nagendra
4) Structural Analysis/Test:
Sundararamaiah
5) Fabrication of Stages, Heat
Shield Interstages, etc
S Setty / A S Pillai
6) Vehicle Integration:
S Setty / TSR Sharma
7) IREX: S Setty / PNJ / Rajaratnam / SKM
8) ISTRAC: PNJ / TSR Sharma
9) MISSION: SK Sinha / T Viswanathan
10) RELIABILITY QA: J Raja
11) IRS Project: S Chandrashekar
12) Civil Works: RD John / S Setty / TNS /
SKM
- Team-4 : TNS / SS Viswanathan
(Contracts
& Purchases)
- Team-5 : Overall: YSR / TNS / KR

(1407)

ROUTINE REPORTS/PAPERS TO BE RECEIVED BY CHAIRMAN ISRO/SECRETARY,
DOS, FROM PROJECT MANAGEMENT BOARD/MANAGEMENT COUNCIL OF
ASLV/PSLV/IRS PROJECTS/SYSTEMS PROJECTS AND RELATED COMMITTEES

A. RELEVANT OFFICE ORDERS/NOTES

- A.1 Constitution of STEX/SPROB augmentation Boards (Jan. 1, 1981)
A.2 Constitution of PMBs for SLV-C/ASLV/PSLV (June 3, 1982)
A.3 Civil Works Progress Committee for PSLV (Sept. 1, 1982)
A.4 Constitution of Management Councils for ASLV/PSLV (Sept. 6, 1982)
A.5 Constitution of Management Council, IRS (Sept. 9, 1982)
A.6 Management of IRS Project (Sept. 10, 1982)
A.7 Management of ASLV Project (Sept. 10, 1982)
A.8 Management of PSLV Project (Sept. 10, 1982)
A.9 DO letter from Chairman, ISRO to Director, SAC reg.
setting up of Thermovac Chamber at SAC for IRS (Oct. 24, 1982)

B. Reports/Papers and Periodicity

Category	Originator	Subject	Periodicity	Concerned HQ Representative
I	Chairman PSLV-MC (VRG)	* Minutes of PSLV Management Council meetings * Unresolved issues	Once in 3 months	TNS & YSR
	Chairman ASLV-MC (VRG)	* Minutes of ASLV Management Council meetings * Unresolved issues	Once in 3 months	PS
	Chairman IRS-MC (VRR)	* Minutes of IRS Management Council meetings * Unresolved issues	Once in 3 months	YSR & Narasimhan

Category	Originator	Subject	Periodicity	Concerned HQ Representative
II	PD/PSLV (Srinivasan)	* Agenda of PMB	Monthly	Setty
		* Minutes of PMB	Monthly	
		* Reports on Physical Progress and expenditure	Monthly	
		* Timely intimation of events which may delay the project	<u>a</u> periodical	
	PD/ASLV (Dev)	* Agenda of PMB	Monthly	ASP
		* Minutes of PMB	Monthly	
		* Reports on Physical Progress and expenditure	Monthly	
		* Timely intimation of events which may delay the project	<u>a</u> periodical	
	PD/IRS (Rangan)	* Agenda of PMB	Monthly	Chandra
		* Minutes of PMB	Monthly	
		* Reports on Physical Progress and expenditure	Monthly	
		* Timely intimation of events which may delay the project	<u>a</u> periodical	
	Chief Executive (SMP MRK)	* Agenda of PMB	Monthly	Setty/PS
		* Minutes of PMB	Monthly	
		* Reports on Physical Progress and expenditure	Monthly	
		* Timely intimation of events which may delay the project	<u>a</u> periodical	
	Chief Executive (LPP, AEM)	* Agenda of PMB	Monthly	SSV & Achandan
		* Minutes of PMB	Monthly	
		* Reports on Physical Progress and expenditure	Monthly	
		* Timely intimation of events which may delay the project	<u>a</u> periodical	

Category	Originator	Subject	Periodicity	Concerned HQ Representative
	Chief Executive (IGEP, SCS)	* Agenda of PMB	Monthly	PNJ/KR
		* Minutes of PMB	Monthly	
		* Reports on Physical Progress and expenditure	Monthly	
		* Timely intimation of events which may delay the project	<u>a</u> periodical	
	Chief Executive (IREX-EXP MRK)	* Agenda of PMB	Monthly	Setty
		* Minutes of PMB	Monthly	
		* Reports on Physical Progress and expenditure	Monthly	
		* Timely intimation of events which may delay the project	<u>a</u> periodical	
	Chief Executive (ISTRAC-EXP MRK)	* Agenda of PMB	Monthly	PNJ
		* Minutes of PMB	Monthly	
		* Reports on Physical Progress and expenditure	Monthly	
		* Timely intimation of events which may delay the project	<u>a</u> periodical	
III	Chief Engineer	* Civil works Progress Renew Committee	Monthly	Setty
IV	Rangan	* Setting-up of Thermovac Chamber at SAC for IRS	Monthly	Chandra
	STEX Aug SPROB Aug		Monthly Monthly	Chandran & PS

(1410)

The details in the order would also illustrate the detailed ~~department~~ management / reporting systems already existing for most of the projects. Those systems were the real strengths of ISRO in managing the R & D work of ISRO's tough technical projects. The persons indicated in ISRO HQ side were not all fully competent ~~and~~ or active. But in the overall all of them were cooperative with each other, by and large. I could also give some "leavening" to them.

(1411)

~~them~~ the interfaces. I don't know whether it was issued as a formal order. SD's method was to get into such details, but often not define ~~it~~ ^{through} an order. But

I recall, de facto, it works in ~~that~~ the way indicated,

Thus the load on me in overseeing ISRO, as Scientific Secy ISRO was largely reduced, even & while

I was getting the info as Secy ISRO and as a good colleague for all of them.

Also, ^{as} I has explained earlier, KSP had evolved a

(1412)

Very good filing system. Sec. Secy ISRO's Office will get copies from most of the offices (except JPS!).

I was well informed. Often my colleagues would call to me, seek my advice on matter which they considered important. So I could concentrate on NNRMS/EOS more.

In that ^{draft} Order, the reporting diagram has a number of handwritings by KR (K. Radhakrishnan)

Some of these experiences & importantly EOS/NNRMS ~~work~~ work helped him towards ^{his} choppy journey ~~to~~ to Chairman ISRO position.

(1413)

This part of 1980's

Thus overall, my papers to Chairman ISRO on details of programme would go down, as could be seen in the papers I have. It would be on other matter.

One such problem relates to a "petty" administrative problem in ISRO HQ. As Secy ISRO I could be accused of violating Govt orders / rules. But if I try to enforce Govt rules, there would be some genuine difficulty & also "hue & cry" by some esp. instigated by JPS. So I put up a note Chairman ISRO - handwritten (follows as 1414 / 1415)